

Almut Ketzer-Nöltge / Nicola Würffel (Eds.)

Textbook 4.0 – From Paper-Based Textbooks with Digital Components to Interactive Teaching and Learning Environments



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For over four decades, textbooks have been enhanced with digital components, and today, it is almost impossible to find a textbook that does not contain any. Does this mean that textbooks have been fully digitalized and that we have reached a point where the integration of digital media into textbooks is the norm? Since there is no clear consensus on what is meant by the digitalization of textbooks, there is no simple answer to this question. This edited volume, therefore, attempts to clarify the respective terminology as a starting point. Through a multi-perspective approach and the joint conceptual considerations of various experts, it then provides insights into the historical processes of the increasing digitalization of textbooks, into evaluations of the current status quo, and into considerations of different and innovative design options for future interactive learning and teaching environments. In doing so, it identifies deficiencies and challenges and offers perspectives for new developments.

The Editors

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Textbook 4.0 – From Paper-Based Textbooks with Digital Components to Interactive Teaching and Learning Environments

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Lars Schmelter, Karin Vogt und Nicola Würffel

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This publication has been reviewed.

Our sincere thanks go to Michael Legutke and Dietmar Rösler, who have managed to be inspiring pioneers of digital foreign language teaching, brilliant publicists, and wise advisors at the same time, thus challenging many of the authors of this edited volume, but above all encouraging them to continue to dedicate themselves to the exciting field of foreign language research and textbook analysis.

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Digital Textbook, Textbook 4.0, or Interactive Teaching and Learning Environment? – Introduction to the Edited Volume

1. On the Genesis of This Volume

In January 2020, the first Round Table on Textbook 4.0 took place at the Herder Institute of the University of Leipzig. The reasons for choosing the title of the Round Table were twofold: Firstly, we wanted to recognize that the textbook – even and especially in its paper form – continues to be a central element in foreign language teaching. Nonetheless, the textbook is in transition, both in terms of its conceptualization and its realization. Therefore, we also borrowed the version number ‘4.0’ from the field of software development to emphasize that new system solutions are and must be considered. In addition, in economic discourse, ‘4.0’ stands for a fundamental process of innovation and transformation in industrial value creation. The guiding principles of this transformation are new forms of doing business and working in a global, digital ecosystem: Today’s rigid and firmly defined value chains are being replaced by flexible, highly dynamic, and globally interconnected value creation networks with new types of cooperation. Data-driven business models put customer benefits and solution orientation in the foreground and replace product centrality as the dominant paradigm of industrial value creation. Availability, transparency, and access to data are key success factors in the networked economy and play a decisive role in defining competitiveness.¹

However, the Round Table was by no means intended to focus primarily on economic changes in the production processes of textbooks, even though these naturally play a key role in their development. Rather, it was offering a place for exchange about innovation and transformation processes in foreign language didactics. The Round Table 2020, meant as the first event of a Think Tank to further the development of (digital) textbooks for foreign language learning, was attended by approximately thirty invited representatives from relevant fields: textbook authors, researchers in teaching and learning media, who might

1 <https://www.plattform-i40.de/IP/Navigation/DE/Industrie40/WasIndustrie40/was-ist-industrie-40.html> [14.04.2024].

also develop prototypes, representatives of textbook publishers and of alternative educational companies, providers of production tools, and students who beforehand had developed visions of Textbook 4.0, which were presented during the Round Table. On two days, participants discussed the future of foreign language textbooks in various working groups. Following this very productive first Round Table on Textbook 4.0, the present edited volume was planned, and the corresponding papers were written. Originally, it was to be made available before the second Round Table, which unfortunately could not be realized. However, this means that the results of the second Round Table, which took place in September 2022, are also included in this publication.

Like the Round Table, the volume deals with developments of foreign language textbooks that can be associated with digitalization: developments that might have been expected – or that continue to be awaited – in light of ongoing digitization (see Section 2. for a distinction between the terms digitalization and digitization); but also, developments that can or should perhaps only be considered at this time. Before presenting the contributions to this volume, a basic problematization of the notion of the digital textbook is needed (Section 2.); this will, unfortunately, lead to a deconstruction of this concept and the proposal (or revisiting) of a more apt terminology. Nonetheless, the term digital textbook will be used frequently in the contributions to this volume as it is deeply embedded in the discourse of publishers and the scientific community. Through this volume, however, we want to contribute to a more differentiated view of the process of digitalization of teaching and learning materials, and of textbooks. Through the process of a multi-perspective view and the joint conceptual considerations of various actors, different and innovative design possibilities for future learning and teaching environments can arise. The papers collected in this volume (Section 3.) include assessments of the status quo and the characteristics of current as well as past (digital) textbooks, point out deficits and challenges, and offer perspectives for new developments.

2. Digital Textbooks – A Deconstruction

Although this volume deals with the influence of increasing digitalization on foreign language textbooks, we have deliberately avoided the term digital textbook by using the title Textbook 4.0. To explain why we consider the term digital textbook problematic, we will first elaborate on what we mean by the term textbook in this volume and then turn our attention to the term digital textbook. We will explain our concerns with the term digital and propose a different terminology for what thus far might have been called digital textbook. We will

finally address the term digitalization, which is central to our volume, and distinguish it from digitization.

For a long time, the term textbook included the coursebook, the workbook, and a teacher's guide, and sometimes also glossaries, grammar booklets, or overhead transparencies. With the development of digital media, the range of textbook-related materials expanded (cf. Würffel in this volume). This made it increasingly difficult to grasp which components a textbook comprised, especially since each publisher organized their components differently. In addition, more and more designations were developed for what publishers included in their offerings and what they wanted to sell. Moreover, the emerging terms were not intended to be clear and common designations, but to consciously distinguish one's product from those of other publishers and to make it more visible to potential customers. Therefore, it does not make sense to be guided (only) by the publishers' terminology when approaching the phenomenon textbook terminologically.

When speaking of digital textbooks, the adjective digital might be used to only describe the form in which the product is presented: it is digital and can be displayed on computers. Thus, for users, the term indicates which technology they need to be able to use the digital textbook. A definition that follows this logic therefore characterizes digital textbooks as purely digital or online-only materials (cf. Wicke 2021: 62). The fact that these kinds of definitions speak of purely digital materials or materials that are only available online indicates that there is a demarcation towards the various mixed forms that are not (allowed to be) considered digital textbooks accordingly. However, these hybrid forms have been around for a long time, since digital components accompanying print textbooks have been available from the 1990s on, even if they were not advertised as such.²

Obviously, for a long time, it did not seem important to focus on the digital nature of the materials, even though digital hardware was needed to listen to, view, or print them. This observation indicates that the appearance and the popularity of the term digital textbook cannot be justified solely by the fact that the textbook comes in a different technical form of presentation (i. e., the

2 Think of the many CD-ROMs and DVDs, which were probably often not even recognized as the new 'digital' components, but simply as a welcome innovation, e. g., as a replacement for audio cassettes. Similarly, worksheets that publishers made available for printing on their websites after the emergence of the internet were not labeled as digital components (for more details cf. Würffel in this volume).

coursebook now exists also as a PDF version of the printed textbook). In our view, the need to create a new term, both among publishers and in the academic discourse, is related to the fact that more profound changes had to be named and made visible. We aim to substantiate this hypothesis via two approaches: By asking ChatGPT for a definition of the term digital textbook and by looking at the research literature.

Firstly, we asked ChatGPT: “What is a digital textbook?”

A digital textbook is an electronic version of a traditional textbook that can be accessed and read on digital devices, such as computers, tablets, or smartphones. Digital textbooks can include multimedia elements, such as videos, audio files, and interactive simulations, that enhance the learning experience. They can also offer features like highlighting, note-taking, and search functionality, which can make studying more efficient and effective. Digital textbooks can be downloaded or accessed online, and they may offer features such as progress tracking, quizzes, and assessments. Many digital textbooks also have social features that allow students to connect with peers and instructors to discuss content and collaborate on projects. Overall, digital textbooks offer a more modern and interactive approach to learning that can be customized to suit individual needs and preferences. (“What is a digital textbook?”, ChatGPT 4.0, 11.08.2023)

As can be seen, the definition by AI describes digital textbooks referring to the following aspects. As discussed above, there is a technical core of making a textbook available via digital devices, and in addition, there are other characteristics that make up the added value of the digital textbook or which must be emphasized in its definition as an added value. In this respect, the definition given sounds, in part, like an advertising brochure from the publishers: The characteristics listed enhance the learning experience, make studying more efficient and effective, offer a more current and interactive approach to learning, and suit individual needs and preferences. In fact, many of these characteristics also apply to non-digital textbooks (paper textbooks can also be marked up) or at least have been part of the textbook for a long time, even when these were not even called digital textbooks. Clearly, the definition given by ChatGPT does not seem very suitable in terms of a scientific definition, it is more like a marketing text of textbook publishers (and these kinds of texts were probably in large part the basis for the AI).

Unfortunately, a look at the research literature reveals that connotative and normative meanings are used here as well when talking about digital textbooks, e. g., the term digital is often associated with specific expectations. Because of its digital format, it is expected to exhibit new or changed characteristics: different learner control, interactivity, greater currentness due to easier revision, etc. Accordingly, Franke and Plötner (2022: 9) ask: “[...] welche digitalen Innovationen sie [die Lehrwerke] übernehmen, wie sie Medien(einsatz)

thematisch und methodisch in ihren Reihen weiterentwickeln”³, making it clear that the digitalization of textbooks is or should be primarily associated with innovation. Based on definitions of digital teaching and learning media (cf. Rösler 2010: 78–79 and 82, Rösler 2012: 52–55) Burkhardt (2022) puts forward:

Ein Lehrwerk kann dann als digitales Lehrwerk bezeichnet werden, wenn

- die Anwendungsform in einem digitalen Medium vollständig stattfinden kann,
- es mindestens den gleichen didaktischen Ansprüchen wie ein Printlehrwerk gerecht wird, also die curricularen Vorgaben so zu didaktisieren, dass mit sinnvoller Progression der Lernprozess erfolgreich gesteuert wird,
- es eine didaktisch-methodische Konzeptgrundlage hat, die den Mehrwert des technischen Formats insofern ausschöpft, als dass ein gewisser Grad an Interaktivität vorhanden ist, der über die bloße digitale Abbildung des Printlehrwerks hinausgeht.⁴ (Burkhardt 2022: 12)

Burkhardt’s definition suggests that (a) the digital textbook is not only defined on a purely technical level in the academic discourse but (b) it is also defined with the help of normative statements and differentiated from its paper counterparts, and (c) there is no agreement on the minimum standards for a digital textbook that conforms to the resonating norm. This is not surprising, since many discussions about digital textbooks deal with didactic-methodological issues that are widely debated. However, these didactic-methodological questions should be discussed in detail and not hidden in a discussion about digital textbooks. And the results should then be applied to every form of textbook – and not pretend that they only concern digital textbooks. To illustrate this with an example: The discussion about interactivity of learning materials is to a considerable extent a discussion about the promotion and support of self-directed learning in general and specifically via feedback. However,

3 (...) which digital innovations do they [textbooks] adopt, how do they develop media (use) thematically and methodologically in their series (Franke / Plötner 2022: 9; transl. authors).

4 “A textbook can be called a digital textbook if the application form can take place completely in a digital medium; it meets at least the same didactic requirements as a printed textbook, i. e., the curricular specifications are didacticized in such a way that the learning process is successfully controlled with meaningful progression; it has a didactic-methodological conceptual basis that exploits the added value of the technical format to the extent that there is a certain degree of interactivity that goes beyond the mere digital reproduction of the print textbook” (Burkhardt 2022: 12; transl. authors).

when discussing feedback, one should not only talk about feedback learners get from the interactive digital courseware, but also about the feedback that they get from the instructor. At the same time, it should be made clear not only how the different material- or system-driven feedback modes can be implemented in diverse ways in the textbook, but also, and more importantly, how all feedback modes can meaningfully complement each other. Instead of discussing aspects of interactivity (as is similarly done with adaptivity, differentiation, individualization, etc.) primarily in the context of the digital textbook, one should discuss more fundamentally how the degree of teaching and learning scenarios in foreign language learning can be increased regarding their interactivity, differentiation, adaptivity, and individualization and how the various actors and contextual conditions can work together.

It has become clear that the term digital is too narrow in its denotative meaning and too vague and imprecise in its connotative meanings to be suitable for scientific discourse: if multiple attributions of meaning and normative ideas resonate in scientific discourse without this being explicitly named by the chosen term, it always remains unclear which form of digital teaching or which problem is being discussed. One could now start looking for a better adjective. However, we advocate for simply abandoning the adjective digital, because (just as in the discussion about Blended Learning, where the central question of whether there is any teaching that does not mix digital and non-digital components anymore was already debated 10 years ago) we claim that digital textbooks – including its many mixed forms – are already ‘the new normal’ and therefore the adjective digital is no longer needed. On this occasion, the terms textbook or even textbook compendium should also be dispensed with, since the unity expressed in them has already dissolved anyway (cf. Rösler 2008, who predicted the end of textbook analysis as early as 2008, because in digital textbooks it is no longer clear what belongs to a textbook and what does not, *ibid.*: 377).

From our point of view, the term learning environment, which was already established in the late 1990s (cf. Würffel in this volume), could replace the terms digital textbook, hybrid textbook, and paper-based textbook. However, this term needs to be supplemented by the perspective of the teachers, since the media programs publishers offer now include applications for learners and teachers alike. And even if the user interfaces and contents available to learners and teachers continue to differ from each other (as was the case with the course book and workbook for learners and the teacher’s manual or annotated course book for teachers), they no longer represent separate entities. Instead, they are now used in a system that links the two accesses, so that adjustments in the one can lead to changes in the other. We therefore propose to speak of an interactive personal

learning and teaching environment.⁵ The special characteristics of individual components of the interactive personal learning and teaching environment could be named in a second step and discussed in terms of their didactic-methodical as well as technical characteristics. All in all, at least the scientific discourse should make more of an effort to use its own, differentiated terminology instead of adopting the terminology of the publishers, which must follow other requirements (i. e., those of a market economy). However, this effort should not only be about the replacement of terms. The use of the term learning and teaching environment could also (finally) lead to opening the discussion about the design of digital textbooks or interconnected media towards the discourse about learning environments taking place in the last 25 years (see also Würffel in this volume):

Mit dem Begriff Lernumgebung wird also signalisiert, dass die Didaktik, die ja eigentlich schon seit über 30 Jahren auf ihre Forderung nach dem Lernerbezug lehrenden Handelns stolz ist, nun auch bei der Bereitstellung von Zugängen zum sprachlichen Material stärker an die Perspektive des Lernens als die des Lehrens denkt. Dies wird besonders deutlich, wenn der Begriff in die konstruktivistische Diskussion eingebettet wird. [...] Lernumgebungen in diesem Sinne müssen reiche Sprachangebote machen, die es den Lernenden ermöglichen, ihre eigenen Lernwege zu gehen.⁶ (Rösler 2010: 80)

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- 5 The term also has the advantage that it works equally well in German and English. We also like the term ‘learnscape’ by Meyer (2012), which is meant to clarify the following: „schulisches Lernen darf nicht auf ein Gerät beschränkt bleiben (‘digital textbook’), vielmehr muss es darum gehen, den Schülern von überall, zu jederzeit und auf möglichst vielen Geräten den Zugriff zu ihrer individuellen, personalisierten Lernwelt (‘learnscape’) zu ermöglichen“ (ibid.: 4); [school learning must not be limited to one device (‘digital textbook’), rather it must be about giving students access to their individual, personalized learning world (‘learnscape’) from anywhere, at any time, and on as many devices as possible] (ibid. 4; transl. authors). However, we believe that it is not necessary to keep creating new terms, but that it helps the coherence of the scientific discourse to hold on to proven terms and to only elaborate on their definitions. Meyer’s (2012) term also has the disadvantage that there is no good corresponding German term. In the other direction, this also applies to the term “Lernwelt”, which Legutke, among others, introduced (Legutke 1999: 129). *Lernwelt* will certainly (re)emerge as a promotional term at the latest when Mixed and Virtual Reality applications make their way into teaching and learning environments.
- 6 “Thus, the term learning environment signals that didactics, which have actually been proud of its demand for the learner centeredness of teaching activities for more than 30 years, now also thinks more about the perspective of learning than that of teaching when providing access to linguistic material. This becomes particularly clear when the term is embedded in the constructivist discussion. [...] Learning environments in this sense must provide rich language opportunities that enable learners to follow their own learning paths” (Rösler 2010: 80; transl. authors).

Even if we argue for dispensing with the term digital textbook, we do not deny that there have been further developments of foreign-language textbooks in the past decades that relate to digitalization in the broadest sense. Here, too, it is worth taking a more differentiated look than is often done in previous publications. To examine the respective processes more closely, we draw on the distinction between digitization and digitalization. It has been stated repeatedly that both terms are easily confused (cf. Brennen / Kreiss 2016: 1), even though they can be differentiated from each other. On the one hand, digitization refers rather undisputedly to taking analog information and transferring it into a digital format (cf. Bloomberg 2018: n. p.). In the context of language textbooks, this was the case when audio or video trails on tapes (like VHS or cassettes) were converted to CDs or DVDs, or when a printed textbook was converted to a PDF document. Thus, Wicke's (2021: 62) definition of the digital textbook (or Burkhardt's first point, *ibid.* 2022: 12, see above) describes the digital textbook as the product of a full digitization process. Würffel in this volume aims at describing this process of digitization of textbooks in more detail.

The term digitalization on the other hand is less straightforward. According to Brennen and Kreiss (2016: 2), digitalization refers to the process in which domains of social life are reorganized in terms of digital communication and media infrastructure. The term stems from economics, where it describes change processes in businesses, including changes in organizational processes and leadership. The extent to which digitalization can be detected in textbooks has not yet been systematically investigated (but will be discussed in Ketzer-Nöltge / Würffel in this volume).

The processes of digitization and digitalization have led to the development of textbooks into interactive personal learning and teaching environments over the past 35 years. However, these interactive personal learning and teaching environments by no means consist of digital elements only, but display very diverse forms. This volume will deal with digital elements (in a narrow sense), but also with non-digital elements and will consider both digitization and digitalization processes.

3. Contributions in This Volume

There is still a lack of research that gives insights into the design and usage of existing teaching and learning environments for foreign language learning and teaching as well as evidence to base further developments on. Moreover, there is a need for dialogue between scientists and practitioners (i. e., teachers or developers of instructional materials) to determine – on the one hand – what is currently (technically) realizable and – on the other hand – what is desirable from a

practical point of view. This edited volume attempts to address these desiderata, by gathering relevant contributions including:

- reviews and analyses of the historical development and the status quo of teaching and learning environments including conclusions for further developments (Part I),
- conceptual thoughts and visions on the further development of interactive personal teaching and learning environments and textbooks as well as empirical studies investigating the integration of current technology, tools, and/or media and exploratory approaches bringing forth concepts and visions for the integration of specific technological advances (Part II), and
- accounts from hands-on projects implementing and evaluating progressive approaches in materials development (Part III).

Part I: Historical Development and Status Quo

The first part of the volume encompasses three papers. *Nicola Würffel* examines the digitization of teaching and learning materials in foreign language teaching (with a special focus on textbooks in Germany) and compares it with the visions of German experts of foreign language didactics and methodology at the end of the 20th century. For the description of the developments, she merges existing research results with those of an expert survey of people in charge at German textbook publishers; and complements this with a snapshot of the current components of German language textbooks. The comparison between the experts' expectations and developments in reality shows that much has been achieved; however, it also makes clear, for example, that the desire for a modular range of teaching materials from which teachers and learners can freely compile their textbook is still (only) a vision.

Almut Ketzer-Nöltge and *Nicola Würffel* analyze how textbooks for German as a Foreign Language have changed since the emergence of digital media. To do so, they first provide models that have emerged in connection with research on the history of Computer-Assisted Language Learning. The authors then present a longitudinal-historical textbook analysis that traces the influence of digitalization on teaching and learning materials. The results make clear that digitalization has, for example, led to diverse changes in the topics covered by textbooks, which are increasingly connected to digitalization, and the inclusion of digital text types and CMC formats in textbooks. In addition, task formats and objectives have changed.

Dietmar Rösler focuses on a specific competence area within language learning and teaching and tracks the development of the intercultural approach in language textbooks and the impact of digital media on this area. The article explores the possibilities of individualization and cooperation of learners across borders and how language assistance systems can help to strengthen these aspects. The text also discusses the potential of digital media to go beyond what traditional textbooks can achieve in terms of recording the target language space and integrating exercises into digital experience contexts. The article ends by outlining a dystopia of foreign language learning as well as a utopia in which the author envisions a highly learner-centered, flexible, and modular learning environment that can respond to the actual needs and wants of every single learner.

Part II: Specific Technologies and Media

The seven papers included in this part each explore a specific technology or media phenomenon either via empirical studies or based on a literature review. Interestingly, most of them conclude that digital literacy is a key competence of teachers and students alike and should therefore also be part of language instruction.

In their study, *Carolyn Blume*, *Lisa Middelanis*, and *Torben Schmidt* investigate the potential benefits of Intelligent Language Tutoring Systems (ILTS) for language learning. Based on the development and research of the initiative Interact4school, they analyze how participating teachers perceive the affordances of a purpose-built ILTS for use in seventh-grade English language teaching classrooms. The analysis reveals how teachers' understanding of differentiation, subject-specific learning processes, and their professional roles mediate their perception and use of an interactive alternative to the traditional workbook. This study contributes to an understanding of how teachers conceptualize and use materials that incorporate machine learning processes in their language learning classrooms.

The study by *Manuela Franke* explores the current application of digital media for homework assignments in lower secondary education, particularly in the context of early foreign language teaching. Via semi-structured lesson observations the study aims to answer the question of how teachers give homework with the support of (digital materials of) French and Spanish textbooks. The results suggest that digitally supported homework assignments can enable a targeted and individualized promotion of independent, self-reliant, and autonomous learning, in combination with an increase of media competence.

The paper by *Selmin Hedemann* and *Yibo Min* explores the use of Augmented Reality (AR) technology in two online German language courses, and how it can enhance foreign language learning. After a review of primary studies to determine the effects of AR on language learning and student motivation, a study on the implementation of a 'Merge Cube' in an online class of German as a Foreign Language is presented. The study explores perspectives from both teachers and learners and examines the impact of AR on motivation, interaction, and acceptance via guided interviews. The results suggest that AR can be a useful tool for language learning, but that future teaching materials and activities should take learners' expectations into account.

Kathleen Plötner focuses on the possibilities of Virtual Reality (VR) settings in digital textbooks for foreign language learning. She draws on questionnaires with future teachers and an analysis of existing VR language learning opportunities to paint a vision of what these settings could look like. The article discusses the benefits and challenges of using VR in language learning and suggests that (future) teachers should have opportunities to experiment with VR to better understand its potential and limitations. The author concludes that Virtual Reality (VR) has the potential to enhance foreign language learning by providing immersive and interactive experiences that can improve motivation, engagement, and language acquisition. However, she also acknowledges that there are challenges to using VR in language learning, such as the cost of equipment and the need for training and support for teachers.

Almut Ketzer-Nöltge, *Caroline Nast*, and *Lisa Höfler* propose two scenarios for using 360° media in the foreign / second language classroom and textbook, with the instructional goal of advancing discourse competence. The authors argue that the specific characteristics of panoramic 360° images, videos, and virtual tours can be used to reveal how meaning is constructed in (audio-)visual media. The paper suggests that the integration of scenarios as described would be much easier if textbooks were modular constructs and did not adhere to a linear structure. The proposed scenarios align with the instructional goals and principles of cultural learning in the context of German as a Foreign or Second Language.

Natallia Baliuk discusses the implementation and potential uses of social networking sites (SNSs) in language learning and how they can be effectively adapted to a new generation of textbooks. The paper makes clear that positive effects of SNS like observation of and participation in genuine situated language use, collaboration on and co-creation of knowledge with others do not follow automatically but rely on the carefully designed implementation of SNSs in new digital textbooks. It also highlights the importance of considering numerous

factors such as the development of necessary digital competencies (e. g., critical media literacy or data protection) when incorporating SNSs into language learning.

Part III: Hands-on Experiences – Developing Progressive Teaching and Learning Materials

This last section includes three short papers reporting on progressive development projects, which offer insights into the challenges and opportunities encountered, present results from user evaluations, and pose implications for Textbook 4.0.

Julia Wolbergs, Michaela Markovic, and Lisa Höfler present *Mitreden im StudentXChange*, an Open Educational Resources (OER) teaching material designed to help German and Chinese high school students prepare for a school exchange. The report discusses challenges and solutions that arose during the development and evaluation of the digital learning materials. In their evaluation survey, the German and Chinese participants report that they enjoyed the collaborative exchange and the joint discussion of the included topics. The authors conclude that the development of materials within a constellation of diverse stakeholders is challenging, and clear communication is required to serve all interests. Nonetheless, they encourage the use of digital open-source textbooks in research and practice.

David Fujisawa discusses the concept of Grammar Building Blocks, which uses the potential of visualizing grammar in language teaching. He includes examples of how visualizing grammar can be used and discusses the limitations that still exist. The paper also presents a preliminary study on the testing and evaluation of the concept of Grammar Building Blocks in the form of a digital teaching tool used in online German lessons. The results show a high rate of approval towards the implementation of the concept and concludes that it has the potential to be a useful addition to conventional teaching material. However, further research is needed to measure its effectiveness and to take variables such as age, language level, teaching and learning tradition, learner type, teaching context, or institution into account.

Antje Rüger describes a textbook-independent Spanish course for adult learners that is designed to be flexible and learner-centered. The course is grounded on discovery-based and task-based learning approaches and uses authentic materials and scaffolding activities to support learners at different language levels. The course aims to provide varied and real-life access to the Spanish-speaking world while considering the thoughts, experiences, and needs of the

course participants. The article also includes examples of learning activities and reflections on the course development and implementation as well as evaluation results. It concludes that the learner-centered and flexible approach of the course may be relevant for the development of personalized and adaptive learning systems. However, the evaluation results also suggest that the self-directed nature of the course and its lack of face-to-face interaction may pose challenges for some learners, and that further research is needed to explore the effectiveness and scalability of the course's approach.

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Part I: Historical Development and Status Quo

Nicola Würffel

From Worksheet Generator to Interactive App: Digital Textbook Components in German Textbooks for German as a Foreign Language from 1980 to 2024

Abstract: The article examines the digitization of teaching and learning materials in foreign language teaching (with a special focus on textbooks in Germany) and compares it with the visions of German foreign language didacticists at the end of the 20th century. The description of the developments combines existing research findings with insights from an expert survey conducted among decision-makers at German textbook publishers. The article complements this with a snapshot of the current components of German language textbooks. The comparison between the experts' expectations and developments shows that much has been achieved; however, it also makes clear that, for example, the desire for a modular range of teaching materials from which teachers and learners can freely compile their textbooks is still (only) a vision.

Keywords: digital media, digital components of textbooks, historiography, digitization, Computer-Assisted Language Learning (CALL)

1. Introduction

Since the emergence of digital media in the second half of the 20th century, its impact on the development of foreign language teaching and learning materials has been the subject of intense debate. At the end of the 20th century, expectations were high that traditional textbooks would be replaced by dynamic learning environments. These environments would no longer be created by publishers alone, but increasingly by teachers and learners together. They were to interact seamlessly with physical learning spaces and foster new realms of interaction with new challenges, demands, and transformative opportunities for communication and collaboration (cf. Legutke 1999).

This paper explores the technological underpinnings of these ambitious visions and examines their implementation over time. To this end, it takes the following approach: After briefly describing the methodology in Section 2., Section 3. outlines the main stages in the digitization of foreign language teaching and learning up to the end of the 20th century, with a particular focus on the changes in educational media brought about by technological progress. These

innovations laid the foundation for experts' expectations of the development of digital teaching and learning media at the end of the 20th century, which are summarized in Section 4. To assess the extent to which these visions have been realized, Section 5. continues the historical overview and describes further developments in the first two decades of the 21st century. Section 6. complements the historical overview with a snapshot of the current components of German language textbooks. Based on this comprehensive background, the expectations of the experts can then be compared in detail with the developments and the current status quo in Section 7.

This study aims to shed light on the digitization of digital media in foreign language teaching and to evaluate the comparison of reality with previous expectations. Another reason for the presentation of the visions of the experts, which they discussed with each other and wrote down more than 20 years ago, is the aim to preserve this fundamental expert history and to make it more visible.

2. Methodological Approach

The technology-driven development of educational digital media can be tracked in different ways. One can focus on the growth of textbook compendia stimulated by technological developments, i. e., look at the process of digitization. And one can use document analysis to find out how important didactic aspects (such as input, design of tasks and exercises, etc.) in textbooks have changed because of digitalization (for the distinction between digitalization and digitization cf. Ketzer-Nöltge / Würffel a in this volume). While Ketzer-Nöltge / Würffel b (in this volume) presents the results of a document analysis of the digitalization of textbooks from the last 35 years, this article traces the digitization process. It shows which components were added when, why, and in which context, how these components are offered, and how cohesion between the components is ensured.

When describing the technology-driven development of teaching and learning materials for foreign language learning, one can rely on various overviews of the history of CALL. Since these overviews usually refer to the entire field of computer-assisted foreign language learning and are most often written from a US-American and university-related perspective (cf. Davies et al. 2013, Fischer 2013, Healey 2016, Otto 2017), existing sources have been supplemented with the results of an interview study with experts from four German publishing houses (Cornelsen, Hueber, Klett, and Westermann): To gain insight into the developments from the perspective of the publishing houses, a questionnaire, containing five questions on the technical development of foreign language

learning textbooks, was sent to GFL representatives.¹ They were asked to either answer these questions themselves or to forward the questionnaire to knowledgeable colleagues.

The information from the expert interviews was included in the historical overview of the technology-driven developments of educational digital media (Sections 3. and 5.). They also form the basis for a summary timeline on the emergence of digital components of foreign language textbooks (Fig. 2 in Section 4.), which will only refer to digital components of German as a Foreign Language textbooks from German publishers.

3. Technology-Driven Development of Educational Digital Media Part I: From the 1970s until 1999

Digital media have been influencing foreign language learning for far longer than many might think. Even though this article and this volume are primarily about the digitalization of textbooks, I would like to go further and describe the technology-driven developments of educational digital media a bit more comprehensively, since the developments in the field of textbooks have often been prepared by these other developments, e. g., in the field of university teaching. In my description, I am primarily guided by the emergence of new technological developments, regardless of the teaching and learning context in which they have occurred.²

As Chapelle (2001: 3) points out, the development of CALL began with many small and distributed projects (primarily in the US) in which individuals on their university's mainframe computers developed language learning materials to support classroom instruction. The real impact, however, came

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- 1 The questions were originally posed in German: (1) Which components were introduced when? CD-ROM, DVD, worksheets for printing, additional interactive exercises audio and video films (on publisher's website), materials for an interactive whiteboard, e-book, apps, digital learning platform(s) – please feel free to add components; (2) Were there components that you wanted to introduce but didn't ('dead ends')? Or were there any that were introduced and then taken out of the program? (3) Which components faced the most resistance – and why? (4) Which development required the most resources (staff, money, etc.)? – and why? (5) Are there any technical components / tools / enhancements that you as publishers thought would have come much sooner? – What and why?
 - 2 I am aware that this can only be a first outline; what I would like to see is a systematic review of the history of digital foreign language teaching and learning (with a special focus on German speaking countries) that would go into far greater detail.

from the first isolated programs for using computers for foreign language learning (e. g., *PLATO*, *Programmed Logic for Automated Teaching Operations*, at the University of Illinois and the *TICCIT project*, *Time-shared Interactive Computer Controlled Information Television*, at the University of Texas and Brigham Young University), which was funded by the U.S. government (cf. Chapelle 2001: 6–7, Davies et al. 2013: 21–22) and started in the early 1960s. Interestingly, some of these first systems (like *PLATO* and *TICCIT*) already followed an approach of self-determined and autonomous learning (cf. Davies et al. 2013: 22) and offered many components that are still considered central to digital teaching and learning media today: ‘tutorials and practice exercises, testing, email, forums, message boards, instant messaging, and multiplayer games’ (Otto 2017: 12). However, most instructor-programmed exercises were text-based grammar drill-and-practice of uncontextualized forms and sentences as well as translations; only a few of them followed a kind of curriculum (like *PLATO*, cf. Healey 2016: 10). On the one hand, this was certainly due to the fact that the existing programs (i. e., the authoring programs, such as *Dasher*, cf. Fischer 2013: 2) were primarily capable of implementing such exercise types, however, these exercise types, which methodically adopted exercise forms from the grammar-translation method and the audio-linguistic method, were still the standard in most textbooks at that time, before the first textbooks that consistently attempted to implement the communicative approach appeared in the mid/late 1970s (cf. Otto 2017: 13).

However, the development and use of digital teaching and learning media at institutions did not become widespread until the appearance of microcomputers in the late 1970s/early 1980s. In the course of the 1980s, many user-friendly work programs developed, including word processing programs (*Word 1.0* was published in 1983 by Microsoft), and in the course of this the first didactic supplementary programs for these, which allowed the automated production of exercise sheets for writing-based texts, for example (such as *LingoFox*, cf. Davies et al. 2013: 28). From the late 1980s/early 1990s, more and more free or affordable authoring programs were developed (like *Dasher* or *Libra*, cf. Fischer 2013: 2), also specifically for teaching foreign languages. Teachers could now create materials directly, in the form of exercises on the computer, but also in the form of printable worksheets for their learners. Building upon this, in the U.S. a market emerged for exercise materials developed by university lecturers, which are then sold through publishers. (e. g., *Apfeldeutsch* by Williams, Davies, and Williams 1981, cf. cited in Davies et al. 2013: 25). In Germany, there was a delay in the development of free authoring programs. However, from the mid-1990s programs such as worksheet generators from the Goethe Institute, German publishers

like Hueber or Langenscheidt (who offered licensed products for developers, often teachers), and ZARB (*Zyburas Arbeitshilfen für LehrerInnen*, first published in 1994) eventually emerged. In addition to pure drill exercises, the first (text-based) simulation programs were developed (such as *London Adventure*, published by the British Council), which enabled a more active involvement of the learners (cf. Healey 2016: 10). Also, in Germany, Langenscheidt publishing house made a first attempt to develop an interactive learning game as early as 1985, but at that time it was not related to a textbook and was not very successful with teachers and learners; it was therefore quickly withdrawn from the program. In addition to text-based simulations, there were also first projects that worked with videos and were distributed on so-called videodiscs. Two examples are *Montevideo* for learners of Spanish, developed at Brigham Young University (cf. Gale 1989), and *A la rencontre de Philippe* for learners of French, developed by the Athena Language Learning Project, 1984 to 1989 (cf. Murray et al. 1989). The *Athena Language Learning Project* is very interesting because it attempted to “create a ‘discovery-rich-environment’ for the students to explore and interact with (cf. Kramsch / Morgenstern / Murray 1985: 31) through the combination of video and natural language processing technologies” (Chapelle 2001: 14). Unfortunately the people in charge had underestimated the effort to build an NLP system and only managed to develop a few prototypes for the many applications they had wanted to create during the project (cf. Felshin 1995: 271, cited in Chapelle 2001: 14).

Other early attempts to use the first applications for artificial intelligence for more communicative foreign language learning resulted in the games like *Juegos Comunicativos* (for learning Spanish, cf. Bassein / Underwood 1985, cited in Davies et al. 2013: 25) and the spy game *Spion* for learning German (cf. Sanders / Sanders 1995, cited in Davies et al. 2013: 25). The wider availability of database systems was also exploited for foreign language learning: In 1987, Rösler and Skiba published their *Datenbank für den Sprachunterricht: Ein Lehrmaterial-Steinbruch für Deutsch als Zweitsprache* [Language Teaching Database: A Quarry of Teaching Materials for German as a Second Language, transl. NW] (Rösler / Skiba 1987). This was the first time that the idea of a modularly structured and freely combinable range of teaching materials was introduced into the professional discussion of foreign language learning in German-speaking countries: a range from which both teachers and learners could freely compile learning materials according to their own needs based on search criteria. Finally, in the 1980s, the first concordance programs such as *Oxford University Press's Micro-Concord* appeared. Their potential as a working tool for self-discovering, self-directed foreign language learning was quickly discovered (cf. Johns 1986) but did not lead

to their becoming part of textbooks, for example (cf. Ketzer-Nöltge / Würffel b in this volume).

A second important technical milestone was the development of the first sound cards. The era of truly interactive digital sound-enhanced CALL software began, a significant step towards learner control, as learners could now operate video and audio material themselves. However, this development did not come into widespread use until the appearance of the first multimedia PCs in the 1990s and better storage media became available, such as CD-ROMs (which were added to German textbooks as sound and film carriers from the second half of the 1990s) and DVDs (which were introduced in most German textbooks much later than in the U.S., from approx. 2000 as a supplement to textbooks). This led, among other things, to the development of video- or film-based language learning programs in the form of soap operas, such as *Destinos* (cf. Otto 2017: 17) or *Redaktion D* of the Goethe Institute (a joint project of Goethe-Institut, Inter Naciones, Deutsche Welle, and Wolters Kluwer, published in 2002 as an online, TV, and radio course, no longer available). The first completely digital language learning programs such as *Rosetta Stone*³ also emerged during this period and were distributed via CD-ROMs. Even though CD-ROMs and DVDs were a standard part of textbooks for many learners for a long time after that, they were not a long-term success for many publishers – many publishers have stopped producing their textbook CD-ROMs and DVDs, with audio and video files being made available via publisher sites (linked to by web codes in the books or accessed via the Augmented app) since around 2010. But it wasn't just the playing of video and audio materials that was made easier; recording was also made possible and programs for speech recognition were developed. However, these never played a role in the textbooks of German publishers – they were found instead in digital language-learning offerings, such as *Rosetta Stone* or *Auralog's Talk to Me* and *Tell Me More* series (cf. Davies et al. 2013: 31).

Probably the most important step was the emergence of the World-Wide Web in the mid-1990s, although at first this was not very interactive, but mainly served to present static information. Even though the use of the internet for communication was still limited to a few tools at that time (e-mail, forums) and the transmission of audio and video was still in poor quality, the internet became an important source of authentic texts of all kinds for foreign language teaching

3 *Rosetta Stone* is one of the longest running digital language learning programs. A separate analysis of the development of this language learning program and its components could be a worthwhile project.

(cf. Fischer 2013: 2). Search engines played an important role, which contributed significantly to the development of the activity of internet research (cf. Ketzer-Nöltge / Würffel b in this volume, Rüschoff / Wolff 1999: 223–228), which soon became very popular even in textbooks. At the end of the 1990s, the concept of e-learning emerged; the first Learning Management Systems (LMS) were developed, both as commercial offerings (such as *Blackboard*) and as open-source developments, such as *Ilias*, *StudIP*, or *Moodle* (for Germany). The German textbook publishers began, mostly around 2000, to build an internet presence; this served not only as a pure advertising site for their textbooks but also for providing further services related to the textbooks (copy templates, exam examples, worksheets, etc.).

Starting in the mid-1990s, too, the first authoring programs for creating interactive, primarily closed-form exercises on the Web, such as *HotPotatoes* (programmed by Arneil / Holmes 1998–2009 at the University of Victoria, Canada; first presented at the *EuroCALL conference*), appeared as freeware or the *WIDA-Software Authoring Suite* (for a description cf. Rüschoff / Wolff 1999: 91–96 and 195–207). These very intuitive programs made it easy for many teachers around the world to develop additional tasks for the textbook on the Web, like multiple-choice, gap-filling, matching, jumbled sentences, crosswords, and short text entry exercises. But it also facilitated publishers to offer interactive exercises to their textbooks on their sites. In many German textbooks, this was limited to a few tasks and exercises that did not reveal a clear structure; only a few offered a more comprehensive range that supported the textbook in a small-step and comprehensible way (like Langenscheidt with the first interactive exercises to the textbook *Passwort Deutsch* from 2001, cf. Rösler 2010). At a similar time, *MUDs* and *MOOS* (multi-user domains and multi-user-domains object oriented) appeared, i. e., more complex game and simulation environments, which, however, were mainly text-based. These included, for example, the web-based role-play mystery games by Heinle and Heinle *Meurtre à Cinet* and *Un Misterio en Toluca* (cf. Otto 2017: 17). With *Active Worlds* emerged the first *MUVE* (Multi-User Virtual Environment) in 1995 which was also used for language learning (cf. Svensson 2003).

4. Visions for the Development of Teaching and Learning Materials at the End of the 20th Century

The *Frühjahrskonferenz zur Erforschung des Fremdsprachenunterrichts* (FJK) [Spring Conference on Research in Foreign Language Teaching, transl. NW] is a conference of recognized German speaking researchers in foreign language

didactics, which had been established in the 1980s. Once a year, invited experts exchange ideas on a current research topic in foreign language didactics, which is determined by the group itself; the contributions of the individual researchers, which are prepared for the conference and revised afterward, are published annually in an edited volume. In 1999, the FJK met on the topic of *Die Erforschung von Lehr- und Lernmaterialien im Kontext des Lehrens und Lernens fremder Sprachen* [Researching Teaching and Learning Materials in the Context of Teaching and Learning Foreign Languages, transl. NW]. Since the demands on the articles of the contributors always require a look into the future development of the conference subject, the volume (Bausch et al. 1999) offers a good impression of the role the conference participants assigned to digital media in the further development of teaching and learning materials in 1999 and which ideas they developed for the textbook of the (near) future.⁴

An important question that occupies the experts is whether textbooks will still exist at all in the future, and if so, for which levels. Summarizing the different positions, it is predicted that the textbook will survive (Königs 1999: 110), but that it will become less important, since

einiges dafür [spricht], dass durch die zunehmende Einbeziehung lehrwerkunabhängiger sowie 'alternativer' Lehr- und Lernmaterialien und innovativer Lernumgebungen insbesondere durch den Einsatz neuer Technologien im Unterricht der derzeit noch recht hohe Stellenwert des Lehrwerks zukünftig reduziert wird.⁵ (Gnutzmann 1999: 72)

Rösler assumes that textbooks will only be needed up to the B1 level in the future; but that they will follow other construction mechanisms. He is not alone in his thoughts on the future organization of the production of textbooks, the role of different stakeholders and their responsibilities, and the question of quality control (Rösler 1999: 192–194). Edmonson, Meißner, and Legutke also make suggestions in this regard. Edmonson envisions that teaching and learning materials could be made available in the future through central networking centers

4 Of course, exciting visions of the future of computer-based learning were being sketched in many other places around the world at this time (see, e. g., Warschauer / Healey 1998. For future directions ten years later see part 16 in volume IV of Hubbard 2009). It would be an interesting project to systematically review these visions and compare them with the status quo 25 years later.

5 "There is some evidence to suggest that the increasing inclusion of textbook-independent as well as 'alternative' teaching and learning materials and innovative learning environments, especially using new technologies in teaching, will reduce the currently high significance of the textbook in the future" (Gnutzmann 1999: 72; transl. NW).

(Edmondson 1999: 56–57): New teaching and learning materials (texts, didactic suggestions for use, and references to further materials) would be submitted to these networking centers; a clearance office would check them and make them available on the internet for all interested persons. Teachers can thus copy and compile their own teaching materials or textbooks from the internet. Each school or teacher creates their own database. Schools provide insight into their teaching material database and thus make it accessible from the outside. Teachers present their databases, for example, as part of an application:

Eine Zugänglichkeit zu den ‘besten’ Lehrmaterialien auf dem Markt sowie eine bestimmte Freiheit (bis zu unterschiedlichen Graden in unterschiedlichen Kontexten) bei der Verwendung oder ‘Zusammenstellung’ dieser Lernmaterialien [wird] mit einer Verantwortlichkeit für die hierdurch erreichten Ergebnisse verbunden.⁶ (Edmondson 1999: 57)

Meißner (1999: 151–152) focuses on the implementation of open interfaces: Electronic architecture, hypertext technology, web browsing, and concordancing technology allow the traditional boundaries between textbook and the target learning context to become more permeable. For him, it is conceivable that there will be a hard copy stock with a minimal grammatical and lexical curriculum supplemented by electronic elements, as well as with numerous interfaces for the use of open learning:

Geschaffen werden reiche Lernumgebungen, in denen die Lernenden je nach Bedarf ihre Progression gestalten können. Gelernt wird anhand von Texten, die nach inhaltlichen Gesichtspunkten ausgewählt werden und nicht nach grammatischen Progressionsgesichtspunkten. Gearbeitet wird mit Sprachbeispielen, die ad hoc mit Konkordanzprogrammen erstellt werden.⁷ (Meißner 1999: 152)

Legutke focuses on the consequences of such rich learning environments for teachers: He envisions that in the future there will be a much wider range of learning environments made for learning foreign languages, as well as those not made for learning but used by learners for that purpose. These offerings,

6 “An accessibility to the ‘best’ instructional materials on the market, as well as a certain freedom (to varying degrees in different contexts) in the use or ‘compilation’ of these learning materials [is] associated with an accountability for the results achieved through this” (Edmondson 1999: 57; transl. NW).

7 “Rich learning environments are created in which learners can design their progression as needed. Learning is based on texts selected for content rather than grammatical progression. Work is done with language examples that are created ad hoc with concordance programs” (Meißner 1999: 152; transl. NW).

provided by the internet, will result in teachers and textbooks losing the monopoly on providing texts for teaching and learning processes that they had in the past for foreign language learning outside the target language space. Learners, however, not only gain access to more numerous texts but can also edit them – and thus create learning environments for other learners. Teachers can expand, update, or completely replace textbooks, especially to adapt the learning material for their specific learning group. However, Legutke does not yet see how the complexity of such internet learning environments can be managed by a team (Legutke 1999: 129–135). Rösler, too, emphasizes the potentials that texts which were not written for didactic purposes, could have for institutional learning: In his opinion, the internet with its simultaneous structure of centralization and decentralization could redirect “die endlosen Parallelentwicklungen engagierter Lehrender aus der Papierzeit in ein koordiniertes Geben und Nehmen.”⁸ (Rösler 1999: 191). There could finally be a systematic integration of texts not intentionally written for learning processes into learning; a variety of materials and supplementary materials, of national, regional, and otherwise defined group-specific adaptations and variations could be developed, made available to all, and thus enable reciprocal use of materials. The systematic collections could also include supplementary materials to a particular textbook. From his point of view, quality control of these materials is the greatest challenge. He thinks it is important that there should continue to be professional production of textbooks; however, this should be accompanied and supported by collaborative ways of working. He can therefore imagine a model of a start-up center and decentralized producers, who create a

gemeinsamen, sich kontinuierlich erweiterbaren Pool [von dem sich] auf verschiedenen Progressionsstufen unterschiedliche Verarbeitungen bestimmter Themen und Redeanlässe, in unterschiedlichen Textsorten dokumentiert, mit Bezügen zu unterschiedlichen sozialen, geographischen, kulturellen Hintergründen ausgestattet, mit unterschiedlichen Unterrichtsaktivitäten verbunden usw., abrufen [lassen].⁹ (Rösler 1999: 193)

8 “The internet with its simultaneous structure of centralization and decentralization could redirect the endless parallel developments of dedicated teachers from the paper era into a coordinated give-and-take” (Rösler 1999: 191; transl. NW).

9 “A common, continuously expandable pool, from which at different levels of progression, different elaborations of certain topics and occasions for speech, documented in different types of texts, equipped with references to different social, geographical, cultural backgrounds, connected with different teaching activities, etc., can be retrieved” (Rösler 1999: 193; transl. NW).

The summary shows that many of the conference participants suspected a fundamental restructuring of the provision of teaching and learning materials through the possibilities of digital media. The outlined restructuring mainly concerned authorship, control, and rights allocation as well as the organization of the delivery and quality control of the teaching and learning materials of the future. Surprisingly, there are no considerations of content-related, but also only limited didactic or design-related changes to the textbooks. A look at the further technical-driven development as well as a look at the current textbooks of 2024 show that very few of the visions of the future from 1999 have become a reality.

5. Technology-Driven Development of Educational Media Part II: From 2000 until Now

From the mid-2000s, the market for Interactive Whiteboards (IWB) developed in Germany. This was one reason why the first so-called digital textbooks from German publishers began to appear on the market in 2004: For some of their textbooks, the publishers released the course book as an e-book. For this purpose, the paper course books were converted into a PDF version that largely followed the book metaphor and, for example, allowed for page turning (cf. Funk / Kuhn 2020: 237). These PDFs could be viewed on the IWB, and audio and video materials could be played directly from the PDF. Additional materials for IWB followed from around 2005. In addition, German publishers also issued the first e-books, which were aimed primarily at self-directed learners; however, these initially experienced little demand.

Apps were developed by German publishers from around 2010 (and integrated into teaching packages or made available as a free or paid supplement to paper textbooks): Starting in 2010, the first vocabulary learning apps were offered (in some cases also as licensed products, such as *Phase 6* by Langenscheidt). From 2015, apps followed with which learners could freely access audio and video materials that were part of the textbooks – this development in Germany was also driven by the increased arrival of refugees in 2015, who, with the help of their cell phones and the app, obtained quick, free access to audio and video materials, but also solutions or vocabulary exercises for the textbook. Quiz apps were offered by German publishers from around 2019.

A significant milestone in the history of digital textbooks is the appearance of the so-called Digital Teaching Packs, which German publishers began offering around 2012. These digital teaching packages continued to include PDFs of the coursebook and workbook but were designed to be much more dynamic and interactive with the addition of various editing tools and interactive exercises.

The digital teaching packages also included many other components of a textbook in digital form (Table 1 in 5.). They were first developed for the U.S. market and only later for the German market. Their development was exceedingly complex and expensive for publishers and therefore risky, especially as questions of distribution arose. Starting around 2013, German publishers began working with digital learning platform providers, such as *BlinkLearning*, to distribute their digital teaching packs. Currently, more and more German publishers are entering the market with their own LMS (*Hueber Interaktiv*, *Klett allango* etc.) but also offer the possibility to integrate their digital products into any other learning platform.¹⁰ LMS have also made it possible to document learner progress and thus provide a basis for assessing learners. However, these possibilities are currently being used more on the U.S. market and less in Germany, which certainly also has to do with the stricter German legislation around data protection. This makes the collection and evaluation of learner data much more difficult.

From the mid-2000s onward, Web 2.0 developed, the participatory network in which social interaction is largely featured and which provides the technical infrastructure for this social interaction. Web 2.0 strongly influenced the development of teaching and learning media outside of instructional learning contexts:

A number of unstructured online activities, including public forums, fan fiction, social media sites and massively multiplayer games, have been found to be valuable language learning opportunities or what Thorne (2010) calls ‘intercultural communication in the wild’ (ibid.: 144). Mobile devices play a prominent role in facilitating these unstructured activities as well. Researchers have begun to explore how students interact in such environments, construct new identities, and learn language and culture through these experiences (Hanna / DeNooy 2009, Klimanova / Dembovskaia 2013, Lomicka / Lord 2009, Mc Bride 2009, Thorne 2008). (Otto 2017: 20)

However, Web 2.0 led to few discernible developments in the textbooks of German publishers. One exception is Bea Kretschmar (Fig. 1), the first textbook figure in Germany, who got her own *Facebook* account (meanwhile also *Instagram*) in 2011 (Dengler 2011). From then on, learners could follow Bea Kretschmar (who was backed by editors from the Klett publishing house) on *Facebook*, participate in her (fictional) activities, and get in touch with her.

10 To enable a single sign-in process, many German publishers of educational media support the <https://info.bildungslogin.de/> [14.04.2024] platform.

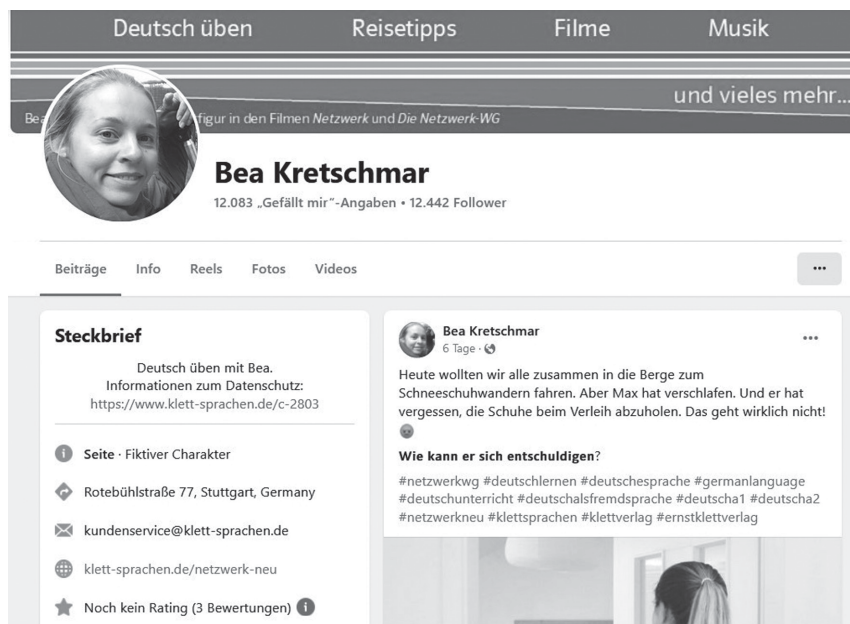


Figure 1: <https://www.facebook.com/beakretschmar/> [14.04.2024].

Interestingly, Bea Kretschmar has remained one of the rare exceptions in Germany, which may also be because there are now far too many real competitors who offer the sharing of their everyday life as a language learning opportunity on social media and exchange information about it with German learners from all over the world (offers like *Learn German with Videos*).¹¹

Figure 2 once again summarizes important technical development stages regarding the addition of new digital textbook components from German textbook publishers on a timeline.

11 https://www.instagram.com/learn_german_with_videos/?hl=de [14.04.2024]

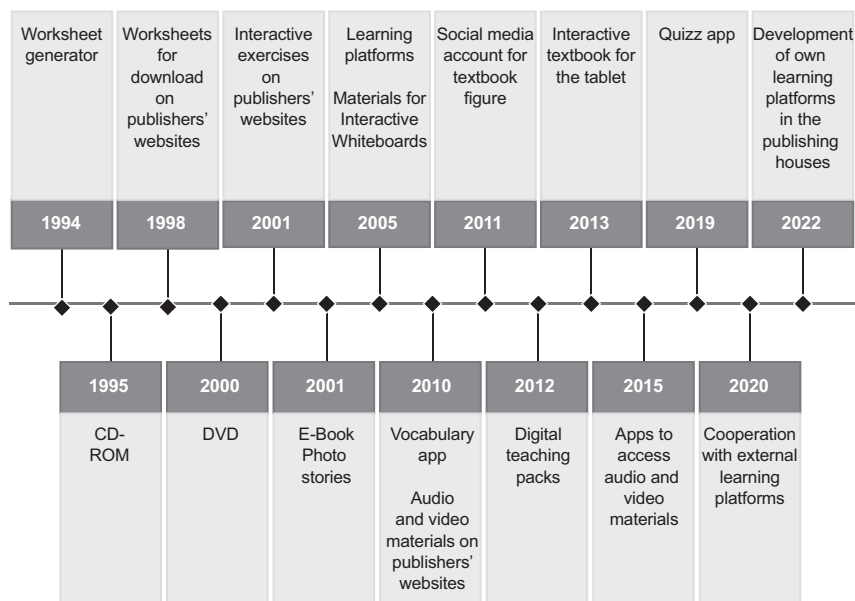


Figure 2: Development of digital components of German as a Foreign Language textbooks from German publishers.

5.1 Digital Textbooks 2024

Even though most of the components of current textbooks for foreign language learning produced in Germany has already been mentioned in the description of the history of the digitization of textbooks in Sections 3. and 5., this section summarizes the scope of current textbooks once again: It will describe the current state of the art in an easily accessible form, on the one hand to shorten the exhausting search process on publishers' websites, and on the other hand to counter the often vague or only inadequate descriptions of what constitutes textbooks, with a more exact description.¹² The section will start with a description of the current digital or non-digital delivery forms and then provide an overview of the digital components of hybrid or digital textbooks German publishers currently offer.

¹² There are only a few such detailed overviews, for an example cf. Dringó-Horváth 2015: 33 and 35–36.

Feedback from publishing house employees at the Round Tables on Textbook 4.0 which took place at the Herder Institute at the University of Leipzig in January 2020 and September 2022, confirms that the central components of the textbook, i. e., the course book and workbook, continue to be sold primarily as hard copies not just in German-speaking countries, but also worldwide. A historical look at the digitization of the textbook has shown, however, that a broad range of additional digital offerings has long since emerged around these paper textbooks. The paper textbook and workbook and the associated digital supplementary components were sold individually for a long time, but the publishers have also started to offer media bundles which consist of the printed book and the matching or supplementary digital edition with LMS.

The digital teaching packages usually bundle many of the publishers' digital offerings and make them available to customers as a complete package. For a compact overview of the status quo, it is helpful to describe the range of digital teaching packages. The following components exist (though not all digital teaching packages include everything): Digital coursebook and workbook, digital video packages, additional materials (like audios, videos, transcripts, solutions, vocabulary cards and word lists, lesson tests, worksheets for printout, PowerPoint presentations, and additional assessments) whose content can be accessed via links or web codes in the coursebook and workbook or which are provided separately, digital lesson planner for teachers, teachers' guide, apps for training vocabulary, grammar, speaking skills, exam questions, etc. In addition, most publishers offer further materials such as solution sheets or word lists for free download on their website. The components of the digital teaching packages can be used in different ways: They can be used partly on end devices such as tablets and partly via the publisher's own apps. Some can be used via LMS with which the respective publisher cooperates or which they have established themselves; some publishers also offer packages that can be used in other LMS, such as school-specific learning platforms. The LMS mostly offer additional functions like digital classrooms, interactive exercises with automatic evaluation and/or a learning level indicator. The following overview was developed based on an evaluation of digital teaching packages and digital textbooks for German as a Foreign Language of German publishers:

Table 1: Components of current digital teaching packages of German publishers.

Component (media or tool)	Subcomponent
Digital Coursebook and Workbook ¹³	Interactive PDF (with links or web codes to/for audios, videos, transcripts, solutions) Integrated audio and video files Grammar clips Additional interactive exercises on pronunciation, vocabulary, grammar, and communication Animated picture stories Interactive games Integrated tools (marker, comment, magnifier, full screen, note, text field, pen, shapes, audio recording, video recording, page navigation, etc.)
Digital video packages	
Additional digital materials (for teachers and learners)	Audios, videos, transcripts, solutions, vocabulary cards and word lists (lesson vocabulary), lesson tests, worksheets (for printout), presentations, and additional assessments
Digital lesson planner for teachers ¹⁴	
Teacher's guide ¹⁵	
Applications (Apps) ¹⁶	Application for managing and using licensed digital products (coursebook and workbook, additional material, trainers for vocabulary, grammar, speaking skills, etc.)
Learning-Management-System ¹⁷	Digital classroom (create course rooms, send homework, manage grades, etc.) View grades and save performance on interactive exercises (student version); view learner and class performance (teacher version) Interactive exercises (editable in the system, automatic evaluation)
Download from the publisher's website ¹⁸	Additional materials (free of cost)

13 Example: <https://www.hueber.de/momente/testen?tabid844058=1> [14.04.2024]

14 Example: <https://shop.hueber.de/de/e-vielfalt-b2-1-dup-978-3-19-081037-6.html> [14.04.2024]

15 Example: <https://www.klett-sprachen.de/digitales/digitale-ausgaben-und-unterrichtsssoftware/unterrichtssoftware/digitale-unterrichtshandreichungen/c-3895> [14.04.2024]

16 Example: <https://www.hueber.de/einfach-digital/media-appor> <https://www.cornelsen.de/digital/chatclass> [14.04.2024]

17 Example: <https://www.klett-sprachen.de/digitales/c-4499> [14.04.2024]

18 Example: https://www.hueber.de/menschen/lehren/download?kategorie=Download%20w%C3%A4hlen%C2%A0%E2%80%A6&kategorie_1=audio&band=a1&band_1=a1 [14.04.2024]

In addition to listing the various components that digital teaching packages offer, they can still be described in terms of their various functions by summarizing the control elements available, the editing tools, and the interactive elements.

Table 2: Summary of the functions of digital textbook offerings (adapted from Burkhardt 2022: 15).¹⁹

Control Elements	Editing Tools	Interactive Elements
Digital Version of the textbook		
Search function Zoom function Page navigation (clickable) Bookmarks Linking audio/videos and other learning materials Show/hide content or own edits	Marker Pen/eraser Notes Snipping tool for cutting out text or image elements Inserting text field Taking notes Inserting or linking own materials	Interactive exercises with automatic feedback Links to online placement tests (some of which match the textbooks) Sharing textbook pages
Additional features for teachers		
Show/hide content for learners individually Learner administration with a display of results and learning levels Tools for classroom management (a timer, group organization, noise-traffic-light, etc.)	Cover function for specific content for presentation in the course	Learning assessment Differentiation/support materials

5.2 How Much Vision Has Become a Reality?

At the end of the 20th century, based on the groundbreaking developments in digital media from around 1960 to the 1990s, visions emerged that predicted far-reaching changes (also) in the area of textbooks. From 2000 onwards, further far-reaching developments occurred and as a result the world of textbooks

19 The functional overview is based on an analysis of the current offerings of foreign language textbooks from the four German publishers Cornelsen, Klett, Westermann, and Hueber.

also developed further – but by no means to the extent and at the speed that the experts had imagined at the time.

The historical review has shown in how many ways technological developments have created new or different possibilities for the teaching and learning of foreign languages and how they have influenced teaching and learning materials over the past 45 years. Firstly, textbooks have become more diverse as they have been supplemented by numerous digital components. These partly offer possibilities that also existed before in non-digital form (sometimes with the same functionalities, sometimes with others, sometimes with less); in some cases, however, they also open new possibilities. Secondly, textbooks have changed their form; today they exist as media compilations consisting of paper books and additional digital components or as completely digitally accessible versions. Thirdly, textbooks are characterized by a higher degree of interactivity combined with greater learner control. What has not changed, however, is the importance of textbooks for foreign language teaching. The central importance of textbooks for all levels has not decreased: Not only are textbooks for lower language levels produced but also textbooks for higher language levels continue to sell well.

If one thinks back to the visions of the experts in 1999, one can formulate the following results or assumptions about the current state of textbooks:

(1) Textbooks are still not permeable entities.

Textbooks are sold in the form of digital teaching packages as complete entities that are supposed to cover all the needs of teachers and learners. The principle of a hard copy stock (Meißner 1999: 151), which can then be individually supplemented by teachers with the help of materials available on the internet, can of course be implemented by each teacher in a self-directed manner. However, it has not established itself as a separate sales model.

A vision remains the idea of a quarry, the pool of materials that can be compiled by teachers for their specific learners with the help of search criteria according to language level, group composition, learning goals, learner interests, etc. (Rösler 1999: 193). This vision perhaps most strongly illustrates the incompatibility of the wishes of didacticists and teachers and the economic constraints of publishers.

(2) Textbooks do not systematically incorporate teaching and learning materials produced by teachers (or even learners).

Publishers have continuously added components to their textbooks. However, teaching materials from teachers do not play a role in this

network – the publishers are apparently not interested in forming collaborative forms of cooperation with teachers that lead to the joint development of textbooks (beyond the involvement of teachers as authors of textbooks, which of course has existed for a very long time). Attempts to give more meaning to teacher-produced materials by making them available free of charge (for example as Open Educational Resources) on central platforms have not gained widespread acceptance, although solutions for this exist (for Germany, e. g., *Zentrale für Unterrichtsmedien im Internet*, *LearningApps* or *OER.Schule*). This is also because no viable solutions have yet been found for quality control of the materials, but also since there are no complex database systems behind them that enable targeted and quick retrieval of materials suitable for one's context. Thus, while there are certainly exchange platforms, there is no central clearing house as Edmonson envisioned (Edmonson 1999: 56). Both would be feasible, but only if sufficient financial resources were made available.

- (3) There has been no fundamental restructuring of the provision of teaching and learning materials through the possibilities of digital media. Fundamental changes in the aspects of authorship, control, and rights allocation as well as the organization of the delivery and quality control of the teaching and learning materials are only recognizable regarding the organization of delivery since all textbook components are now also made available digitally.

Within the scope of this article, it cannot be discussed more intensively whether the visions of the experts are desirable at all – this should be discussed at one of the next Round Tables. But if one assumes that the visions of greater flexibility, openness, adaptability, and collaborative design are still desirable goals and that one would welcome a transition from textbooks to interactive personal learning and teaching environments, then it might be helpful to think back to one of the hopes of Legutke, who in 1999 had already mentioned a highly significant reason that might be hindering the development of textbooks (the hope at that time was that this reason could be overcome):

Weil das Internet lernintentionale und nicht-lernintentionale Lernumgebungen (Textensembles) in den wichtigsten europäischen Standardsprachen in großer Zahl zur Verfügung stellt, haben die Lehrkraft und das Lehrwerk das Monopol,

Texte für Lehr- Lernprozesse bereitzustellen, das sie in der Vergangenheit beim Fremdsprachenlernen außerhalb des zielsprachigen Raums de facto hatten, verloren.²⁰ (Legutke 1999: 129)

Unfortunately, the past mentioned here continues. The textbook has changed and expanded greatly, but it has not lost its essentially monolithic shape, its focus is on the teacher as the one who holds all the strings and controls what happens in class with the help of the textbook. Centralized structures continue to be a very important basic principle of foreign language teaching. Unfortunately, it does not look like this is going to change anytime soon.

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20 “Since the internet has made available many learning environments (texts ensembles) in the main European languages, whether or not they are specifically designed for learning, the teacher and the textbook have lost the monopoly on providing texts for the teaching-learning process which they had de facto in the past in foreign language learning outside the target language context” (Legutke 1999: 129; transl. NW).

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The Digitalization of Language Textbooks: An Analysis of Textbooks for German as a Foreign Language from 1990 until Today

Abstract: This paper presents an analysis of how digitalization has affected textbooks for German as a Foreign Language since the 1990s. The primary research question is: To what extent have digital media and digitalization altered the content, tasks, and exercises? The paper first provides a brief critical review of existing models outlining the historical phases of Computer-Assisted Language Learning (CALL) and supplies a framework of reference for more detailed analyses (Bax 2003). The authors then examine the process of digitalization of textbooks in detail, tracing its influence on various didactic areas: The study first delves into changes in the content (i. e., the input provided to learners) and secondly, into changes to tasks and exercises. Findings reveal that digitalization has resulted in significant changes to the topics featured in textbooks, incorporating various digital text types and computer-mediated communication formats. Tasks and objectives also underwent a transformation. However, on the level of a didacticization of digitalization, textbooks still show clear potential for improvement.

Keywords: longitudinal-historical textbook analysis, digitalization, digital textbook, historiography, German as a Foreign Language (GFL), Computer-Assisted Language Learning (CALL)

1. Introduction

The question of how and when global digitalization¹ has influenced the didactic development of textbooks for foreign languages has been a debated issue in the field. Thus, some overarching models describe the developments in the field of digitalized foreign language learning but only based on rough categories or phases (among others Warschauer / Healey 1998); in addition, there are brief outlines (e. g., Funk / Kuhn 2020) as well as more detailed analyses of individual

1 While digitization refers to the conversion of analog information into digital formats, the term digitalization more broadly encompasses societal changes, e. g., in communication and infrastructure. For a more detailed discussion of the distinction between digitalization and digitization see Ketzer-Nöltge and Würffel (in this volume: 16).

aspects, especially of the digitization of textbooks (among others Franke / Plötner 2022, Marx 2019, Würffel in this volume).

What is missing so far is a process-oriented analysis that traces the influence of digitalization on teaching and learning materials in a detailed and diachronic manner and which examines the process of digitalization with a focus on the various didactic areas that play a role in the design of textbooks. We have therefore conducted a study in which we carried out a longitudinal-historical textbook analysis (cf. Korell 2024: 68) of textbooks for German as a Foreign Language (GFL). Our corpus includes textbooks published on the German market starting with editions from 1990, to trace complex changes that have resulted from the digitalization of teaching and learning materials in textbooks.

Even though a retrospective of approximately 35 years may appear to be a short period for historical research, the classification of the study as historical research is justified by the rapid pace of development that digitalization as a whole has seen: In many areas, serious technical developments have taken place at high speed and have led to broad social, societal, cultural, and economic changes. It is frequently claimed that digitalization has brought about paramount changes that can only be compared with the historical impact of the introduction of the letterpress (cf., e. g., Krieger 2022).

In Section 2., we present a brief critical review of existing models of phases in the historical development of Computer-Assisted Language Learning (CALL). While these models require further expansion via more detailed analyses, they provide a frame of reference in which we want to place our findings. We subsequently introduce the research design of our study in Section 3. and then share our findings in Sections 4. and 5. Because of the complexity of a historical reappraisal of the digitalization of GFL textbooks, we can merely provide an initial exploration of the field within this article. In presenting the results, we limit ourselves to two important research questions: Firstly, to what extent have digital media and digitalization impacted the content included in textbooks (4)? This involves examining how these topics are incorporated into textbooks (4.1), the types of digital text and communication formats that are integrated (4.2 and 4.3), how they are identified as being part of the digital realm (4.4), and whether they exhibit linguistic features characteristic of their respective text types or communication formats (4.5). Secondly, we examine how tasks and exercises in textbooks have been affected by digitalization, and to what extent. This investigation includes analyzing the extent to which changes in the content have led to changes in tasks (5.1), the degree to which tasks instruct and train specific characteristics of digital text types (5.2), whether tasks promote the use of digital tools (5.3), and if they prompt authentic online communication with L1-speakers (5.4). These

aspects will be discussed on the one hand with an eye on the historical development and on the other hand with a focus on specific, representative instances. In the discussion of our results we will elaborate on the individual focal points and, in doing so, directly relate previous findings from the research literature and the results of our explorative study to each other. In Section 6., we summarize the findings of the article in the form of a conclusion.

There are many aspects of digitalization in textbooks that we cannot discuss in this paper even though they were part of our analysis. This is due to the multitude of possible approaches to the analysis of the digitalization of textbooks and included, for example, the training of comprehensive skills such as media literacy or learning strategies (i. e., using digital resources for learning or comprehension). These aspects should be discussed in further publications. Moreover, the aspects of digitalization we did focus on are – by all means – not embedded in a comprehensive discussion of relevant publications. Due to extensive discussions in the respective academic fields (e. g., of the distinctive features of digital text types), it was necessary to limit our references to focus on our findings. Also, the development of the textbook compendium and the (digital) materials included could not be discussed here. An analysis of these including references from a survey with textbook publishers can be found in Würffel (in this volume).

2. Models of Historical Phases of CALL

For a first orientation concerning the influence of global digitalization on the didactic development of textbooks, it is worth looking at models that have emerged in connection with research on CALL. These models try to identify and name phases of computer-assisted teaching and can also be related to the development of digital teaching and learning materials. The first model was developed by Warschauer and Healey (1998: 57–58). It covers the phase of Behaviorist CALL (or in later publications Structural CALL, cf. Warschauer 2009) until the 1980s, Communicative CALL in the 1980s and 1990s, and finally Integrative CALL from the early 2000s. Bax (2003) criticizes this phase model with regard to the time specifications (which shifted backward in all three phases in the course of the authors' different publications, *ibid.*: 15), but especially with regard to the terminology oriented towards learning theories and macro-methods.

Bax also suggests a tripartite model but deliberately does not claim temporal phases. Instead, he speaks of approaches: Restricted CALL, Open CALL, and Integrated CALL. These are described in terms of type of task, type of student activity, type of feedback, teachers' roles and attitudes, position in curriculum, position in lesson, and physical position of computer (Bax 2003: 20–22). The

approach of Restricted CALL is similar to the earlier Behaviorist CALL described by Warschauer and Healey (1998). However, Bax finds the term Restricted CALL more suitable as it encompasses not only the underlying theory of learning but also the actual software, activity types, teachers' roles, and feedback given to students. While these dimensions were relatively restricted during this phase, not all aspects were strictly behaviorist. This approach is characterized by limited teacher involvement, closed-response feedback, and constrained software and activity options. The second approach, termed Open CALL, exhibits greater openness across various dimensions compared to Restricted CALL. In this approach, there is more flexibility in terms of feedback given to students, software types, and the teacher's role. While not completely open, this approach distinguishes itself from Restricted CALL by its relative openness in these dimensions. Unlike the formulation of Integrative CALL by Warschauer and Healey, Bax introduces the concept of Integrated CALL as a future-oriented aim rather than an existing phase (*ibid.*). Integrated CALL does not yet significantly exist but represents the desired direction for the development of CALL:

This concept is relevant to any kind of technological innovation and refers to the stage when the technology becomes invisible, embedded in everyday practice and hence 'normalised'. To take some commonplace examples, a wristwatch, a pen, shoes, writing – these are all technologies which have become normalised to the extent that we hardly even recognise them as technologies. (Bax 2003: 23)

A third model is Puente's SAMR model, which is often cited, but which we consider very problematic: In fact, Puente has so far only presented this model in blogposts or presentation slides with an audio track (e. g., Puente 2006). He has not derived and elaborated it in a detailed and comprehensive way in a single scientific article; hence, no sound descriptions of the chosen categories exist. Puente's SAMR model aims to capture the further development of teaching scenarios and teaching materials on the basis of a process model. The increasing influence of technical options for further development are described as substitution, augmentation, modification, and redefinition (cf. Puente 2006). While the first two phases are summarized as enhancement, only the latter two are classified as transformation, i. e., signifying fundamental methodological changes to teaching and learning. A very good critique of the SAMR model is provided by Hamilton et al. (2016), who not only demonstrate how misleading Puente's categories are (and how inconsistently he uses them himself) but also point out broader shortcomings of the model.

The existing models of phases (or approaches) of computer-assisted teaching only show overarching, very rough tendencies that focus too exclusively on software and do not take the development of digital textbooks into account. Thus, they

cannot provide a satisfactory picture of the process of digitalization of textbooks. In this paper, we therefore attempt to trace in detail the didactic-methodological developments for foreign language textbooks that we can relate to the process of digitalization. We will keep asking ourselves whether textbooks already show signs of normalizing CALL, i. e., in Bax's sense that CALL "becomes invisible, serving the needs of learners and integrated into every teacher" (Bax 2003: 27).

3. The Present Study

In our study, we pursued the following research questions: To what extent have digital media and digitalization impacted the content included in GFL textbooks? How have tasks and exercises in textbooks been affected by digitalization in GFL textbooks? To answer our research questions, we conducted a historical textbook analysis retracing the impact of global digitalization on GFL textbooks. In methodological terms, our study can be described as a textbook analysis, as we evaluated textbooks with regard to certain didactic aspects. Within textbook analysis, however, our study is not located in the field of the development (or application) of criteria catalogs or analysis models, but in the field of longitudinal-historical textbook analysis (cf. Korell 2024: 68, Krumm / Ohms-Duszenko 2001: 1036, Neuner 1999: 162). This empirical approach involves looking at different textbooks in terms of selected aspects in their development and in comparison with each other over a longer period of time. In our case, the aim was to trace a historical process in which certain changes in textbooks have (also) been brought about by the overall social, cultural, and economic effects of digitization and digitalization (see Footnote 1). In our approach, we therefore, refrained from using a ready-made catalog of criteria. Instead we chose an open and predominantly descriptive approach for the cyclical interpretation of the data, in which we worked with inductive and deductive categories. Methodologically, we would therefore locate ourselves in historical research and describe our procedure as a form of document analysis.

For our study we surveyed a corpus of GFL textbooks from the last three decades. The textbook corpus consists of 45 popular GFL textbooks from three major German publishing houses: Cornelsen, Hueber, and Klett, all of which were published between 1990 and 2021. Even though, (as stated above) it is hardly possible to identify a concrete year in which the digitalization of textbooks started, a cursory look at GFL textbooks from the 1980s showed no aspects of digitalization. Hence, textbooks from this time were excluded from our analysis. The corpus includes textbooks from A1.1 to C1, with a focus on textbooks for A1 through B2. Since most German classes target these levels, they are of distinctive interest to our research. The selected textbooks are mainly for adult learners, but

some are (also) written for children or youths. However, since it is more common to use respective national publications in K-12-school contexts throughout the world, we focus on textbooks for adults, developed on the German market and distributed globally. We decided to include a selection of book series that have been redeveloped throughout the last decades (e. g., the *Themen* series by Hueber, which was renamed *Themen neu* in the 1990s, and *Themen aktuell* in the early 2000s). For an overview of the included textbooks and the abbreviations used see Appendix A.²

For the analysis of the GFL textbooks, we first collected basic data for all textbooks (publisher, title, year, level, target group). Then we listed all available components of the 45 textbook compendiums. The next step involved identifying instances in all textbooks³ where (aspects of) digitalization and/or digital media or tools were addressed as topics, where digital text types or media formats were utilized, and where instructions asked for the use of digital tools. This established the basis for our document analysis (cf. Reimann 2020). Up to about 2010, all instances could be included in the analysis. However, as the incorporation of digitalization into textbooks increased over time and a significant portion of the content, tasks, and exercises in current textbooks were related to digitalization in some way, we included only sample references for topics, text types, and task formats in our analysis from that point onward. All references were documented in a table, including deductive categories derived from our research questions: media format / text type, topic, and task instruction. For each reference a photo or screenshot was taken. These references were then coded repeatedly in an open procedure to describe and categorize them in terms of digitalization. This included inductively derived categories, for example, learning goal, visualization, use of digital devices etc. Here, the approach was cyclical: Perceiving previous results and coding (initially very openly, then more narrowly) alternated several times. Finally main categories were identified, which are represented by the headings in Sections 4. and 5. (see below).

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- 2 The textbooks referred to in this paper are abbreviated in order to make them easily identifiable to the reader, e. g.: “H-Tn-1 1992” or “C-DL-A1.2 2020”. This is done by following a specific pattern: The first letter refers to the publisher (C = Cornelsen, H = Hueber, K = Klett), the next cluster of letters to the title (e. g., Tn = *Themen neu*, DL = *Das Leben*), followed by the target level (CEFR-level or textbook volume), and finally the year of publication.
 - 3 Audio and video materials from the textbooks were not included in the analysis for several reasons. While some of this material was not easily accessible (e. g., cassette or VHS tapes), it would have greatly expanded the corpus. While these data are not included in the current publication, they should be considered for further analyses.

Because of the interconnectedness of the theory elaboration as well as the data analysis and interpretation, we decided to deviate in this article from a classical order of theory presentation, presentation of the methodological design, presentation of results, and discussion. Instead, we will elaborate on the individual focal points and, in doing so, directly relate previous findings and the results of our explorative study to each other. This made it possible to do justice both to the already published findings and the multi-layered data and their sometimes quite unique history. In some instances, we also incorporated findings from a survey conducted by Würffel for her article in this volume. This survey involved experts from four major German publishing houses for GFL textbooks (Cornelsen, Hueber, Klett, and Westermann) and focused on technological advancements and their (unsuccessful) attempts to digitize GFL textbooks (cf. Würffel in this volume: 26).⁴

4. Results and Discussion I: Changes in Input

Naturally, digitalization also influenced the content and form of the input provided by textbooks. On the one hand, we can find changes in the topics textbooks cover, which are increasingly connected to and intertwined with digitalization (4.1), just as society is increasingly digitally interwoven. This, on the other hand, is also reflected by the inclusion of digital text types and computer-mediated communication (CMC) formats in textbooks, since learners need to be able to negotiate the digital realm in the L2. Hence, in this section, we will gather which digital text types appear in the textbooks of our corpus (4.2). However, this question cannot be answered easily, since the texts provided might be labeled, e. g., “forum post”, but lack the respective features of this particular text type. From her review of GFL textbooks, Marx (2019) deduced three critical points concerning the presentation of these text types:

- allegedly digital text types (such as forums or blog posts) in textbooks represent conventional, non-digital text types (such as compositions or essays) since they do not adhere to the distinctive features of the digital text types,

4 The survey contained the following questions (posed in German): (1) Which components were introduced when? e. g., CD-ROM, DVD, worksheets for printing, additional interactive exercises, audio and video films (on publisher's website), materials for an interactive whiteboard, e-book, apps, digital learning platform(s) – Please feel free to add components. (2) Were there components that you wanted to introduce but did not ('dead ends')? Or were there any that were introduced and then taken out of the program later? (3) Which components faced the most resistance and why? (4) Which development required the most resources (staff, money, etc.) and why? (5) Are there any technical components / tools / enhancements that you as publishers thought would have come much sooner? – Which and why?

- new technologies are not put to use, i. e., the writing of blog posts or instant messages takes place in class, however, using pen and paper instead of the respective technology,
- the function of digital text types is being ignored, i. e., produced texts never reach the digital realm and hence are not put into a communicative context.

Based on the analysis of our extensive corpus, we will discuss how far these aspects lamented by Marx (ibid.) can be corroborated. In 4.3 we present our results on the use of genuine⁵ resources, i. e., texts from the digital realm, while in 4.4 we will describe how (non-genuine) texts are displayed in order to appear as digital texts. This is followed by a discussion of how far texts adhere to the corresponding text type and whether they are displayed within realistic communicative contexts (4.5). Additionally, since these texts also concern the tasks set in textbooks, this will also be relevant for Section 5.2, where we discuss to what extent competence training systematically covers the distinctive features of digital text types and whether digital texts of learners are actually produced using digital means and are meant to fulfill a genuine communicative function.

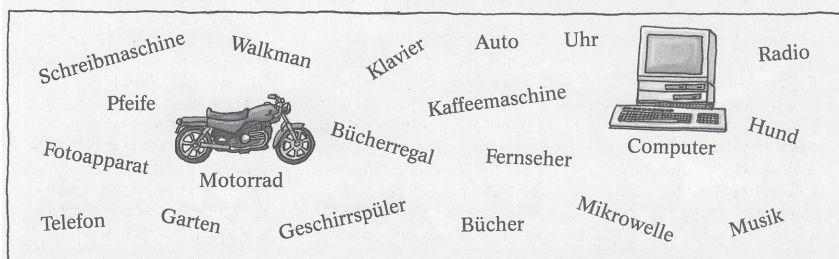
4.1 Digitalization as a Topic in Textbooks

When looking at the integration of digitalization as a topic in textbooks, one can trace the development starting from the 1990s, when computers were merely mentioned as a tool and were most often depicted as an illustration or as single words without elaborate contextualization. In the nine textbooks in our corpus released in the 1990s, we found very few instances that refer to computers and the digital; the internet as a phenomenon is not mentioned at all. In comparison, textbooks of the early 2000s address the topic more often. Interestingly, the topic is often displayed on a skeptical note, e. g., concerning the spread and increasing dominance of computer technology and the internet. This increasing occurrence of the topic culminates in textbooks printed since 2011, where digitalization is omnipresent in all areas of life, concerning its positive as well as negative aspects. Thus, in the most recent textbooks, the digital appears in (nearly) all textbook chapters and topics. These developments are illustrated as follows: In our corpus, the topic of computers and mobile technology first appeared in the early 1990s in the *Themen neu* textbook series. In the first volume of the series, a personal computer is depicted as a labeled drawing in connection with an activity asking to describe items and technologies that are important to oneself (H-ThN-1 1992: 115; Fig. 1).

5 For a brief explanation of why we do not use the term authentic, see 4.3.

15. Und Sie? Was ist für Sie wichtig?

...ist mir	sehr wichtig am wichtigsten nicht wichtig	...finde ich	sehr wichtig unwichtig völlig überflüssig
...brauche ich	unbedingt jeden Tag nicht wie	ohne...kann ich nicht	leben arbeiten einschlafen ...



einhundertfünfzehn 115

Figure 1: Earliest occurrence of a computer in our corpus in *Themen neu 1* (1992: 115).

Overall however, in the textbooks of the 1990s, the concept ‘computer’ (represented as a word or picture) occurs almost exclusively within the realms of work and office.⁶ The computer is represented as working equipment, at times in connection with furniture or vocational training. Sometimes, computers are discussed as a new invention (e. g., K-DMJ-3 1999: 44). The use of computers and the internet for other purposes, such as using them as a source of information or for online communication, is mentioned sparsely.⁷ The textbook *Deutsch*

6 This result is also corroborated by looking at technical language textbooks from that time, in which the computer as a working tool already played an important role: For example, the textbook *Business – Auf Deutsch* (Cox et al. 1990) contains three pages on the topic.

7 Interestingly, in the third volume of *Themen neu*, the computer is mentioned as a means to study foreign languages (H-ThN-3 1994: 52). While in our analysis, one focus was on the aspect of learning strategies via digital technology, these results are beyond the scope of this chapter.

International (1999), for example, provides a short, written text about a group of young people conducting an internet search and receiving an e-mail (C-DInt-1 1999: 106; Fig. 2). While this is one of the very few instances where the topic is broached extensively, other (earlier) textbooks merely provide the word ‘computer’ and related words as vocabulary (e. g., H-ThN-1 1992).

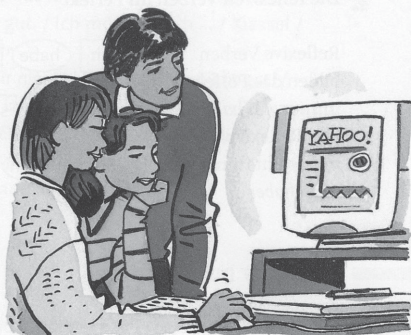
In the early 2000s, the topic is still mainly presented as part of the vocabulary in the analyzed textbooks, however, there are more words provided, e. g., when computer-

A ■ Eine E-Mail von Caroline

Die Schüler sind bei Irene. Sie möchte eine Nummer von LOGO über Computer und Internet machen. Franziska findet das nicht so toll ...

– Mit dem Internet kannst du so viel machen, Franziska, sagt Irene. Ich möchte zum Beispiel wissen, wo der Zirkus Broncalli jetzt ist. Guck mal. So ... Wir sind jetzt im Internet. Ich klicke jetzt darauf und dann jetzt noch hier. O.k. Jetzt tippe ich „Zirkus“ und klicke auf „Suche“ ... Und was siehst du? ...

– He ... kannst du mir das drucken?, fragt Oli.



Text

Create New Mail

Send Send Later File It...

Name Address Recipients...
 To: Irene Likowski ilikowski@aol.com Options...
 Subject: E-Mail für Oli Attached Files: 0

Lieber Oli,
 der Herbst in Dresden ist schön. Aber die Tage werden kürzer und dunkler... Unsere
 Tournee ist morgen zu Ende.
 Ja, es geht mir gut. Eine super Überraschung, deine E-Mail! Ich habe sie in Dresden
 bekommen. Ich habe mich wirklich gefreut, von dir zu hören. Klar weiß ich noch, wer du
 bist.
 Die Premiere hat dir also gut gefallen. Mir auch. Ich glaube, das war unsere beste
 Vorstellung.
 Nein, ich bin nicht mehr böse auf euch. Außerdem, kann ich Bettina verstehen. Sie
 engagiert sich für Tiere und sie tut etwas. Es ist schon o.k.. Tiere im Zirkus sind eine
 Tradition, so alt wie die Zirkuswelt, aber es ist jetzt aus und vorbei.
 Das neue Programm wird noch besser als das alte. Das beste Programm vom besten Zirkus,
 sagt meine Mutter.
 Natürlich können wir uns wiedersehen. Du schreibst, dass ihr an eurem Projekttag nach
 Frankfurt fahren wollt. Schreib mir, wann ihr dort seid oder ruf mich an.
 Mein Vater und Eddy bringen die Tiere zum Frankfurter Zoo. Ich kann mit ihnen fahren und
 wir können uns treffen – auch ohne Projekt.
 Bis bald!
 Viele herzliche Grüße von deiner
 Caroline.

Options: None

Figure 2: Excerpt from *Deutsch International 1* (1999: 106).

related terminology of English origin is introduced (e. g., H-Tan-2B 2000: 132). While computer technology is again largely mentioned in connection to work topics, a somewhat skeptical approach to its usage and dissemination is discernable. Texts and production tasks/exercises are concerned with technological problems (such as computer crashes; e. g., H-Tan-2B 2000: 128–131), addiction to the internet or to computer gaming (e. g., H-ThA-3 2004: 106), or dystopias of an individualized computer-dominated world (e. g., C-DInt-2 2000: 120; Fig. 3). In addition, a larger variety of topics seem to be discussed in connection with computers and the internet, such as travel, cooking, shopping, or health. This is mainly done via prompts to research a topic on the internet (see 5.1) or in the form of written texts layouted as websites. Moreover, media usage becomes an independent topic of textbook units. Unit 9 of *Themen aktuell 3* (2004: 103–114), for example, is entitled *Neue Medien* [New Media] and presents vocabulary, audio and written texts, statistics, and discussion tasks, among others, on the pros and cons of computer usage and media of communication (H-ThA-3 2006: 107).

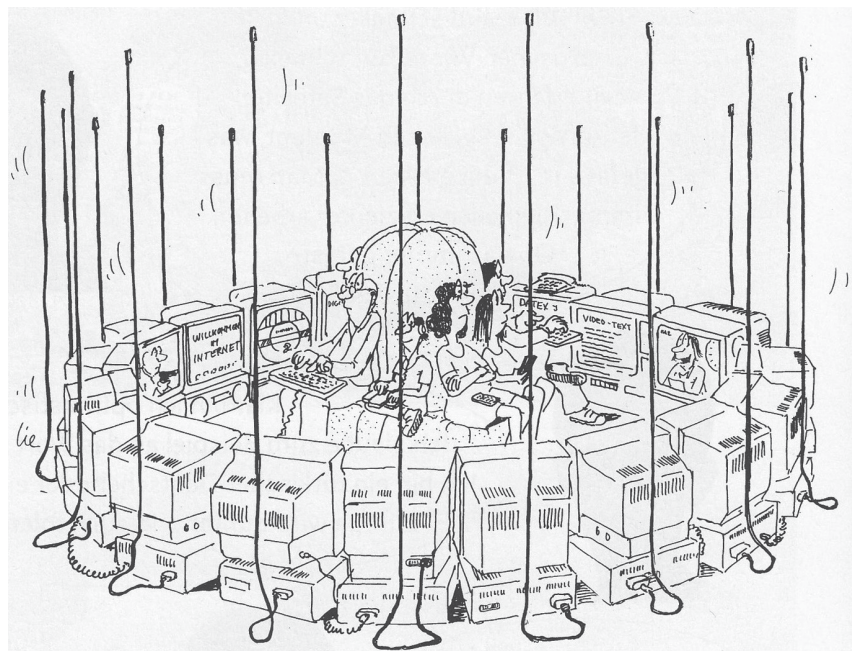


Figure 3: Depiction of a dystopian future with computers in *Deutsch international 2* (2000: 120).

This development continues in the textbooks published since 2010 up until the most recent textbooks in our corpus both quantitatively and in terms of content. Textbooks increasingly offer at least one unit in which media use and digitalization are the main topic. In addition, digitalization topics are increasingly dealt with in other units. The topics of computers and digitalization are not as exclusively connected to the context of work anymore. Current textbooks try to reflect the digitalization of society as a whole, e. g., the digitalization of private as well as professional life. Digitalization is hence linked to an abundance of topics.

Even though it is hard to systematically analyze the topics due to the broad spectrum of topics associated with the digital, it can be noted that in the units where media usage and digitalization are the main topics, most prominently, digitalization is discussed in terms of media consumption, networking, and media literacy. Consumption is, for example, represented by the topics shopping (e. g., H-AkD-A1+ 2020: 69), sales (e. g., K-DI-B2 2019: 36), vacation (K-A-A1.2 2010: 87) or wishes (K-A-A1.2 2010: 56). This is done most often by introducing and practicing words and phrases in order to describe products, the process of buying and selling, or to express one's wishes. Some textbooks offer more extensive sequences connecting diverse tasks and exercises with one topic, such as the textbook *Deutsch intensiv* (K-DI-B2 2019), where most of the unit *Angebote – Produkte und Dienstleistungen* [Offers – Products and Services] evolves around the fictional selling platform *FixMix-Kleinanzeigen* [FixMix-Classifieds] (ibid.: 35–38). Networking is presented in connection to Web 2.0-applications and social media and presented by either involving vocabulary lists – sometimes used as a starting point for writing or conversation exercises, such as talking about social media platforms (e. g., C-sd-B2.1 2010: 41, K-A-A2 2011: 99) – or learners are supposed to read and/or produce profiles and self-expressions similar to those on social media platforms (e. g., H-AkD-A1+ 2020: 10). Finally, some units focus on media literacy (e. g., H-AkD-B1+ 2020: 142 ff.).⁸

In other units that do not include a focus on digitalization as the dominant topic, digitalization is connected to all domains, i. e., the public, private, educational, and professional domains (cf. Europarat 2013: 26). This includes topics such as sports (private domain), school (educational domain), or customs of the target culture (public domain). Professional aspects, including writing formal e-mails (see 4.3 and 5.2), changes in working life due to digital technology, or

8 It has to be noted that media literacy as an overarching competency is not fostered systematically in the textbooks of our corpus, but is approached selectively in connection to topics that offer an anchorage point. While we did analyze the textbook corpus in this regard, we cannot display these results in this article extensively.

the emergence of new professions (e. g., digital coach: C-WB-B2 2020: 94, or blogger: H-M-A1 2021: 106) are further addressed. In addition, rather extraordinary topics such as tiny houses (C-DL-A1.2 2021: 128) can be found. In some textbooks, connections of the public domain to digitalization are addressed prominently, when political topics (e. g., environmentalism: K-KomDaF-C1.2 2021: 25–26 or 68; data security: K-KomDaF-B2.2 2020: 14) or futuristic scenarios (e. g., in connection with robotics; e. g., H-M-A1 2021: 80, K-KomDaF-C1.2 2021: 13) are discussed.

Overall, one could claim that in terms of topics in textbooks, a state of integrated CALL (Bax 2003: 23) has been reached, since digital technology can be seen as normalized in this regard. This culminates in titles like *Digital zu Hause* [Digitally at Home] and *Nicht ohne meinen Computer* [Not Without my Computer] (C-sd-B2.1 2010: 34) or *Irgendwas mit Medien* [Anything With Media] (H-AkD-B1+ 2020: 128), where digitalization and media usage are discussed extensively, integrating all of the domains mentioned above.

In summary, contemporary textbooks address important aspects of the social and cultural changes brought about by digitalization. This can be described in terms of the current cultural studies approach of Stalder (2018), who posits *The Digital Condition* for contemporary society, which is characterized by three principles: referentiality, communality, and algorithmicity. Following Stalder (ibid.), one could say that current textbooks address the aspects of referentiality and communality, and thus important social and cultural implications of digitality. However, this is done rather superficially. Neither do the textbooks provide input on the interconnectedness of the contemporary ‘digitalized’ world or the underlying algorithms that shape it, nor do they encourage reflection on these implicit mechanisms (i. e., referentiality, communality, and underlying algorithms; ibid.). It is therefore doubtful that the profound changes in media, culture, and society that digitalization has brought about (cf. Hallet 2022: 191) are adequately represented. The far-reaching cultural and social processes should be taken into account to an even greater extent in foreign language teaching and textbooks in the future (for concrete suggestions, see Mustroph 2023).

4.2 Text Types and Formats of Computer-Mediated Communication

In her paper on trends in Technology-Enhanced Language Learning, Chun (2019) states that one need of language learners is to learn about “new modes of reading, writing, and communication” and the ‘multilingual contexts that can be used for L2 learning’ (ibid.: 16); a topic that is currently one of the main research

areas in L2 education (*ibid.*). This need suggests the integration of digital text types and digitally based formats of communication in teaching and learning materials as well as the necessity to address their communicative functions (cf. Fandrych 2019). Hence, for this section, we were interested in which text types or formats used in computer-mediated communication (CMC) are featured in language textbooks. However, there are several classifications (e. g., Crystal 2009), which in addition are prone to constant change due to the variable nature of digital progress. This constant change in CMC formats and text types has been described by linguists (cf. Stöckl 2016) as a challenge for the identification of their respective linguistic features. Nonetheless, some CMC formats and text types have been described in terms of salient linguistic features, such as graphic, orthographic, grammatical, lexical, and discourse features (e. g., Crystal 2009, cf. Dürscheid 2009). These include e-mails (e. g., Dittmann 2006), webpages (e. g., Crystal 2009), blogs (e. g., Crystal 2009), instant messaging (e. g., Dürscheid 2005), social media posts (e. g., Twitter; cf. Moraldo 2015), audio messages (e. g., König 2021), and chats (e. g., Kilian 2005). However, since these are still somewhat disputed in the respective discourse and – as stated above – underlie constant developments, we chose a different approach in this paper. In our analysis, we looked at the textbooks in our corpus, identifying the formats of CMC and text types presented, via the labels given to them (e. g., in instructions such as ‘Read the following e-mail.’) or via distinct (graphic) features (e. g., framing a text with the window of an e-mail-browser). The texts and CMC formats identified will then be reviewed in terms of their characteristics, keeping in mind that due to their fluidity and a lack of profound descriptions, providing realistic input still poses a challenge to textbook authors.

As can be expected, we found a multitude of instances featuring websites (homepages and subpages). Used as an umbrella term, websites include a wide range of text and communication formats, such as private websites (e. g., of a family: H-ThA-3 2004: 14), official websites of clubs or companies (e. g., of a football club: C-DInt-3 2001: 77, or the *Dresdner Bank*: C-DInt-3 2001: 55), sales platforms (e. g., K-DI-B2 2019: 35), *Wikipedia* (C-sd-B2.1 2010: 70), FAQs (K-A-A2 2011: 142), and more (e. g., news, film reviews, car sharing ads, dating sites, reports, weather forecasts). These are either displayed as screenshots of the actual websites or simplified and adapted, sometimes they are only identifiable as a website due to the use of a frame representing a browser window (see 4.4).

Besides websites, we found many instances featuring e-mails (formal, semi-formal, or informal), and instant messaging (starting with SMS in the mid-2000s), especially in current textbooks. Several textbooks, mainly more recent

ones, also include instances of forums (e. g., H-M-A1 2021: 111; K-Kon-B1.1+ 2021: 19; K-MP-B2 2007: 84) and blogs (e. g., C-WP-B2.1 2019: 11+, H-M-A1 2021: 74, K-Gen-A1 2017: 33). Overall, very few textbooks include chats⁹ (e. g., C-DInt-3 2001: 11), or voice mail messages (C-sd-B2.1 2010: 40). Texts from social media have only been featured within the last decade (e. g., Facebook in K-A-A2 2011: 110). Only once in our corpus, we found MMS (K-A-A1.2 2010: 84). A few textbooks also depict applications such as digital calendars, search engines, or weather apps.

In summary, the range of digital communication formats and text types is broad when considering the entire corpus, but rather slim when considering single textbooks, most of which feature mainly websites and e-mails, and the latest textbooks additionally forums, blogs, and instant messaging. In terms of Bax's approaches (cf. Bax 2003), it seems that digital text types and CMC formats have been taken up by textbooks in a broad manner and therefore represent the stage of Integrated CALL. However, concerning the range of CMC formats and text types, these textbooks do not yet represent their actual day-to-day usage, especially when textbooks are targeting a younger population.

4.3 Use of Genuine Resources

The concept of authenticity in the context of L2 education is often seen as rather problematic due to its multifacetedness (cf. Rösler 2010; e. g., Rüschoff 2009, Widdowson 1998); we will therefore not use the term in this paper. Nonetheless, we want to investigate to what extent texts in textbooks correspond to their counterparts in the digital realm by focusing on three questions: In this section, we will analyze to what extent genuine texts are used. Since most of the textbooks do not use genuine texts (anymore), we will describe in 4.4 how texts are marked (visually or verbally) as digital, and in 4.5 how the provided texts show characteristic features of the text type or communication format they are attributed to and if they are possibly also contextualized in a corresponding communicative setting.

Using screenshots or copied texts with source references would be the easiest way to ensure that texts have a real-life correspondence, since no changes to the wording and/or visual presentation would have to take place. The only caveat would be that they are taken out of their original context and placed into an instructional setting. In our corpus, we found the use of screenshots (at times

9 The distinction between chat and instant messaging is fuzzy. Here, we mean instances that were explicitly labeled as "chat".

including the actual page and the browser window) only rarely and mainly in a few (older) textbook series, where this, however, is done repeatedly, e. g., in *Deutsch International* books 2 and 3 (Cornelsen; e. g., C-DInt-2 2000: 35; Fig. 4).

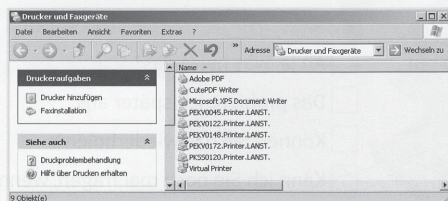


Figure 4: Screenshots displayed in *Deutsch International* 2 (2000: 35).

Another recent and interesting case is the textbook series *Aussichten* (e. g., K-A-A1.2 2010). Here, we do not only find screenshots of webpages with texts (K-A-A2 2011: 111), but also of other applications, such as train timetables and roadmaps (K-A-A1.2 2010: 76), messengers (like *Skype*: K-A-A2 2011: 98), social media (like *Facebook*: K-A-A2 2011: 110), and even a screenshot displaying the window for the printer settings of a PC in connection to a listening activity involving a call with a support hotline (K-A-A2 2011: 138; Fig. 5).

12 Anruf bei der Hotline

- a | Hören Sie bitte das Telefongespräch. Was ist der Grund für den Anruf?
- b | Hören Sie noch einmal und nummerieren Sie die Anweisungen.



- ☐ Markieren Sie und löschen Sie diesen Drucker.
- ☐ Gehen Sie mit der Maus links unten auf „Start/ Einstellungen/ Systemsteuerung“.
- ☐ Öffnen Sie mit einem Doppelklick „Drucker- und Faxgeräte“.
- ☐ Klicken Sie links auf „Drucker hinzufügen“.
- ☐ Installieren Sie den richtigen Drucker.

- c | Wie reagiert der Techniker auf den Dank am Schluss des Gesprächs?

- ☐ Keine Sache. ☐ Keine Ursache. ☐ Deine Sache.

Figure 5: Screenshot of browser settings in a listening activity in *Aussichten A2* (2011: 138).

Since the design of webpages is subject to fashions and their appearances change frequently, they can be placed in certain periods. Hence, one of the reasons screenshots are not used in textbooks more frequently, might be the attempt to appear more timeless and by that make textbooks more appealing and usable for a longer period of time, especially in light of the current rate of new textbook editions (cf. Majjala 2007). Moreover, the legal situation concerning the reproduction of web content has changed over the last decades. As our inquiry with textbook publishers shows, using screenshots is connected with high costs and complicated legal arrangements for obtaining copyrights. Hence, this is rarely done, especially in current textbooks, in which we found no instances of screenshots within our corpus.

Similarly, we found few instances of texts that were provided with a source. This is the case in the interim units *Stationen* [Stations] in *Studio d – Die*

Mittelstufe (e. g., C-sd-B2.1 2010: 60 f.), where we find (part of) the URL as well as further information, like the general source (e. g., the TV-Show: *Galileo*), a date, or even the author (e. g., C-sd-B2.1 2010: 60). According to the publishing houses we questioned, nowadays, digital texts provided in textbooks often imitate genuine texts from the internet as closely as possible, and, when printing links, these are usually marked as examples due to legal reasons.

While it is comprehensible why textbook publishers exclude printing genuine texts in their textbooks, one can think of diverse ways in which textbooks and their users could include these in language classes. As has been stated repeatedly in the literature (e. g., Rösler / Würffel 2020: 80), digitalization offers the possibility to incorporate texts that not only correspond with the topics of the respective units but are also more up-to-date than any printed textbook could ever be. While this is clearly not as easy as just going on the internet and picking a text, digital tools use artificial intelligence (AI) and corpora that can support teachers in finding texts that are level-appropriate, thematically appropriate, and up to date (e. g., FLAIR¹⁰). In referencing and incorporating similar tools in textbooks, they could remain up to date for longer periods and still provide the scaffolding and progression the textbook user expects.

4.4 Framing Texts as Digital Texts

Overall, in our corpus, we mainly found texts that have no real-world counterpart in digital space. This corresponds to the publishers' statement that nowadays, digital texts provided in textbooks often imitate genuine texts from the internet (see above). But how are these texts that were explicitly written for a textbook identified as 'digital' texts? Apart from labeling them as digital text types (e. g., as a forum post; e. g., K-MP-B2 2007: 24; Fig. 7), we mostly found visual markings, such as frames around texts imitating technical browser windows for e-mails or internet texts.¹¹ In the textbooks of the 1990s and early 2000s, we found these to be very realistic (e. g., H-Tan-2B 2000: 114; Fig. 6 top), even when the texts displayed are not screenshots or original texts. However, this requires a lot of space on a textbook page since it includes several areas, such as a headline, navigation buttons, the URL, or favorite links. This may also be one reason why in later textbooks, browser windows are simplified, e. g., by omitting the URL line or navigation buttons (e. g., C-S[21]-A1 2013: 230; Fig. 6 2nd from

10 <https://flair.schule> (Tool for English and German) [01.04.2024]

11 This is also observable for windows of other applications (e. g., text processing programs K-A2 2011: 141, K-A2 2011: 39), although these instances are very rare.

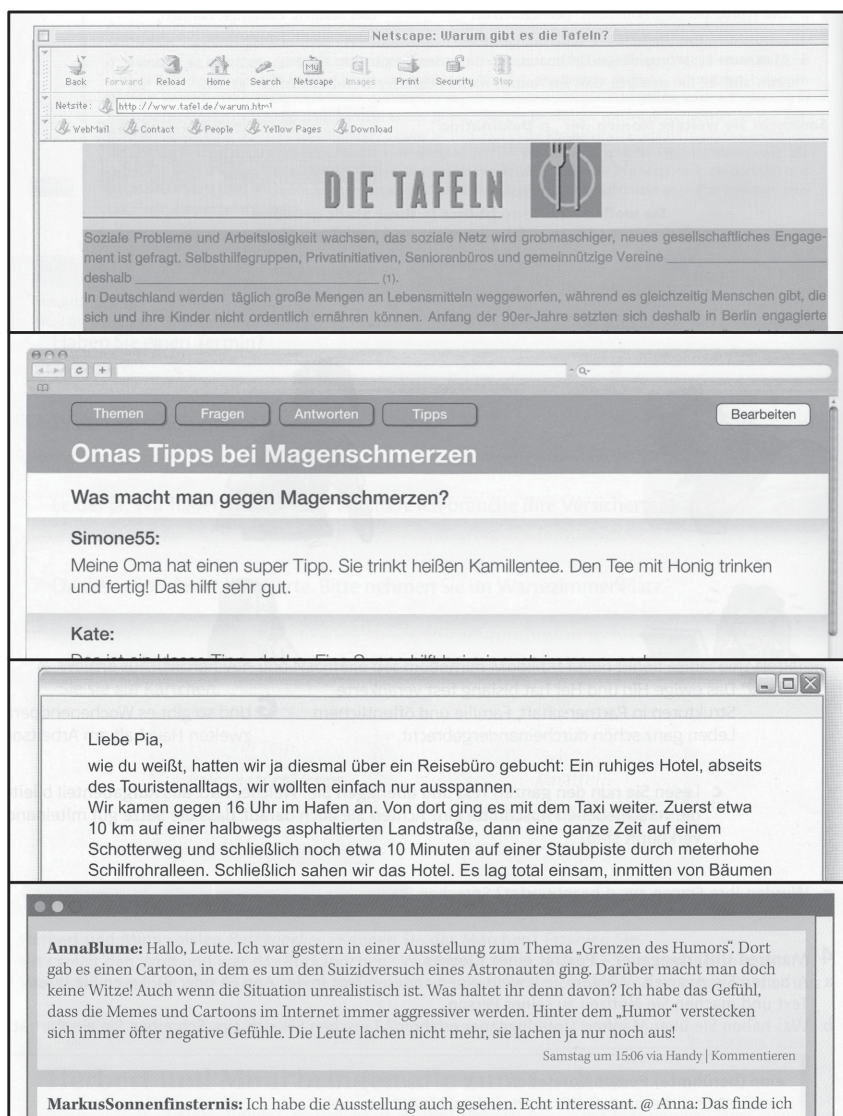


Figure 6: Complex browser windows (from top to bottom) in *Studio 21 A1.2* (2013: 230) and in *Tangram 2.2* (2000: 114); and simplified frames in *Das große Panorama – Weitblick* (2021: 32) and *Mittelpunkt* (2007: 13).

top). It is interesting how minimalistic this can be while still being recognizable to the reader. Many frames either imitate a Windows or a Mac window by simply displaying their most prominent features: (e. g., C-WB-B1+ 2019: 32, K-MP-B2 2007: 13; Fig. 6 bottom).¹² Textbooks also use frames depicting devices, such as phones (K-DaFU-A1 2015: 75; Fig. 8), tablets (H-AkD-B1+ 2020: 130), or even e-book readers (C-sd-B2.1 2010: 94).

Simpler ways of marking texts as digital can include navigation buttons (e. g., K-A-A1.2 2010: 91), a commentary section (C-sd-B2.1 2010: 109), buttons for zooming (C-sd-B2.1 2010: 84), or a simple URL line with or without a link for browser windows and webpages (K-A-A1.2 2010: 190/191; also Fig. 9). This can also be done by imitating the structure of a well-known digital platform, even without actually referencing it (e. g., *Wikipedia*: C-sd-B2.1 2010: 70). Checkmarks or speech bubbles are indicating short messages (e. g., C-DL-A1.1 2020: 75; C-S[21]-A1 2013: 27), while hashtags, ‘Like’ buttons and other well-known icons are used to reference social media platforms (e. g., *Twitter*: H-VF-B2.1 2021: 43 or *Instagram*: C-DL-A1.2 2021: 128). In current examples concerning social media platforms, it is apparent, that publishers once again use strategies addressing obsolescence by not naming platforms directly, but by imitating their features, which are often adopted by new platforms. In general, emoticons are used to indicate diverse digital text types such as e-mails (K-PD-A1 2004: 163), forum posts (K-MP-B2 2007: 24), short messages (H-AkD-A1+ 2020: 27), or chats (H-AkD-A1+ 2020: 8). However, this is done less often than one would expect, considering how often texts are marked as these CMC formats.

Overall, it is clear that textbooks use a broad range of means to mark texts as digital and it is surprising how little is needed to do so, indicating that visual markers are so much a part of our lives that this normalization can be exploited by textbook designers very easily. This however raises the question to what extent these texts, that are marked as digital, actually adhere to the respective text types in terms of their (linguistic) features or whether these

12 This, again, is a strategy for textbooks to be less prone to becoming obsolete, since the basic designs of program windows usually do not change. At the same time, it has to be noted that publishers refer to specific computer systems (Windows, Mac) by using these strategies instead of applying more neutral ways of simplification such as using visual features of the web pages themselves. Why they do this can only be subject to guessing and may be connected to the image of the respective systems (e. g., Mac having ‘young and modern’ customers).

markings are (at times) simply design features to anchor textbooks in the current time frame.

4.5 Correspondence Between Label and Implementation

As described in 4.4, a large number of texts in recent textbooks are verbally or visually marked as being ‘digital’. However, the texts marked do not necessarily display the features of the corresponding text types or are embedded in a communicative context that clarifies their communicative function. In textbooks where all ‘digital’ texts are produced by the authors themselves, it would be interesting to analyze whether the respective text corresponds to the text type visualized or mentioned in its characteristics and linguistic features and whether communicative contexts are included. The analysis of our corpus shows that there is a wide variety of realizations: There are individual texts that exhibit many text type characteristics or even texts that are embedded in larger communicative contexts; there are texts that are labeled as a specific text type but exhibit characteristics of another text type; there are texts that are (deliberately) labeled inaccurately, making it difficult to check for matching text characteristics; and finally, there are of course still the didacticized (or pseudo) texts in which grammar or vocabulary exercises are disguised as texts, i. e., no text-type-specificity is discernible at all and is probably not intended either. In the following, we will provide examples of these different implementations from our corpus.

While many texts labeled as digital texts in the textbooks studied are not taken directly from the digital realm, they exhibit elements of the corresponding text type (e. g., C-sd-B1 2008: 66, H-AkD-A1+: 135, K-A-A1.2 2010: 31). For example, the stylized forum post in Fig. 7 shows features of the corresponding text type, including truncations and the usage of particles, emoticons, and creative punctuation to emphasize what is being expressed. The conscious use of text-type-specific features is also illustrated by the associated task (K-MP-B2 2007: 25) in which learners are asked to identify typical features of the text type forum post.

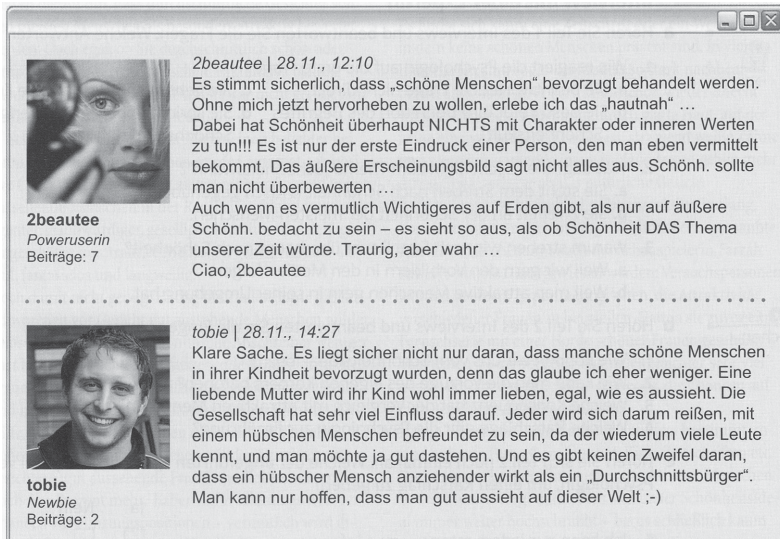


Figure 7: Example of a forum post in *Mittelpunkt Deutsch* (2007: 24).

In this regard, the textbook *DaF im Unternehmen* (K-DaFU-A1 2015) can be mentioned as a positive and creative example. Here, the picture of a smartphone is regularly used as a frame and the text displayed corresponds to the text type short message (e. g., K-DaFU-A1 2015: 75; Fig. 8). A twist on this can be found in an exercise, where a short message is displayed with the assignment to rephrase the telegraphic phrases into full sentences, thereby emphasizing the features of short messages (a linguistic analysis of these is necessary to form grammatically correct sentences) and using it as a basis for practicing more formal, written language use. This could be instrumentalized by teachers and learners to reflect on the linguistic properties of short messages (e. g., what elements can be omitted and hence have to be inserted when phrasing full sentences; K-DaFU-A1 2015: 34; Fig. 8 right).

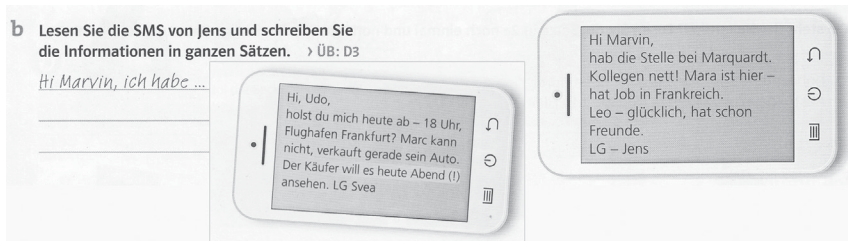


Figure 8: Short messages in a frame depicting a simplified smartphone in *DaF im Unternehmen A1* (2012: 75 left; 34 right).

One aspect that determines the linguistic features of texts is their respective function in a communicative context. Consequently, we can often find the explicit denotation of e-mails as formal or informal in textbooks. However, this is usually only done on the basis of individual examples. The communicative context, which could illustrate the specific resulting linguistic features, is rarely provided. A better way to do this would be to include an interactive history of communicative exchanges (cf. Fandrych 2019: 63). Such an example can be found in the textbook *DaF im Unternehmen* (K-DaFU-A1 2015: 46; Fig. 9), where an e-mail exchange is displayed. Here, not only are distinctive features of quick e-mail exchanges, such as short or omitted salutatory phrases, abbreviations, or elliptic sentences illustrated but also an increase of these features throughout the discourse. At the same time, it shows how the interlocutors understand each other despite these omissions and how they refer to each other's utterances.

b Barbara und Vanessa suchen einen Termin. Lesen Sie die E-Mails A bis F und sortieren Sie sie.

A

Liebe Barbara,
ja, ich besuche die ISPO auch! Leider kann ich am 5. Februar nicht, aber die Messe geht bis 8. Februar. Ich habe am 6. und am 7. Februar Zeit. Ich kann nachmittags nicht, denn ich habe Meseterminen. Aber ich habe abends Zeit!
L.G. Vanessa
P.S. Hanna und Kristin grüßen dich, du kennst sie aus Berlin.

D

Liebe Barbara,
18.30 Uhr ist nicht gut, denn ich habe einen Termin. Ich kann um 19:30 oder um 20:00.
Das Restaurant Pasta und Basta kenne ich nicht, aber ich finde es.
Vanessa
P.S. Hanna besucht die ISPO, aber Kristin nicht.

B

Liebe Vanessa,
am 5. Februar bin ich in München und besuche die ISPO Munich. Besuchst du sie auch? Messebau Müller macht den Messeaufbau und ich organisiere ihn. Besuchst du uns da? Ich kann am Nachmittag um 16:00 Uhr oder wir machen am Abend etwas zusammen. Zum Beispiel essen gehen?
Ich grüße dich aus Frankfurt,
Barbara

E

Liebe Vanessa,
ich habe am 6. Februar Zeit! Ich bestelle einen Tisch im Pasta und Basta – um 18:30 Uhr, ist das okay? Das Restaurant ist neu. Kennst du es?
Hanna und Kristin! Besuchen sie auch die ISPO?
Ich grüße euch herzlich, Barbara

C

Barbara,
super, bis 6. Februar um 20:00 Uhr! Vanessa

F

Liebe Vanessa,
das Pasta und Basta ist in Schwabing. Ich suche den Link und mailte ihn. 20:00 Uhr ist perfekt. Bis dann.
Grüße, Barbara

1. E-Mail B 2. E-Mail _____ 3. E-Mail _____ 4. E-Mail _____ 5. E-Mail _____ 6. E-Mail _____

Figure 9: E-mail exchange illustrating changes in linguistic features of the text type during discourse in *DaF im Unternehmen* (2015: 46).

Of course, this lack of exchange histories can in part be attributed to the fact that CMC cannot be displayed easily in a printed textbook (cf. Roche 2000: 480). This also holds for other CMC formats such as chats/instant messaging, forums,

or communication in social media. Here, printed textbooks reach their limits, which, however, could be easily remedied by referring to texts in their digital form.

In contrast to such text-type-appropriate examples, there are many examples in which ‘digital’ texts do not exhibit text-type-specific features. In her study of five current GFL textbooks, Marx (2019) concludes that while new digital text types do appear in writing assignments (especially e-mail, forum and blog posts, and short messages), they often only replace traditional types: While superficially the task asks learners to write a blog post, the instructions diverge from the intention of these types of texts:

Anstatt tagebuchartiger oder dynamischer Texte sollen Lernende einmalig Texte zu Themen schreiben, zu denen sie u.U. keinen persönlichen (Interessens-)Bezug haben. Diese werden nicht weiterverfolgt oder ergänzt, sie werden von anderen nicht kommentiert, und sie werden nicht veröffentlicht – vermutlich nicht einmal im eigenen Sprachkurs.¹³ (Marx 2019: 167)

Therefore, one can conclude that learners are not supposed to compose the respective digital text type, e. g., a blog post, but rather an essay. This observation of Marx (2019) about the writing tasks in textbooks is reflected in the input provided: Texts from older textbooks are adopted in newer ones, but appear under a different label or with a different layout or visualization. Thus, a text that would formerly have been labeled as a journal article might appear under the label blog post and is displayed with a browser frame. Moreover, if the follow-up task lacks any reference to the text type blog and its distinctive features, the labeling of the text as belonging to a specific text type appears arbitrary and meaningless (cf. H-M-A1 2021: 110; Fig. 10).

13 “Instead of diary-like or dynamic texts, learners are asked to write texts, only once, on topics they may not be personally interested in or connected to. These are not followed up or amended, they are not commented on by others, and they are not published – probably not even in their own language course” (Marx 2019: 167; transl. authors).

3 Zu viel Sitzen macht krank! AB 2–5

a Lesen Sie den Blog und ordnen Sie die Abschnitte 1–3 zu.

☐ Wollen Sie gewinnen? ☐ Das können Sie machen. ☐ Das ist nicht gesund.

ACHTUNG

Zu viel Sitzen macht krank!


1 Jeder weiß: Bewegung ist gesund. Aber wissen Sie auch, wie lange wir jeden Tag sitzen? Ungefähr acht Stunden. Büromenschen sitzen sogar zehn Stunden jeden Tag! Wir haben also viel zu wenig Bewegung und das bedeutet für viele Menschen: Übergewicht, Rückenschmerzen, Herzprobleme und viele andere Krankheiten. Tja, dagegen kann man nichts tun, oder? Doch, man kann. Und es ist sogar ganz einfach:


2

- Stehen Sie manchmal kurz auf!
- Telefonieren Sie immer nur im Stehen!
- Machen Sie nach jedem Essen einen Spaziergang!
- 10 • Benutzen Sie immer die Treppe und nie den Aufzug!
- Machen Sie Arbeitstreffen auch mal im Stehen!
- Fahren Sie mit dem Fahrrad zur Arbeit!

3 15 Was kann man noch machen? Sicher gibt es noch viele gute Tipps. Wer hat einen super Ratschlag?

Schicken Sie uns Ihre Idee und gewinnen Sie eins von zehn „Anti-Sitz“-Bewegungs-Frisbees!





b Lesen Sie Abschnitt 1 (Z. 1–5) noch einmal und ergänzen Sie.

1 So lange sitzen wir: _____ Stunden jeden Tag.

2 Das ist das Problem: zu wenig _____.

3 Diese Krankheiten kann man bekommen: Übergewicht,



◆ Bewegung



◆ Herz

c Lesen Sie die Tipps in Abschnitt 2 (Z. 6–14). Spielen Sie dann Pantomime im Kurs. Die anderen raten: Welcher Tipp ist das?



◆ Übergewicht



Das ist der Tipp: Stehen Sie manchmal kurz auf!

Ja, genau.

Imperativ Sie

Stehen Sie manchmal kurz auf!
Machen Sie einen Spaziergang!

Figure 10: A text that might have formerly been labeled as a journal article appears under the label blog post in *Momente A1* (2021: 110).

Another example from our corpus indicates the blending or a mix-up of text features: In Figure 11, the text displayed is also labeled as a “blog” via the headline (K-Gen-A1 2017: 33). However, we can hardly identify distinctive features of blogs (such as a more personal nature of the content or informal language, cf. Crystal 2009: 238 ff.). Simultaneously, other features such as the salutation and a rather personal farewell (*Liebe Grüße*) are more indicative of the text type letter. However, even though the text exhibits features typical for personal letters, it


does not really fit that text type either (e. g., due to the lack of personal information, views, or opinions). Hence, Marx' (2019) conclusion for tasks asking learners to produce 'digital' texts also applies to the input texts provided in textbooks:

[...] in vielen Fällen [werden] die Funktionen und besonderen Charakteristika von digitalen Textsorten wie E-Mails, Forenbeiträge und Blogbeiträge verkannt [...]. Stattdessen werden sie auf nicht digitale oder bestenfalls pseudodigitale Formen reduziert, womit ihr besonderes Potenzial (Dialogizität, Intertextualität, Veränderlichkeit von Informationen, emotionale Teilhabe) entfällt.¹⁴ (ibid.: 167)

5 Janine im Blog

a Lest den Text und beantwortet die Fragen.


a Welche Sprachen kann Janine lernen? c Welche AGs gibt es?
b Hat Janine am Samstag Schule? d Ist die Schulzeitung gut?



05 Februar
Hallo alle,
meine Schule, das Goethegymnasium, hat 1300 Schüler und mehr als 50 Klassen.
Wir lernen zwei Sprachen. Alle Schüler lernen Englisch. In Klasse 7 wählen wir Französisch, Latein oder Russisch. Die Schule hat auch eine Cafeteria. Die ist ganz o.k.
Am Nachmittag gibt es viele AGs (Arbeitsgemeinschaften) und Projekte, zum Beispiel Chor, Orchester, Sport oder Schulzeitung. Unsere Schulzeitung heißt „Penne“. Sie ist super.
Wir haben von Montag bis Freitag Schule. Am Samstag und Sonntag ist schulfrei.
Liebe Grüße
Janine

b Fünf Sätze – drei Fehler. Korrigiert die Fehler.

1 Die Schule hat 1300 Schüler.	4 Die Schule hat eine Cafeteria.
2 Wir lernen Englisch und Spanisch.	5 Wir haben keine Schulzeitung.
3 Am Morgen haben wir AGs.	



Das stimmt nicht: Die Schüler lernen Englisch, aber nicht ...

Figure 11: Example of a text labeled 'Blog' in *Genial* (2017: 33).

A special phenomenon is the use of a 'fuzzy label': In some textbooks, we found texts that were labeled more openly, e. g., as *Beiträge aus dem Internet* [postings from the internet] (K-A-A1.2 2010: 77; Fig. 12). On the one hand, this fuzzy label is less prone to becoming obsolete since it neither references a specific digital text type nor a specific platform on which these texts might be

14 “[...] in many cases the functions and specific characteristics of digital text types such as e-mails, forum posts, and blog posts are misjudged. [...] Instead, they are reduced to non-digital or, at best, pseudo-digital forms, which ignore their unique potential (dialogicity, intertextuality, alterability of information, emotional participation)” (Marx 2019: 167; transl. authors).

6 Wie reisen Sie?

- a | Lesen Sie die Beiträge aus dem Internet. Welche Argumente finden Sie für die Verkehrsmittel? Markieren Sie im Text und ergänzen Sie die Tabelle.

Am liebsten fahre ich mit der Bahn, auch wenn die Züge manchmal sehr voll sind. Eine Bahnfahrt ist nicht so anstrengend, weil man bei der Fahrt lesen oder schlafen kann. Und man kann im Speisewagen etwas essen. Ich gucke gern aus dem Fenster und träume.

Ich nehme immer den Bus nach Split, weil es günstig ist und schnell geht. Ich fahre die Nacht durch. Im Bus ist es zwar ein bisschen eng und unbequem, aber ich kann inzwischen wirklich gut schlafen. Ich schlafe abends ein und bin morgens schon in Split.

Meine Familie und ich – wir fahren auf jeden Fall mit dem Auto, weil wir immer viel Gepäck dabei haben. So viel können wir mit der Bahn oder mit dem Flugzeug gar nicht mitnehmen. Außerdem müssen wir oft anhalten, die Kinder sind ja noch klein.

Meistens fliege ich nach Zagreb, weil es schnell und bequem ist. Dort nehme ich dann den Bus nach Split. Die Fahrt von München nach Split ist mit dem Auto einfach zu weit. Ich muss ja alleine fahren und das ist mir zu anstrengend. Jetzt gibt es zum Glück die Billigflieger, die man ganz einfach im Internet buchen kann.

Figure 12: Texts labeled openly as *Beiträge aus dem Internet* [posting from the internet] in *Aussichten A1.2* (2010: 77).

published.¹⁵ This is advantageous in the sense that staying up-to-date in times of rapid digital progress poses a great challenge for textbook publishers (cf. Maijala 2007: 555).¹⁶ On the other hand, the label eludes analysis in terms of distinctive textual features, when the text type is unclear. When looking at the texts printed here, the personal content of the ‘postings’ suggests a social media

15 Another example of this type of labeling can be found in K-DI (2019: 35), where the name for a selling platform is clearly made-up in order to prevent obsolescence (*FixMix-Kleinanzeigen* [Fix-Mix-Classifieds]; see 4.1).

16 It is clear that publishers and textbook authors are very aware of the problem of obsolescence. In one textbook, we can even read this note under a list of links (Fig. 14): “Diese

context. At the same time, the language used is not indicative of this, since it does not display features of oral texts, typical for such a context.

One can assume that such texts do not serve the goal of sensitizing learners to the specific characteristics of digital text types, but that other goals are pursued: The texts may serve as devices for transporting vocabulary or grammatical structures detached from and regardless of communicative function and get the attribute ‘digital’ in order to appear more attractive to the target group. The phenomenon that didactized texts in textbooks primarily serve the purpose of introducing certain vocabulary or grammatical structures rather than representing text types with their corresponding features is not necessarily specific to digital text types: For example, there is a long tradition of grammar exercises disguised as dialogues (cf. a textbook excerpt from 1978, Fig. 13 left), which Rösler and Würffel characterized as follows: “Der Text sollte also Grammatik präsentieren, und zwar in der Form eines Dialogs, der sich dadurch beträchtlich von dem unterscheidet, was einen Dialog sonst so ausmacht” (Rösler / Würffel 2020: 122).¹⁷ These dialogues in earlier textbooks were already marked as didactic texts in their written form. Presently, similar input is often given a seemingly authentic context: Dialogues are now labeled as chats or as exchanges in instant messenger services (e. g., K-DaFU-A1 2015: 94; Fig. 13 right). However, they are often phrased just as artificially and serve the main purpose of practicing grammatical phenomena. Thus, just as other text types did before, digital texts are now frequently used as a vessel for content that exhibits grammatical structures featured in the respective units.

Seiten haben alle funktioniert, als wir diese Aufgabe entworfen haben. Aber im Internet ändert sich alles schnell. Es kann sein, dass die eine oder andere Seite nicht mehr existiert.” (C-DInt-3 2001: 53) [These pages all worked when we designed this task. But everything changes quickly on the internet. One page or another may no longer exist.] (ibid.; transl. authors).

- 17 “The text is thus supposed to present grammar, namely, in form of a dialogue, which therefore differs considerably from what otherwise constitutes a dialogue” (Rösler / Würffel 2020: 122; transl. authors).



Eine Einladung

Herr Hartmann, der gerade von einer Reise zurückgekommen ist, unterhält sich mit seiner Frau.

Herr Hartmann: Ich möchte gern Herrn Weber einladen, der ja nächste Woche nach Argentinien fährt.

Frau Hartmann: Wir sollten noch einige Gäste dazu einladen, die Herrn Weber kennen und mit denen er zusammengearbeitet hat.

Herr Hartmann: Herrn Meier auf jeden Fall, und Fräulein Klein, die auch persönlich mit ihm befreundet ist.

Frau Hartmann: Es gibt sicher auch noch andere, von denen Herr Weber sich verabschieden möchte.

Herr Hartmann: Da hast du recht. Ich frage ihn, wen wir noch einladen sollen.

Frau Hartmann: Und was ist mit Herrn Gonzales? Der ist doch hier.

Herr Hartmann: Herr Gonzales, mit dem Herr Weber in Südamerika zusammenarbeiten wird, hat schon zugesagt.

B Was hast du denn gemacht?

1 Bastian Pauls schreibt im Chat

Lesen Sie das Chat-Protokoll und ordnen Sie die Aufgaben den Fotos zu.

Helen: Basti, wie war's gestern? Was <u>hast</u> du gestern <u>gemacht</u> ?	
Bastian: Es war sehr anstrengend! Aber auch sehr interessant. Ich <u>habe</u> ab 8.00 Finanzunterlagen <u>geprüft</u> und <u>kopiert</u> .	1
Helen: Aha, und dann? Was hast du dann gemacht?	
Bastian: Ab 10.00 habe ich viel gerechnet, Rechnungen erstellt und verschickt.	2
Helen: Hast du keine Pause gemacht?	
Bastian: Nein, ein Kollege ist krank und ich habe mittags im Kundendienst gearbeitet. Ich habe drei Stunden telefoniert – ohne Pause. ☹	3
Helen: Uff! Und dann?	
Bastian: Am Nachmittag habe ich etwas Besonderes gemacht: Ich war in der Marketingabteilung. Denn wir haben dort Fotos für die Messeloyer gemacht. Ein Fotograf hat die Maschinen fotografiert. ☺	4
Helen: Wow!	
Bastian: Ja, und abends habe ich Pizza bestellt. Im Büro zusammen essen war superlustig. Wir haben bis 1.00 geredet. ☺	5
Helen: Cool!	
Bastian: Ja, aber die Spülmaschine war kaputt. Und ICH habe nachts bis 2.00 die Teller gespült. ☹	6
Helen: Nein!! Du??? Ist ja lustig!	
Bastian: Ja, sehr lustig!	


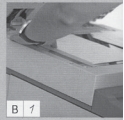

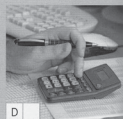









Figure 13: Stylized dialogue in the 1978 textbook *Deutsch als Fremdsprache* (1978: 132; left) and stylized chat in *DaF im Unternehmen* (2015: 94; right).

Of course, one could object in line with Widdowson (2003), that ‘authenticity’ means that texts are relevant to the learners and can be used successfully for their language learning (cf. Fäcke / Mehlmauer-Larcher 2017). However, it is questionable whether alienation of texts, as seen in this example, is necessary when the goal is to enable learners to effectively participate in digital discourses. Nonetheless, the usage and actual helpfulness of texts provided by textbooks need to be explored via classroom research.

In conclusion, the examples provided in this section show diverse ways of incorporating text-type-specific features and being embedded in communicative contexts. It seems that overall, there is room for improvement even in current textbooks. This, however, poses challenges to the publishers, such as legal concerns and topicality (i. e., being up-to-date), but most importantly, there is still a need for comprehensive descriptions and analyses of the named text types and CMC formats in order to provide the respective input within (static) teaching and learning materials. In addition, as will become clear in the following section as well, the aspects of referentiality and communality (cf. Stalder 2018), inherent in almost all digital text types and CMC formats, is not represented appropriately in terms of their production processes, but texts are often displayed as static and unchangeable. Printing forum posts as a fixed product instead of a current, but short-lived artifact neglects not only their contexts, but also the mechanisms of an interconnected world (cf. Stalder 2018; see also 4.1).

5. Results and Discussion II: Changes in Tasks

Tasks and exercises make up a large and important part of textbooks. It is therefore important to investigate whether they have also changed in the course of the digitalization of textbooks and whether expectations placed on the digital textbook concerning design possibilities or meaningful ways of designing tasks and exercises have been fulfilled: The literature states, for example, that digital textbooks could lead one day to more differentiated tasks, more scaffolding, and individualized practice (cf. Meyer 2012). In addition, the potential of dynamic visualizations for the presentation and explanation of grammatical structures was pointed out very early on (Scheller 2012: 2 f.). The expectations are related, firstly, to the easy distribution of large amounts of data and thus the possibility of providing (and – in the case of closed formats – producing) diverse exercises for different levels at low costs (cf. Würffel 2019: 126). Fundamental to the expectations for more differentiated tasks and individualized practice is, secondly, the enormous increase and easy accessibility of target language input (cf. Rüschoff / Wolff 1999: 53; see also Würffel in this volume), which seems to enable true

learner orientation. Thirdly, they are based on developments in the field of AI, which has brought the realization of true adaptive systems (with a more differentiated and individualized feedback) within reach (cf. Blume et al. in this volume). In the following, we will present the results of our analysis, addressing changes in tasks related to changes in input (internet researches, 5.1), changes in text types (tasks on different text types, 5.2), and learner's use of digital devices (use of own devices for production, 5.3, and for the initiation of authentic communication with L1 speakers, 5.4). Due to the size of the data corpus, we did not analyze audio and video material in this publication. Therefore, we do not discuss changes in the area of grammar instruction and grammar tasks, as these are often presented in the form of explanatory videos or video tutorials (for a very interesting analysis, see Zeyer 2023). The presentation of the results will show whether the mentioned expectations have been fulfilled and whether tasks have changed in a way that the phase of Integrated CALL (see 2.) has been reached.

5.1 Internet Researches

Inquiry-oriented activities (beyond the textbook), which learners are to perform on given topics or topics of interest, already existed before the emergence of the internet. However, since it was much more difficult for learners (and teachers) to access original target language material, the emergence of the internet and therefore a huge global database of original materials at the end of the 1990s facilitated this type of task (cf., e. g., Rüschoff / Wolff 1999: 53). The task type internet research in which learners were supposed to search for information on given questions on the internet was quickly established and differentiated significantly within a few years.¹⁸ Biechele et al. (2003: 26) describe inquiry-oriented activities in digital teaching and learning media according to the following aspects:

- complexity of the task (search for individual or complex information, search for a solution to a problem, etc.),
- amount of time required (short-term vs. long-term search),
- degree of guidance of the search process by the teacher or by the task (from guided to not guided, with pre-selected URLs or without, etc.),
- complexity of evaluations (selection of predetermined answers, independent assessments of information found, etc.),
- relationship with other tasks; a stand-alone task or part of a task or project.

18 We deliberately do not use the term webquest, because it is a well-defined task format, introduced by Bernie Dodge in 1995, which has a very clear structure, including, among other things, information about presentation and evaluation (Dodge 1995).

Rösler (2010) adds to these levels of distinction some possible functions of researches: He considers the main purpose of internet researches is to obtain current cultural information. When used in conjunction with a printed textbook, such researches can supplement it with current information, introduce new topics, provide deeper insights (e. g., through new viewpoints), or even expand the range of topics covered by the textbook (ibid.: 160–161). 15 years later, these functions can be supplemented by another important one: It is increasingly pointed out that internet researches can also be used as a task format to sensitize learners to the function and structure of algorithms and to make learners aware that they are presented with pre-sorted information by search engines that is related to their search history (cf. Mustroph 2023: 16 and 21–22).

In their analysis of the online materials of *Passwort Deutsch* (2001), the first textbook in which the online component was developed closely tied to the book production and with the same lesson structure, Biechele et al. (2003: 30–32) show that there can and should be a progression for internet researches in textbooks – from highly restricted and controlled inquiries to more open and complex ones. They also pose the expectation that a progression for search tasks should be found in all future textbooks.

The analysis of our data corpus has shown that the task type *internet research* can be found in textbooks from 1999 onwards, although it was rather sporadic during that time. Often, learners are presented with URLs they can use to research further information (on how to learn German, on cities like Berlin or countries like Austria or Switzerland, on German railways, the German post, the dual education system, German newspapers, etc.; e. g., C-DInt-2 2000: 87, 123, C-DInt-3 2001: 23, 36, K-MULH 1999: 16, 18, 32). Less frequently, inquiry-based activities are integrated into larger tasks (e. g., learners are asked to search for examples of school websites in order to draft one themselves, C-DInt-1 1999: 35). However, an evaluation of the results is not included in either form (at least not prompted by the textbook). Interestingly, search assignments are sometimes still given with the instruction to search both on the internet and in (paper) advertising materials of tourist offices. Furthermore, as a product, collages are to be created on paper – results found on the internet are hence to be printed out by the learners (C-DInt-3 2001: 53; Fig. 18). From 2000 on, the number of internet researches increased and significantly more such instructions can be found, which are used for a wide variety of objectives, yet still with a cultural focus. The complexity of the search assignments varies also, with more complex inquiries predominating, such as planning trips or preparing a project presentation (cf. C-DInt-3 2001: 53).

7 Projekt: Ausstellung zur „Geschichte der Medien“
 Sucht mehr Informationen und ergänzt weitere Kapitel der Mediengeschichte.
 Wir haben einige Internet-Seiten als Beispiele ausgewählt. Findet ihr mehr?

Hier einige Themen:
 Runenschrift der Wikinger
 Chinesische Schrift
 Hieroglyphen der alten Ägypter
 Zeichensprache der Indianer
 ...

Internetseiten*
www.uibk.ac.at/c/c6/c6o3/tpb_6/history.html
www.aegypten-online.de/themen/hiero.htm
www.chinalink.de/sprache/schrift.html
home.tronet.de/gesamtschule/faecher/gl/wikinger/runen/runen.htm
home.t-online.de/home/karlheinz.dreger/zeichens.htm Zeichensprache der Indianer
www.aeres.de/geschichte/index.html Geschichte des Internet
www.rauchzeichen.de/gaesteundgeschichten/geschichte.htm

* Diese Seiten haben alle funktioniert, als wir diese Aufgabe entworfen haben. Aber im Internet ändert sich alles schnell.
 Es kann sein, dass die eine oder andere Seite nicht mehr existiert.




Figure 14: Early example of a more complex internet research in *Deutsch International* 3 (Cornelsen 2001: 53).

This situation changes over the next 12 years in only one aspect: In addition to more complex search tasks, there are increasingly short researches in which learners are supposed to research a limited piece of information. Furthermore, the dominating topics change: While the focus still lies primarily on cultural information (e. g., important telephone numbers at a vacation spot, popular first names in Germany, countries in which certain languages are spoken, e. g., C-DL-A1.1 2020: 18, 38), the use of the internet as a form of concordancing program is also included. For example, learners are asked to search for word meanings (H-VF-B2.1 2021: 16). This again is insofar surprising as the use of actual concordancing programs is not encouraged or integrated, not even in current textbooks.

This integration of numerous simple internet researches probably relates to the emergence and spread of smartphones worldwide: Short inquiries on any topic, at any time, and in any place are part of everyday life for almost every learner. Interestingly, most search activities now refrain from specifying URLs and/or search terms: In other words, they are almost universally open-ended inquiries without any form of scaffolding. This is surprising given the early warnings against such unguided searches, especially in beginner classes. Such

searches often lead to frustrations as learners are typically overwhelmed by linguistically complex websites (Hess 2001: 32, cited in Rösler 2010: 161–162).

While short inquiries often provide answers that are directly needed for the respective task, more complex inquiries are often associated with follow-up communication: Results are presented to the peers (the specific form or medium in which this is done is usually not specified) and discussed with them. Other forms of evaluation and exploitation (such as a publication of search results on the internet, which can then be recognized and possibly used by others; cf. Rösler 2010: 165) cannot be found in our corpus. We were also unable to identify any discussion of the importance of algorithms or the danger of filter bubbles in our corpus (cf. Mustroph 2023: 21).

Internet researches are thus a firmly established form of tasks. The inclusion of the various forms of searches, such as the search for individual facts as well as the search for complex information, corresponds to normalization in the sense of Bax (2003; see 2.) since the breadth of these computer-assisted search activities has long been embedded in everyday practice. But the popularity is probably also related to the fact that internet researches could be considered learner-centered since learners can follow their own preferences in the inquiries. Whether they actually do so, however, can be questioned: Why would someone who is not interested in fashion and online shopping seriously search the huge offer of an online retailer for clothes suitable for him/her and spend a lot of time doing so, instead of completing the task “You have 100 Euro. Use the online catalog to buy clothes for summer or winter vacation.” (C-Sd-A1.2 2005: 77) as quickly as possible by simply searching for just any T-shirt for 40€ and a winter sweater for 60€?

In addition to a broader discussion of the influence of algorithms in the task format of internet researches, the question of a discernible progression also remains open: One can assume that textbook authors expect that learners already know suitable search strategies to find any kind of information on the internet. Yet, even if searching with search engines is a more natural activity for many learners now than it was in 2000, this does not mean that they have mastered suitable and successful strategies for doing so, especially when navigating target language websites. A progression could ensure that training for search strategies takes place and that learners’ media literacy – as a transversal competence – is trained. Hence, the demand for a progression of internet researches, as expressed by Biechele et al. (2003: 27) or by Rösler (2010: 162–163), still exists. Internet researches are normalized as activities in foreign language textbooks, but their didactic design could be further improved. Hence, for this reason, classroom research is urgently needed in order to further develop this popular task type in a way that can be effective in terms of language learning as well as developing media literacy, and motivation.

5.2 Text-Type-Specific Tasks

In our analysis, we also looked at the different text types presented in Section 4.2 to see whether there are tasks that are closely related to specific digital text types and whether the introduction of new text types accompanies changes in tasks. It is noticeable that the various new text types that have emerged as a result of digitalization are largely associated with similar task sequences as the previously integrated text types in textbooks, especially with non-fictional texts (cf. Rösler / Würffel 2020: 133–142). This is not surprising since the objective usually remained the same: The vast majority of tasks involving e-mails, blog or forum posts, news, commentaries, etc. are about (global or detailed) reading comprehension, while the vast majority of podcasts offered are used for (global or detailed) listening comprehension. Hence, the task sequences usually follow the same process-based pattern: They start with preparatory tasks (such as activating prior knowledge), continue with tasks that promote comprehension (such as formulating subheadings), then test reading or listening comprehension, and finally stimulate deeper engagement with the content through more advanced tasks, which then also promote productive competencies (e. g., H-M-A1 2021: 138, K-Kon-B1.1+ 2021: 28–29). Often, however, the textbooks merely offer ‘questions on the text’, i. e., representing a mere comprehension test. Whether learners are supposed to read an e-mail, a forum or blog, a short message, a marketing text on a website, or comments makes no difference (e. g., C-DL-A1.1 2020: 92, C-WB-B2 2020: 128, 11, H-M-A1 2021: 66). The respective tasks are virtually the same as those in older and current textbooks, where learners were or are asked to process excerpts from magazines or information flyers from tourist boards (e. g., C-WB-B2 2020: 16 for a newspaper text and 27 for a forum post).

Hence, only a few tasks can be identified which are more clearly aligned in their objectives with the characteristics of digital text types. This may be because the newly included text types often do not exhibit features that characterize their genuine counterparts, especially in linguistic terms (see 4.5). Consequently, learning objectives and tasks provided rarely aim at making the learners aware of typical linguistic features of a certain text type, nor at training these in-text type-specific production tasks.¹⁹

One exception is the text type e-mail, which is found frequently in the analyzed textbooks. Respective tasks support the learners not only in understanding the content of e-mails but also in raising awareness of the distinctive features

19 A lack of addressing and recognizing text type-specific characteristics may have led to absurd tasks such as the following: “Nachricht an Lukas. Wie kann Lisa die freudige

characterizing an e-mail (e. g., K-A-A1.2 2010: 88). Learners are, for example, guided to recognize the formal or informal style of e-mails or to compose formal and informal e-mails themselves (e. g., K- KomDaF- B2.2 2020: 59; Fig. 15). Only one reference we found deals with the style of forum posts (standard or colloquial; oral or written; H-AkD-B2+ 2021: 130).

2 Erfolgreich schriftlich kommunizieren [formelle E-Mails verfassen]

a Nennen Sie Situationen, in denen Sie formelle E-Mails schreiben, und überlegen Sie, was formelle E-Mails von privaten E-Mails oder Nachrichten über Messenger-Dienste unterscheidet.

b Lesen Sie zuerst den Ratgeber für formelle E-Mails und danach die E-Mails A und B. Markieren Sie in den E-Mails die Punkte, die nicht angemessen sind. Welche Tipps wurden nicht befolgt? ► ÜB A1a–c

Kleiner Ratgeber zur Erhöhung der Antwortwahrscheinlichkeit an der Universität

<ul style="list-style-type: none"> – Schreiben Sie Ihren Professoren bzw. Dozenten nur, wenn Sie spezielle Fragen haben und/oder keine Informationen auf der Homepage gefunden bzw. von Assistenten erhalten haben. 	<p>Betreff:</p> <ul style="list-style-type: none"> – Lassen Sie die Betreffzeile nicht frei. – Formulieren Sie kurz und klar, worum es geht. <p>Anrede/Grußformel:</p>
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Figure 15: Training to recognize the formal or informal style of e-mails in *Kompass B2.2* (2020: 59).

There may be various reasons why text-type-specific features are mainly explained and practiced for e-mails: Our data corpus indicates that in many places the text type letter and the corresponding tasks (especially for addressing the characteristics of formal and informal letters) have been replaced by the text type e-mail (cf. Marx 2019: 166). The parallel setting or substitution of letter and e-mail, which can be found in many textbooks, is also evident in the new CEFR

Nachricht [Schwangerschaft] Lukas mitteilen? Wählen Sie ein Kommunikationsmittel und schreiben Sie eine SMS, eine E-Mail oder spielen Sie ein Telefongespräch, eine Szene, ... Seien Sie kreativ." (K-A-A2 2011: 111). ["Message to Lukas. How can Lisa tell the happy news [pregnancy] to Lukas? Choose a means of communication and write a text message, an e-mail, or act out a phone conversation, a scene, ... Be creative"] (K-A-A2 2011: 111; transl. authors). This is done without embedding the task in a reflection on the communicative functions and conventions of these digital text types. Imagining how learners of German might inform their partners about their pregnancy via e-mail in the future, it seems advisable to pay more attention to task-based awareness of text-type-specific characteristics in textbooks in the future; and to implement more positive examples such as the task sequence in *DaF im Unternehmen* (2015) which we pointed out in 4.3 (Fig. 9).

compendium (cf. Council of Europe 2020: 54–55.): In the descriptors for the competence ‘Correspondence’, both text types (i. e., letter and e-mail) are nearly always mentioned in parallel and appear to be used interchangeably.²⁰

Concerning other communicative text types, stylized illustrations of exchanged text messages often appear, whereby these are (depending on the year of publication) sometimes marked as chat, SMS, forum, IMS exchanges or comments (by labeling or via a visualization; see 4.4) and often replace the text type dialogue. Associated tasks often promote or test reading comprehension, and/or focus on grammatical phenomena and vocabulary. The conceptual orality of the new digital communication practices has so far been insufficiently addressed in the textbooks – not even in the assignments.

In some cases, especially in the context of comments or forums, learners are asked to identify opinions and to express their own reactions (e. g., H-VF-B2.1 2021: 5; Fig. 16). Tasks such as “express your opinion on the facts of xy” have of course existed before, for example in connection with newspaper articles. However, the objective of such tasks in connection with digital communication practices (such as writing posts in forums or writing comments on social media) appears to be highly appropriate to the text type, since these text types are explicitly dedicated to stimulating public expression of opinion.

5 a Lesen Sie die Forumsbeiträge zum Thema *Reisen und Klima*. Markieren Sie die Argumente.

Online 03

Loni: Ich verstehe die ganze Diskussion zum Thema *Reisen und Klima* gar nicht. Es ist doch so, dass es teilweise billiger ist, mit dem Flugzeug statt mit dem Zug zu reisen. Das ist doch verrückt! Wenn die Preise in Zukunft deutlich höher sind, dann werden die Menschen sehr schnell auf das Fliegen verzichten und die Diskussion ist zu Ende.

Chris: So einfach finde ich das nicht. Viele Menschen müssen auch aus beruflichen Gründen häufig fliegen. Das bezahlt dann die Firma. Und für die ist vor allem wichtig, dass die Reise schnell geht.

Jaqueline: Der Ansicht, dass Fliegen teurer werden muss, kann ich nicht zustimmen. Ich finde es gut, wenn man sich einmal im Jahr einen schönen Urlaub in einem exotischen Land leisten kann. Immer nur Nord- und Ostsee ist doch langweilig.

c Schreiben Sie einen kurzen Kommentar zu einem der Beiträge. Stimmen Sie zu oder nicht? Nennen Sie mindestens zwei Argumente. Die Strategie aus dem Kursbuch Kapitel 2, Modul 2 hilft.

Figure 16: Identify opinions and comments in *Vielfalt B2.1* (2021: 15).

20 Moreover, e-mail is one of the digital text types mentioned most often in the CEFR (next to the text type forum, which also appears frequently, but by far not as much as e-mail). Blogs and chats are named rarely, instead posts or postings as well as real-time online discussions are mentioned. These vague terms have prompted the translators of

12 Lesen Sie die Anfrage eines Interessenten und schreiben Sie für Sara eine Antwort.
Die Informationen aus dem Infokasten helfen dabei.

Hallo Sara,



Ich habe bei FixMix gesehen, dass du deinen Schreibtisch verkaufen möchtest. Kurze Frage vorab: Ist er noch zu haben? Wenn ja, könnte ich ihn mir vielleicht vorher mal anschauen? Das wäre super! Wie viele Schubladen hat er und wie groß sind sie genau? Ich hätte gern auch den Rollcontainer und den Stuhl. Welche Farbe hat der Rollcontainer? Ist der Stuhl auch höhenverstellbar? Kannst du mir vielleicht auch sagen, ob ich den Tisch mit einem meiner Freunde abholen kann oder ist er so schwer, dass wir mit mehreren Leuten kommen müssen?

Wie sollen wir es machen? Wann hättest du Zeit?

Meld' dich doch einfach mal. Hier meine Handynummer: 0174 675432

Viele liebe Grüße
Anda

INFOKASTEN

- gern vorab anschauen, Termin für nächsten Freitag um 18:00 Uhr
- zwei große flache Schubladen unter der Tischplatte, Rollcontainer hat 4 große geräumige Schubladen
- silbergrauer Rollcontainer
- Stuhl ist ergonomisch und höhenverstellbar
- Schreibtisch ist abgebaut, nicht sehr schwer, zwei Personen können alles transportieren
- telefonieren und weitere Einzelheiten besprechen
- Dank und Grußformel

Hallo Anda,

ich freue mich sehr über dein Interesse an meinem Schreibtisch. Er ist noch zu haben. _____

Figure 17: Task prompting to handwrite an e-mail in *Deutsch Intensiv: Berufliches Deutsch* (2019: 37).

It is surprising to observe how few tasks have been geared to specific digital text types given the new areas of competence in the CEFR compendium: We hardly found tasks in our corpus that promote the diverse range of competencies concerning online communication as listed in the CEFR Compendium (cf. Council of Europe 2020: 84 f.). This may have to do with the fact that the textbooks analyzed were already published when the compendium appeared or were at least very advanced in the production process. It will be interesting to investigate, therefore, whether textbooks published within the next few years will show significant changes, and whether tasks and exercises will be introduced that will

encourage learners (just to name a few examples from the CEFR Companion Volume 2020)

- to adapt their register and style to suit different online environments, communication purposes, and speech acts (Council of Europe 2020: 85),
- to post online accounts of social events, experiences, and activities by referring to embedded links and media, and to share personal feelings (ibid.: 85),
- to recognize misunderstandings and disagreements that arise in online collaborative or transactional exchanges by responding politely and appropriately in order to help resolve the issue (ibid.: 87).

Our data corpus also confirms Marx' (2019: 169) observation that learners are supposed to produce the text type-specific products mostly on paper and handwritten (K-DI-B2 2019: 37; Fig. 17) rather than in a real-world setting in the classroom, like Fandrych already called for in 2019:

Nimmt man diese virtuellen Kommunikations- und Veröffentlichungsformate ernst, so muss man sie – ähnlich wie die Mündlichkeit – auch in einer realitätsnahen Weise im Unterricht verwenden. Das bedeutet, dass E-Mails an Computern, Tablets oder Smartphones verfasst werden sollten, Kurznachrichten auf Smartphones mithilfe der entsprechenden Programme.²¹ (Fandrych 2019: 63)

It remains unclear why learners are hardly ever asked (or at least given the opportunity) to write corresponding learner products by using the respective medium and technology and share them with their teacher or fellow learners. This would also represent an opportunity to initiate authentic communication (an exception can be found in K-MP-B2 2007: 25, where learners are offered the assignment: “Falls Sie die Möglichkeit dazu haben, können Sie diese Aktivität natürlich auch online in einem echten Internet-Forum durchführen.”²²; see also 5.4).

The characteristics of new digital text types and communication practices, both in terms of their reception and their production, have so far received little attention in the tasks. Textbooks could focus much more on the change in text

the CEFR in the German version to several footnotes that much more and more specific forms of communication and exchange should be mentioned and considered here, such as video conferencing and messenger services (Council of Europe 2020: 104–105).

- 21 “If we take these virtual communication and publishing formats seriously, we must also use them in a realistic way in the classroom – similar to oral communication. This means that e-mails should be written on computers, tablets or smartphones, and short messages on smartphones, using the appropriate programs” (Fandrych 2019: 63; transl. authors).
- 22 “If you have the possibility to do so, you can of course also do this activity online in a real internet forum” (K-MP-B2 2007: 25; transl. authors).

types and communication practices due to digitalization by making it more visible in the texts and by focusing on the didacticization of these texts: The tasks should make the learners more aware of the change and support them in text type-appropriate production.

5.3 Use of Digital Devices

Some tasks in the analyzed textbooks require learners to use digital devices or tools: The use of the internet is included, as are specific software programs such as word processing or presentation programs, apps (here primarily the ones related to the respective textbook), and smartphone functions such as camera and audio recording. Very early on, and still most intensely, the use of tools and media external to the textbook occurs in internet researches, where learners are referred to the internet as a source of information (see 5.1). In the late 1990s, however, alternatives were still frequently named for this type of task: Learners were asked to search the internet or to use other sources of information such as brochures (K-MULH 1999: 32; Fig. 18). A few years later, it is expected that learners have access to a computer in class or at home since they are exclusively asked to search online.

3 Neue Hauptstadt Berlin

zu 2 Einh. 10

Aufgrund des Beschlusses von 1991, dass nach der Wiedervereinigung des geteilten Deutschland Berlin wieder Hauptstadt werden soll, ziehen von 1998 bis 2001 das Parlament, das Bundeskanzleramt und 11 Ministerien von Bonn nach Berlin um. Allein für den Umzug des Parlaments wurden Kosten von 8-9 Milliarden DM geplant.



Bundespräsidialamt

Kanzleramt

Reichstag

Das Parlaments- und Regierungsviertel in Berlin:

1. Inneres	9. Arbeit
2. Wirtschaft	10. Gesundheit*
3. Verkehr	11. Justiz
4. Bildung und Wissenschaft*	12. Verteidigung*
5. Umwelt	13. wirtschaftliche Zusammenarbeit*
6. Landwirtschaft*	14. Finanzen
7. Familie, Senioren, Frauen und Jugend	15. Bundespräsidialamt
8. Auswärtiges Amt	16. Kabinett
	17. Bundesratsverwaltung
	18. Abgeordnetenbüros, Fraktionen
	19. Presse- und Informationsamt
	20. Bundestag
	21. Bundesrat

* nur zweiter Dienstsitz zieht nach Berlin

Aufgabe (Projekt)

Überlegen Sie bitte gemeinsam, welche Folgen der Hauptstadt-Umzug für die beiden Städte Bonn und Berlin hat. Beachten Sie dabei die folgenden Aspekte:

- Wohnungsangebot
- Verkehr
- Kulturelles Angebot
- Preise

Sammeln Sie bitte Informationsmaterial und Bilder (z.B. aus dem Internet oder vom Berliner Fremdenverkehrsamt) und machen Sie eine Collage zur Hauptstadt Berlin.



500 m



Berlin im Internet
unter
www.berlin.de

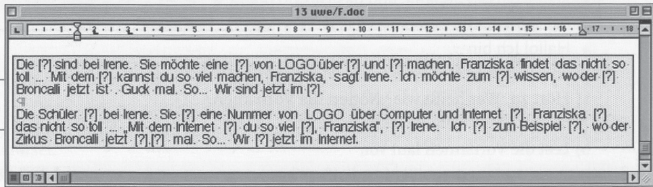
Figure 18: Combination of internet research and search in paper brochures in *Mit uns leben heute* (1999: 32).

SO LERNST DU EFFEKTIVER

Mit dem Computer lernen

Ein Text – viele Aufgaben. Schreib einen Text aus dem Lehrbuch auf dem Computer.
Dann kannst du viele Übungen selbst machen:

1. Alle Substantive ersetzen



2. Alle Verben ersetzen

Weitere Ideen:

1. Löscht jedes zweite Wort.
2. Tauscht die Reihenfolge der Sätze.
3. Löscht die Abstände zwischen den Wörtern.

Tauscht eure Disketten in der Klasse. Die anderen lösen eure Aufgaben. Korrigiert gemeinsam.

Figure 19: Task asking learners to prepare exercises for fellow learners in *Deutsch International 2* (2000: 35).

Although computer access in the classroom or at home is assumed, there is only one reference in our corpus where learners are asked to use a word processing program to create exercises for fellow learners (C-DInt-2 2000: 35; Fig. 19). It seems regrettable that this approach of peer learning has obviously not been followed up, although it seems didactically promising.

In addition to the diverse uses of the internet as a resource pool, the camera and recording functions of the learners' smartphones are used for task processing. In some current textbooks, learners are asked to record their own products as video or audio. In part, this involves recording oneself or fellow learners to illustrate or explain things (e. g., making explainer videos, e. g., K-KomDaF-B2.1 2020: 51) as well as to document and reflect on productions: Learners are supposed to compose commercials, presentations, lectures, statements, and poems and to record them via audio or video (e. g., C-DL-A1.2 2020: 195, H-M-A1 2021: 61, 80, K-KomDaF B2.2 2020: 25 or B2.1 2020: 55). However, this possibility of documenting, presenting, and reflecting on linguistic products in video and audio format has so far been rarely and rather unsystematically

implemented in textbooks, which is surprising given the potentials attributed to this option in academic discourse (cf., e. g., Rösler / Würffel 2020: 110).

Furthermore, apps, which probably play a major role in the lives of most current textbook users, are mostly ignored for task processing in textbooks: In some cases, information about certain apps is included, e. g., when learners are supposed to present their favorite app to their fellow learners (C-WB-B1+ 2019: 16). In how far apps are to be used for productive tasks in GFL textbooks cannot be determined at the present – apart from using the publisher's apps associated with the textbook (e. g., *Klett Augmented*, *PagePlayer* by Cornelsen, or *Hueber interaktiv*). This omission is unfortunate considering the ongoing discourse on the educational potential of German language learning apps, which highlights the benefits offered by certain types of apps (e. g., Rösler / Würffel 2020: 102–106). Understandably, commercial companies are reluctant to advertise competitors' products. However, this attitude may lead to limitations for customers, as they are not made aware of other ways to advance their foreign language learning outside of – but in combination with – the textbook.

Textbooks have not yet sufficiently taken into account the methodological possibilities offered by the productive use of digital devices for teaching and learning foreign languages. Here, too, it is not yet possible to speak of systematic integration and normalization in the sense evoked by Bax (2003; see also 2.).

5.4 Stimulating Authentic Communication with L1 Speakers

One of the central expectations of the benefits of digital media for foreign language learning was to facilitate access to authentic communication situations with L1 speakers or with learners of the same target language (cf. Fischer 2013: 4). As early as the 1980s, the first institutionally linked e-mail exchanges were developed to put learners in touch and to give them the option of using the target language in an authentic exchange (cf. Würffel / Schumacher 2022: 144). With the establishment of the European eTwinning initiative, these exchange projects were diversified and systematically supported both technically and didactically. Other options for authentic use of the target language are perceived in the informal space using computer games (cf. Biechele et al. 2003: 34) or social media (cf. Würffel 2020). In light of the great variety of scenarios for stimulating authentic communication with target language speakers, one would expect that they have found their way into current textbooks and that such communication situations would be stimulated from within the textbook. However, one central and disappointing result of our textbook analysis is that this is very rarely the case and that in this regard no progress can be detected over the past 30 years: In our

corpus, we found very few references in which learners are asked to participate in authentic communication on the internet (see 5.2).

One first example (beyond our corpus) is Bea Kretschmar: In 2011, Klett Publishing House attempted to connect the world of textbooks with the world of social media by starting a Facebook account for the fictitious textbook person Bea Kretschmar (one of the main personas of the film accompanying *Netzwerk A1*, 2011), through which learners can get in touch with her and with each other (see also Würffel in this volume: 37). The fact that this account still exists and that this fictional person additionally has an Instagram account suggests that the traffic on the accounts is so high that the publisher continues to pay editors to work on fleshing out the fictitious personality that Bea Kretschmar represents.

In our corpus, we found just one example where the use of social media is integrated. Here, learners are asked to log on to their Facebook account²³ and to be active for a few days:

Facebook hilft beim Deutschlernen. Stellen Sie Ihr Profil auf Deutsch um und bewegen Sie sich ein paar Tage auf Deutsch in Facebook. Sammeln Sie dabei Ausdrücke, die für Sie neu sind. Suchen Sie deutschsprachige Gruppen, die ähnliche Hobbys und Freizeitinteressen haben.²⁴ (K-A-A2 Klett 2011: 110)

Unfortunately, this is limited to this one task and the learners' learning experience on Facebook is not connected to their work with the textbook.

Another interesting example can be found in the textbook *Genial* (2017). Here, learners are guided through a rather long cycle of tasks to engage in a private e-mail exchange with target language peers. The intensive engagement with the topic of self-expression and e-mails in the course book is framed in the teacher's manual by the suggestion to subsequently carry out an e-mail project with partner schools or classes "if possible". Even if one would have liked to see

23 The suggestion to use one's own social media account for foreign language learning can also be seen critically, as it belongs to the learners' private world, which they might want to clearly separate from the learning world of the classroom. Thus, research findings on whether learners want to use social media for institutional foreign language learning are contradictory. Regardless, however, learners should be involved in the decision (cf. Würffel 2019: 227).

24 "Facebook helps you learn German. Change your profile to German and move around Facebook in German for a few days. While doing so, collect expressions that are new to you. Look for German-speaking groups that have similar hobbies and interests" (K-A-A2 Klett 2011: 110; transl. authors).

more concrete suggestions and tips for carrying out such an exchange in the teacher's manual (e. g., with a reference to the eTwinning initiative), this example shows how textbooks can prepare authentic communication situations with peers that – linked to instruction – allow learners to overcome the boundaries of the classroom with the help of digital applications.

Authentic communication with L1 speakers via digital media is hardly promoted by textbooks and the possibilities of opening up the classroom are rarely used. In this respect, the textbooks (according to Bax's classification from 2003; see also 2.) can almost be described as a form of restrictive CALL, since they remain in the status of a closed textbook world.

6. Conclusions

In this paper, we traced the influence of digitalization on textbooks for German as a foreign and second language as well as the pedagogical developments related to the process of digitalization. The exemplary analysis indicates promising developments as well as clear potential for improvement.

Overall, the results of the first part of our analysis (see 4.) show that digitalization has led to diverse changes in the topics covered by textbooks, which are increasingly connected to digitalization, and the inclusion of digital text types and CMC formats in textbooks. Clearly, learners need these to learn to navigate current discourse in the target language, but should also be prompted to reflect on the underlying mechanisms (such as referentiality). However, we also need to acknowledge the challenges for publishers of incorporating genuine input in textbooks, like legal issues or the necessity for topics to be both timeless and up-to-date. Nonetheless, texts could display more specific features common to digital text types and CMC formats, even though research still needs to provide more comprehensive descriptions of these. In this context, 'window dressing' techniques, such as using browser frames to make texts appear to be current and drawn from digital discourse, may make textbooks appear more attractive to users, but do not support language learning or digital literacy. One possible solution could be for textbooks to include tools for finding and selecting level-, thematically appropriate, and topical input such as language-specific AI- and corpora-based search engines, which would also apply to entire textbook series (of the same publisher). This could also remedy the aspect of texts appearing to be static and decontextualized, while digital communication is characterized by interactivity and changeability.

As has been demonstrated in Section 5., task formats and objectives have also changed as a result of digitalization. This is particularly evident in the case of

internet researches which have shown considerable variation since their introduction in textbooks (from the 1990s onward). In their diversity, they correspond well to the research activities of learners outside of the classroom. For this very reason, it seems desirable that the importance of algorithms for obtaining information via the internet and the phenomenon of filter bubbles should be addressed in textbooks. In terms of reception and production of digital text types, and of communication practices that could be described as text type-appropriate, the development is also progressing much more slowly. The added value for the teaching and learning of foreign languages created by the productive use of digital devices is also not yet reflected to a desirable degree in the evolution of tasks in textbooks. On the level of a ‘didacticization of digitalization’, textbooks thus still clearly show room for improvement.

Furthermore, tools for digital communication, such as computer-assisted writing aids (dictionaries, phrase suggestions, grammar and spell checkers, translation programs, and even AI-powered writing tools), should also be addressed by textbooks. These tools not only need to be introduced but also integrated in a way that encourages reflective usage. As language education evolves in the digital age, equipping learners with the skills to harness these resources effectively becomes crucial: “Sie [diese Ressourcen] zu thematisieren, ihr Potenzial kritisch zu erkunden, um sie produktiv nutzen zu können und ihre Grenzen zu erkennen [...]”²⁵ (Fandrych 2019: 62).

In the teaching of German as a foreign or second language, instruction heavily relies on commercial teaching and learning materials from only a few publishers. It is obvious that these have commercial interests and are subject to the rules of the market. At the same time, however, this limits their development. Consequently, there is a notable gap between the possibilities that digitalization offers and the extent to which they are actually exploited in textbooks and therefore in classrooms. The predominance of commercial materials can inadvertently limit educators’ usage of diverse digital tools and content, hindering their normalization as well as the exploration of innovative and varied teaching methods. To embrace a wider range of digital materials and CMC formats than textbooks provide (such as current multimedia texts or language learning applications), educators can tap into the vast array of resources available on the internet (e. g.,

25 “To address them [these resources], to critically explore their potential in order to use them productively, and to recognize their limitations [...]” (Fandrych 2019: 62; transl. authors).

as Open Educational Resources, OER) as long as they encourage discussions and reflections on their conditions of creation.

Overall, a more intensive collaboration between educators, researchers, and digital content developers would be desirable: Educators and researchers could conduct collaborative research into what the practical implementation of digit(al)ized textbooks in language teaching looks like, which resources of the digital textbooks, and which additional digital teaching and learning materials are used in the classroom. Furthermore, this could also reveal the respective needs of educators. Research on the reception and implementation of (digital) teaching and learning materials could also provide insights into what concrete effects the use of current digital teaching and learning environments has on teaching and learning. Respective findings would inform textbook authors and publishers on how to further develop digital teaching and learning environments to suit specific target groups and contexts. In addition, these findings could offer empirically validated assessments of whether foreign language teaching has reached the integrated CALL phase yet, even if the (digital) textbooks do not yet seem to indicate this.

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Appendix I – Index of Textbooks in the Corpus with Corresponding Acronyms

1	C-DInt-1 1999	(1999). Deutsch International 1. Berlin: Cornelsen
2	C-DInt-2 2000	(2000). Deutsch International 2. Berlin: Cornelsen
3	C-DInt-3 2001	(2001). Deutsch International 3. Berlin: Cornelsen
4	C-DL-A1.1 2020	(2020). Das Leben A1.1. Berlin: Cornelsen

5	C-DL-A1.2 2020	(2020). Das Leben A1.2. Berlin: Cornelsen
6	C-DL-A2 2021	(2021). Das Leben A2. Berlin: Cornelsen
7	C-sd-A1 2005	(2005). studio d A1. Berlin: Cornelsen
8	C-sd-B1 2008	(2008). studio d B1. Berlin: Cornelsen
9	C-sd-B2.1 2010	(2010). studio d B2.1. Berlin: Cornelsen
10	C-sd-C1 2016	(2016). studio d C1. Berlin: Cornelsen
11	C-S[21]-A1 2013	(2013). Studio [21] A1. Berlin: Cornelsen
12	C-WB-B1+ 2019	(2019). Weitblick: Das große Panorama B1+. Berlin: Cornelsen
13	C-WB-B2 2020	(2020). Weitblick: Das große Panorama B2.1. Berlin: Cornelsen
14	H-AkD-A1+ 2020	(2020). Akademie Deutsch A1+. München: Hueber
15	H-AkD-A2+ 2020	(2020). Akademie Deutsch A2+. München: Hueber
16	H-AkD-B1+ 2020	(2020). Akademie Deutsch B1+. München: Hueber
17	H-AkD-B2+ 2021	(2021). Akademie Deutsch B2+. München: Hueber
18	H-M-A1 2021	(2021). Momente A1. München: Hueber
19	H-Tan-1 1998	(1998). Tangram 1. München: Hueber
20	H-Tan-2A 1999	(1999). Tangram 2A. München: Hueber
21	H-Tan-2B 2000	(2000). Tangram 2B. München: Hueber
22	H-TanA-A2.1 2005	(2005). Tangram aktuell A2.1. München: Hueber
23	H-TanA-A2.2 2005	(2005). Tangram aktuell A2.2. München: Hueber
24	H-ThN-1 1992	(1992). Themen neu 1. München: Hueber
25	H-ThN-2 1993	(1993). Themen neu 2. München: Hueber
26	H-ThN-3 1994	(1994). Themen neu 3. München: Hueber
27	H-ThA-1 2003	(2003). Themen aktuell 1. München: Hueber
28	H-ThA-2 2003	(2003). Themen aktuell 2. München: Hueber
29	H-ThA-3 2004	(2004). Themen aktuell 3. München: Hueber
30	H-ThA-3 2006	(2006). Themen aktuell 3. München: Hueber
31	H-VF-B2.1 2021	(2021). Vielfalt B2.1. München: Hueber
32	K-A-A1.2 2010	(2010). Aussichten A1.2. Stuttgart: Ernst Klett Sprachen

33	K-A-A2 2011	(2011). Aussichten A2. Stuttgart: Ernst Klett Sprachen
34	K-DaFU-A1 2015	(2015). DaF im Unternehmen A1. Stuttgart: Ernst Klett Sprachen
35	K-DI-B2 2019	(2019). Deutsch Intensiv: Berufliches Deutsch. Das Training für Beruf und Alltag B2. Stuttgart: Ernst Klett Sprachen
36	K-DMJ-3 1999	(1999). Das Deutschmobil. Deutsch als Fremdsprache für Jugendliche. Lehrbuch 3. Stuttgart: Ernst Klett Sprachen
37	K-DMK-1 1999	(1999). Das Deutschmobil. Deutsch als Fremdsprache für Kinder. Lehrbuch 1. Stuttgart: Ernst Klett Sprachen
38	K-Gen-A1 2017	(2017). Genial: Deutsch für Jugendliche A1. Stuttgart: Ernst Klett Sprachen
39	K-KomDaF-B2.1 2020	(2020). Kompass DaF B2.1. Stuttgart: Ernst Klett Sprachen
40	K-KomDaF-B2.2 2020	(2020). Kompass DaF B2.2. Stuttgart: Ernst Klett Sprachen
41	K-KomDaF-C1.2 2021	(2021). Kompass DaF C1.2. Stuttgart: Ernst Klett Sprachen
42	K-Kon-B1.1+ 2021	(2021). Kontext B1.1+. Stuttgart: Ernst Klett Sprachen
43	K-MULH 1999	(1999). Mit uns leben heute. Stuttgart: Ernst Klett Sprachen
44	K-MP-B2 2007	(2007). Mittelpunkt B2. Stuttgart: Ernst Klett Sprachen
45	K-PD-A1 2004	(2004). Passwort Deutsch A1. Stuttgart: Ernst Klett Sprachen

Dietmar Rösler

Textbook Representations of the Learners' Perspective on the Culture and Society of the Countries of the Target Language: 30 Years Ago and 30 Years Hence

Abstract: The article first reconstructs the goals and methodology of the intercultural approach of the 1980s and 1990s, especially concerning the question of how textbooks succeed in giving learners their voice, thereby enabling them to express their perspective on the target culture. In the second part, after a brief recapitulation of the developments in discussions on foreign language learning with digital media, the article describes, on the one hand, what effects the technological developments have on the design and function of textbooks. On the other hand, it shows that the criticism of the intercultural approach, which claims that it is too strongly nation-centered and thus ignores the diversity of source and target cultures, loses its significance due to the potential of foreign language learning with digital media to simultaneously strengthen the individualization and cooperation of concrete groups of learners across borders.

Keywords: asynchronicity, digital media, heterogeneity, individualization, intercultural learning, textbooks, language assistance systems

1. Introduction

From the perspective of the first two decades of the 21st century, with its focus on diversity and fluidity, the intercultural approach of the last third of the 20th century is criticised for dealing with relationships between clearly delineated entities – nations. From the perspective of the 1980s, the intercultural approach made the first intensive attempt to help learners articulate their view of the target language and the cultural context in which that language was spoken. This happened in different ways: Research in English as a foreign language in Germany, for example, produced an intensive discussion of how the view of the other could be promoted through work with literary texts (cf., e. g., Bredella 2012); in the field of German as a Foreign Language, attempts were made as early as the 1980s to provide learners with the means for expressing their view of the target cultural world in textbooks. The resulting materials and suggested activities could of course never be related to the needs of a specific group; teaching materials and

general teaching suggestions were never target-group specific enough for this (cf. Chapter 3 from Rösler 2023).

The stimulating question for further development is: Do two developments that arose after the 1980s – the new opportunities for interaction made possible by digitalization and the strong growth in migration and globalisation, and the associated increase in diversity both in the target cultural world and in the composition of groups of learners – change this? This paper discusses whether and how enabling learners to communicate their perspectives can be further developed to focus more on the diversity of the target language and culture and the individuality of perspectives. How learning materials contribute to this and how they change in the context of digitalization will play a special role in this discussion.

In what follows, therefore, the goals of the intercultural approach and their implementation in textbooks will first be outlined, followed by a brief description of the conflict generated between the linguistic and cultural heterogeneity of the target language and culture on the one hand, and the need of beginners, who live linguistically and culturally far away from the target language and target culture, for a homogenizing introduction as a rough orientation, on the other. The second part of this article will describe the technological changes that potentially make it possible to allow learners greater self-determination of content at an early stage of their foreign language learning. And it will ask to what extent technological changes might make it possible for learners to engage with the heterogeneity of the target language and culture earlier than has hitherto been the case, through greater self-determination of content. The big challenge here is: Does contact with target cultural heterogeneity, which could now be possible at an early stage, also lead to intercultural learning and a differentiated engagement with it?

2. The Awakening of the Learners' Perspective: The Intercultural Approach

The basic idea of the intercultural approach¹ was to bring the familiar and the foreign into conversation with each other. Learners were not only to learn how to move like a fish in water communicatively in the target language and target

1 This is a very brief summary of the intercultural approach. For a more detailed discussion of it and the discussion on homogeneity and heterogeneity in foreign language learning cf. Chapters 4 and 9 in Rösler (2023) and Rösler (2022).

culture. Accepting that learners enter the learning process with their own experiences and values, with their multilingualism and different language learning experiences meant accepting that these might lead to attitudes towards the target culture and linguistic behavior which differed from the norms that teachers, textbook authors, and curriculum planners wanted to convey. The intercultural approach went beyond teaching how to cope with the communicative everyday life of the target language area, was linked to general goals such as international understanding, and had general learning objectives such as making learners aware of differences between cultures and individuals, reducing prejudice, and developing tolerance skills.

The ability to talk about one's own culture becomes particularly important when the language learners' focus is not on traveling to or staying in those parts of the world where the new language is spoken, but on communicating with speakers of that language – be they tourists, friends or business contacts – in the learners' environment. It is important for them, especially in those contexts, to be able to talk about their world, the differences to the world where the new language is spoken and the different assessments associated with certain types of behavior.

The emphasis on dealing with the familiar and the foreign introduced new elements into classrooms and textbooks: dealing with mentalities and stereotypes suddenly played a major role in foreign language teaching. They provide a great challenge because in dealing with the images of the target cultural region in the minds of the learners, and with the images that exist in the target cultural region of the culture of the learners, and how these interact, three possible dangers must be taken into account:

- the danger of losing sight of the heterogeneity of the world by dealing with group-specific images,
- the danger of dealing with stereotypes in relation to their supposed truth value, instead of with stereotypes as constructs and
- the danger that an inappropriate approach might contribute to the reinforcement of stereotypes.

If these dangers are not kept in mind, the intercultural approach can easily become a problematic one in which, instead of exploring the diversity of the learners' world and the diversity of the target language-speaking world, the focus is on two seemingly clearly determinable cultures (cf. Koreik / Fornoff (2020) and Fornoff (2021) as comprehensive surveys of the German debate on dealing with the culture of the areas in which the new language is spoken).

3. Homogeneity and Heterogeneity in Beginners' Classes

When the German way of accepting a gift is compared with the Vietnamese way, the comparison assumes that there is such a thing as 'the Germans' and 'the Vietnamese', working with a homogeneous concept of culture. This kind of approach is common in textbooks and in the classroom; and with good reason, in a foreign language teaching context in which learners have very little knowledge of the target region (cf. Grünewald et al. 2020 as a summarizing description of three extensive studies on stereotypes about Germany and the Germans held by Japanese and Chinese learners of German).

However, if foreign language teaching engages with a concept of culture that assumes there is such a thing as a homogeneous, self-contained culture attributable to national groups, then this comes into conflict with the fact that most of the so-called national cultures consist of a community of people who have come together from very different places. For example, more than a quarter (26.7 %) of the people living in Germany in 2020 had a so-called migration background (cf. Bundeszentrale für politische Bildung 2021), i. e., they or at least one parent did not have German citizenship at the time of their birth. The diversity spurred on by globalisation and migration and the associated dissolution of simple cultural demarcations has been increasingly noted in the discussion on foreign language learning² in the 21st century.

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- 2 Claus Altmayer (2006) has discussed this most intensively. He argues that culture should not be seen as a homogeneous entity, but rather as patterns of interpretation stored and handed down in tradition and language "als Vorrat an vorgängigem in Tradition und Sprache gespeichertem und überliefertem Wissen (Deutungsmuster) [...], das innerhalb sozialer Gruppen zirkuliert und auf das die Individuen zum Zweck der deutenden Herstellung einer gemeinsamen Welt und Wirklichkeit und einer gemeinsamen Handlungsorientierung zurückgreifen können und müssen" (ibid.: 191). The concept of cultural studies posits a counter-position to the nation-based notion of regional studies, "die einer adäquaten theoretisch-konzeptionellen Erfassung der wachsenden Komplexität, Heterogenität und Pluralität sozialer Wirklichkeiten unter den Bedingungen einer sich immer weiter beschleunigenden globalen Vernetzung eher im Wege stehen" (Fornoff 2021: 324 f.) [which tend to stand in the way of an adequate theoretical-conceptual grasp of the growing complexity, heterogeneity and plurality of social realities under the conditions of ever accelerating global networking, transl. DR]. This new orientation is given the term cultural studies to distinguish it from regional studies, which they criticise. Introducing the term 'cultural studies' also signals that the discussion of regional studies is oriented towards the cultural studies that dominated the discussion in the humanities in the last quarter of the 20th century. Terminological renaming signals that shifts have taken place in a particular field and

While increasing diversity is easy to discuss within sociological and cultural studies discourses, it is less so in foreign language teaching at level A, i. e., with learners who have little knowledge of the target language, especially when not only linguistic knowledge is very basic, but also knowledge of the values, cultural traditions, and patterns of interpretation in the geographical areas in which the target language is spoken. The idea of culture as something that emerges from the narratives and constructions of the people involved can easily come into conflict with a concept of culture that refers to national groups.

Foreign language teaching must therefore engage in a kind of squaring of the circle, it must both – and ideally at the same time – operate, at least initially, with homogenizing representations of cultures in the classroom, convey the character of images as constructs, and make learners aware that the construction of ‘one’ culture runs the risk of ignoring the diversity of people and their ways of acting.

4. Interculturality in Textbooks

Textbooks can either make the teaching of intercultural learning their guiding concept, as did the two prototypical ones in the field of German as a Foreign Language, *Sichtwechsel* (Hog et al. 1983) and *Sprachbrücke* (Mebus et al. 1987), or they can integrate texts and tasks that support intercultural learning with varying intensity. It is possible, through appropriate measures such as working with multi-perspective literary texts, intelligent playing with national stereotypes, the discussion of the so-called critical incidents or humorous intercultural misunderstandings, and so on, to both make students aware of the cognitive functionality of homogenizing cultural concepts and to go beyond this initial situation with a focus on heterogeneity. O’Sullivan and Rösler (2013: 167–176) describe a playful approach to dealing with stereotypes. The textbook *Eurolingua* (Funk / König 1998: 126) provides a classic intercultural misunderstanding: A Korean makes a gesture that is misunderstood in German. However, the open instruction ‘Do you believe the story?’ also addresses, on a meta-level, the extent to which so-called intercultural misunderstandings can possibly also be used as strategies of individual face-saving or talking oneself out of a situation.

The choice of tasks is also important. Semi-open and open tasks usually require freer reactions from the learners than closed exercises; they could lead to

that these shifts are of particular importance and open new perspectives for the field as a whole. At the same time, there is a danger that it will reduce the discussion to date to certain phenomena that are particularly worthy of criticism and that other aspects will be marked as no longer worthy of special treatment.

the learners drawing on their own knowledge of the world, their own ideas, etc. in terms of content. Discussions, creative writing, and projects are examples of open tasks. A classic example from the prototypical textbook of the intercultural approach for advanced students, *Sichtwechsel*, juxtaposes two pictures – of a man in uniform and a detail from the same picture – as a starter to discuss the concept of changing perceptions (cf. Bachmann et al. 1995: 46 and 126).

But less open tasks can also produce challenging intercultural discussions. In *Sprachbrücke*, the prototypical textbook of the intercultural approach for beginners of learning German as a Foreign Language, a short text (Fig. 1) introduces linguistic elements referring to relationships (*mein Freund, ein Freund von mir, ein Bekannter*), and the accompanying instruction (Fig. 2) asks learners not only to put the words into a correct order of closeness and distance (which they can do based on the information provided by the text). But it also invites them to create a similar word field for their own language and then compare their scales to determine possible overlapping points and deviations. The learners have the cultural knowledge and linguistic ability to do this for their first language (and also for other languages in which they are already more advanced); they are therefore competent to complete that part of the task. On the level of the target language German, they operate with the text; here they can gauge from the text the relations between the individual linguistic items but cannot yet name the absolute position on the scale. Over time, as they get to know new texts and contexts, they will be able to match the German words to their own more refined word fields in their first and previously learnt languages.

Der Freund im Wörtersee

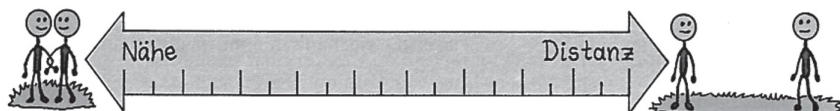
Ab und zu mache ich zusammen mit einem Freund eine Radtour. Mein Freund findet das völlig in Ordnung. Aber ein Bekannter von mir hat sich neulich fürchterlich darüber aufgeregt, daß ich mit einem Freund von mir unterwegs bin, während mein Freund zu Hause bleibt. Mein Freund, das ist der Mann, mit dem ich zusammenlebe. Der Freund von mir, das ist ein Mann, mit dem ich höchstens zusammen radfahre. Und der Bekannte, mit dem würde ich nicht mal radfahren. Den kenn ich halt, ich kann auch nichts dafür.

Eva Witte

Figure 1: Introducing linguistic elements referring to relationships from Mebus et al. (1989: 102).

Aufgaben

1. a) Schreiben Sie bitte die Wörter heraus, die eine Beziehung zwischen Menschen bezeichnen!
Beispiel: ein Freund
- b) Bringen Sie bitte diese Wörter in eine Reihenfolge!



2. Suchen Sie bitte in Ihrer Sprache die passenden Wörter für Freund, Bekannter usw.! Gibt es für alle deutschen Ausdrücke passende Wörter in Ihrer Sprache?
3. Gibt es in Ihrer Sprache Begriffe, für die es im Deutschen keine direkte Übersetzung gibt?

Figure 2: Intercultural task relating to text in Fig. 1 from Mebus et al. (1989: 102).

These examples show that in the intercultural textbooks of the 1980s, *Sprachbrücke* and *Sichtwechsel*, attempts were already made to give learners space for their interpretation of aspects of the world connected with the new language, and of the similarities and differences between the languages already learned and the new language. Limited by the space available in textbooks, and also by the lack of a contrastive component, this could only ever be done by way of examples.

The lack of a contrastive component is theoretically double-edged. Obviously, it means that concrete learners in country X lack examples of differences relevant to their culture. It can be argued that this is a deficit because it forces the learners to supplement the fictional foreignness presented in the textbook with contrasts to their concrete world, and this can be seen as too abstract a challenge. Conversely, it can also be argued that this very process of abstraction is a necessary component of intercultural learning since it is only through this kind of reflection that intercultural learning can succeed in overcoming the simple 'Here it's like this, there it's different', to enable the long-term development of foreign cultural and linguistic meanings.

In a digitized world, the plenitude of interactions with speakers of the new language and of spoken and written texts in that language could allow for an approach to learning in which the textbook (regardless of whether it is printed or in digitized form) no longer has to determine the course, and in which the productive and receptive use of the target language could be based on learners' interests. This leads to the question of whether and to what extent the main aims

of the intercultural approach could be achieved in a more differentiated way in such an environment.

5. The Implications of Technological Developments for Foreign Language Learning

Through digital media being integrated into foreign language learning over the past thirty years, classical formats such as tandems and exchanges have been able to cross spatial boundaries more quickly to become virtual exchanges, interactive exercises have provided immediate feedback, which, however, often lagged behind average teacher feedback in terms of quality (cf. Rösler 2004: 177–193 for an overview of the development of feedback in the initial stages of digitalization). Concepts like *blended learning* have tried to undermine the undisputed dominance of learning in the classroom combined with individualized homework. CALL and CMC have seen a multitude of changes, regressions as well as progress.

These developments cannot be detailed here (cf. Rösler / Würffel 2020 as an introductory overview). Instead, some of the aspects of the development of foreign language learning with digital media will be discussed, which in the long-term could undermine the role of textbooks in determining lessons and lead to the strengthening of learners' self-determination of content. These are:

- a productive approach to language assistance systems in which they become integrated into foreign language learning and are not seen as competition or even as unauthorised aids in the classroom,
- the inclusion of the almost infinite number of spoken and written texts on offer in digital space,
- a more differentiated use of synchronous and asynchronous activities by the learners, and
- a revision of the fact that in the context of digitisation, the important concept of individualisation has too often been misunderstood as self-directed learning.

6. Competition from Language Assistance Systems and Software – Why Do We Still Need Teachers, Textbooks, and Classrooms?

The menu from a restaurant, a popular 'authentic' text in communicative teaching, will be displayed on the mobile phone or glasses via a QR code, in the desired language. Asking for directions or listening to or reading a dialogue about asking for

directions in a textbook will soon look pretty old-fashioned as it is replaced in the real world by a programme that visualizes the way for the questioner or, if desired, also communicates it linguistically, in the language of his or her choice, which does not necessarily have to be the target language. Everyday enquiries from a tourist, predictable small talk, or domain-specific communication can now be translated by software from the speaker's utterance into the language of a listener. *DeepL* is a serious help in getting your message across in different languages, *Google Translate*, once a source of amusement, has improved massively: As speech recognition programs become more equipped with world knowledge, they will be able to cope better with inferences, thus the many hilarious translation errors due to the confusion of context and world knowledge will become a phenomenon of the past. So why bother learning a foreign language at all?

If the developers of programmes like *Duolingo*, which are currently still under-developed didactically, did not put most of their work into technology, but into didactically more significant items, so that the quirky example sentences and the overdose of translation activities might be replaced by more sophisticated procedures, one could well imagine that at least in vocabulary acquisition, comprehensive, non-institutionally guided learning activities might take place through such programmes (cf. Bui 2022 for a comprehensive study of how learners – in this case Vietnamese students who learn German through English – make use of *Duolingo*). So, why should society or individual learners spend a lot of money on institutions like schools or special language schools to learn foreign languages?

Compared to the disruptions in many other areas of social life, foreign language teaching has so far been spared the major effects of digitalization on the organization of learning in educational institutions (cf. Schmenk 2021). The qualitatively very different reactions of schools and universities in Germany to the pandemic-related forced digitization show that a digital habitus, a self-evident functional use of digital media as part of foreign language teaching had not yet been established (cf. Oswalt / Rösler 2021). However, schools and universities will, in the future, have to consider how digitized materials and language assistance systems can become part of their concept.

Blume and Würffel (2018) and Würffel (2019) provide an overview of adaptive technologies, tools, etc. that are already available or will soon be available and that could be used for foreign language learning. These are, for example, tools that were originally developed for people with disabilities and are intended to help them use digital media for communicating and learning without further assistance, to be able to participate in social processes in this way. Such assistance systems are, for example, speech recognition software, writing assistance software, audio-digital reading pens, spelling assistance of a word processing

software, mobile phone recording function, subtitles for the hearing impaired, etc. (cf. *ibid.*: 134).

Foreign language research must ask, for example, why so little use has been made so far of word prediction programmes in the foreign language classroom. If learners in a foreign language write because they have something to say and not just because they must do a writing exercise, wouldn't it be helpful if a programme helped them find new words – especially if it provides a context-appropriate variant? Or if you look at how foreign language teaching methods, for purist reasons, have been reluctant to work with subtitles in the reception of audio-visual material: Wouldn't digitization provide a good opportunity to deal with this more productively and, for example, let learners determine the speed of the sound themselves and decide when they need target language subtitles, when they need first language subtitles, and when they don't need any subtitles at all, to be able to follow a film? Institutions that test listening comprehension will naturally try to discourage learners from turning on the voice-to-text function on their mobile phones. But for self-directed listening to a difficult text in a foreign language, is it not a clever choice for learners to use this function precisely when they want to understand a piece of information or an argument? And is it not then clever – in lessons that do not merely prepare for exams – to work with this new possibility of hearing and reading, so that its advantages and disadvantages can be weighed up?

If learners can 'pick up' parts of the foreign language in interaction with assistance systems and learn them incidentally, and if the communicative pressure to learn the language is reduced at the level of everyday communication, what is left for foreign language learning in educational institutions? It means, in my opinion, that in the future, teachers will, on the one hand, be much stronger language learning advisors. And they will increasingly become experts in more challenging areas: in aesthetics, interculturality, in pragmatic aspects such as politeness.

Comprehension and production aids for communication in a foreign language are a prerequisite for learners to be able to deal with the aspects of the target cultural area that are particularly attractive, confusing, or particularly interesting for them in a self-determined way early on in the learning process. They are a prerequisite for an engagement with otherness that is more intensive and, above all, more closely attuned to the interests of the individual learner, which was the subject of the intercultural approach of the 1980s, and was brought about in textbooks with texts and tasks.

7. Texts and Communication Galore

Digital media has expanded learners' choices with regard to the reception and production of texts. For a long time, learners have been able to read newspapers and listen to the radio, have been able to write letters, and possibly even make phone calls. They could do this alone, in small groups, or in class. The fact that learners engage with target-language texts and produce target-language texts outside the foreign language classroom is therefore not new. What is new, however, is the immediate accessibility of texts and potential communication partners and the variety of possibilities: The current issue of a newspaper can be found on the net, as can various blogs, written in the target language, on the different topics that might interest learners. In chats, forums, and social networks, learners can communicate in the target language. When integrating media use into teaching concepts, it is important that it makes sense from the learners' point of view and that the learning scenarios do not bypass the learners' everyday media consumption behavior.

Most of the freely available digital materials are non-didactic texts, i. e., texts produced for purposes other than (foreign language) learning. These texts have the potential to be both a great enrichment for foreign language learning and a great challenge because, unlike the progression-controlled lexical world of textbooks, they are not adapted to the linguistic level reached by the learner at a certain point. The learner, when working with such a text, is in the same situation as a person going through natural language acquisition, confronted with a variety of linguistic manifestations and cultural references that they may or may not understand.

The opportunities for virtual exchanges are also increasing. The cooperation of groups of learners existed before the advent of digital media. They wrote letters to each other, enclosed photos, produced audio cassettes, later video cassettes, and sent these to each other by post. They heard or saw or read the other groups' products and reacted to them. All this took place with a certain time lag because the letters or cassettes had to be transported by post from one place to another. The advent of e-mails and the ability to attach documents to them, has accelerated correspondence. Now a collaboration between groups of learners can take very different forms: They can still send email attachments to each other, they can work in a common learning platform, can communicate via video conference, and work with shared 'friendships' in social networks. The potential for intercultural learning in virtual exchanges and tandems started to be researched as soon as exchanges went virtual (cf., e. g., Tamme 2001), and some researchers found that the acceleration of the interaction was not without side effects (cf. Müller-Hartmann 2000). A reflection of the technological changes occurring

within one virtual exchange programme over 15 years can be found in Rösler (2014). Surveys of the debate about virtual exchanges can be found in O'Dowd and O'Rourke (2019) and in Würffel and Schumacher (2022).

The ubiquitous availability of texts and the increase in virtual exchanges could be perceived as a motivating and learning-enhancing transcendence of the classroom or as a demotivating overload. Which of those two perceptions prevails, is one of the open questions and great challenges of foreign language learning and teaching in the 21st century: Is it possible to integrate into guided foreign language learning the variety of texts and digital communication possibilities available to learners *ab initio* in such a way that, with the greatest possible free use of language by the learners, there is at the same time optimal institutional support for their learning process?

8. What Do These Developments Mean for the Future Role of Textbooks? (1)

The technological developments and implications for foreign language learning outlined in this and the previous subsection naturally have a strong impact on the role and shape of textbooks. Apart from a radical option that fundamentally questions the necessity of textbooks³, two major lines of development are possible:

- (a) Learners' self-determination of content, based on their own initiative or through a virtual exchange in educational institutions, has progressed to such an extent that textbooks no longer determine the learning process. Instead, a variety of teaching material modules cover, in a differentiated manner, different linguistic and cultural phenomena related to different learning objectives, learner variables, etc.
- (b) To prevent learners from being overtaxed and, above all, to enable non-trivial reflective intercultural learning, there are still textbooks, at least at the lower levels, which largely guide the learning process, but which at the same time lead learners to self-determined, exploratory interactions with the target language and culture.

In her critique of a one-sided concept of autonomy in foreign language didactics, Schmenk (2008) pointed out in detail the important interdependence of

3 A position that has not only existed since the advent of digital media: As early as the 1970s, there have been repeated attempts to initiate more self-determined learning without textbooks, in the so-called alternative methods, in drama pedagogy, etc. For an overview, see Rösler (1984: 139–180).

self-determination and heteronomy in foreign language learning. A decision that, due to the theoretical superiority of autonomous learning, only grants textbooks an existence as modularized support, overlooks this interplay of autonomy and heteronomy. Especially for intercultural learning with its unusual degree of reflective activity for some learners, support from a textbook guiding the lesson may be necessary.

It is, of course, impossible to say today what varieties of textbooks will emerge in the next 30 years, but it seems likely to me that these textbooks will neither be able to afford to ignore learners' everyday media use nor the language assistance systems available nor lightly abandon the textbooks' function as a thoughtful aid and guide to learning.

For the further development of textbooks, it also seems to me to be of particular importance that two aspects should be dealt with in a much more differentiated way than at present, the interplay of individual learning and learning in social groups (regardless of whether they learn together in physical or virtual spaces) and the expanded possibilities of synchronous and asynchronous learning compared to learning before digitalization.

9. Making Use of the Greater Variety of Synchronous and Asynchronous Options

The distinction between synchronous and asynchronous communication is of great importance for foreign language teaching. Traditionally, synchronous communication took place mainly in the classroom, asynchronous communication mostly in writing, unless, for example, groups of learners exchanged cassettes. The great advantage of asynchronous communication, especially at the beginner level, is that learners can take the time they need to express something. However, predominantly asynchronous communication can also lead to learners thinking so much about the correctness of an utterance that the original intention of communicating with someone is overshadowed. For certain content, it can make sense to choose an asynchronous approach so that learners have time to think or to pursue different discussion threads. Cf., e. g., Becker (2018) who analyses in detail the asynchronous discussions of Swedish students in forums, using the topic of the founding myths of the Federal Republic of Germany as an example.

In synchronous communication, on the other hand, learners have to express themselves spontaneously with the resources available. This was traditionally predominantly limited to classroom interaction. Virtual encounters have made space-transcending synchronous communication possible between people who are physically in different places; the chances of having immediate communicative

experiences with people from the target language environment or with people from other environments learning the same language have increased as a result. It has become easier or at least more likely that one can engage with someone in a conversation about specific, interculturally challenging, topics of the target culture of one's choice.

Such interaction is not restricted to digital face-to-face interaction. Biebighäuser (2014) analyses meetings of tridems of learners from three countries in *Second Life* (the leading virtual world at the time of analysis). In one example the learners' avatars meet at the virtual Brandenburg Gate, watch the German news of the day about the fall of the Berlin Wall, and discuss the different views, in their respective countries, of the events of 1989.

In such a virtual world, the avatars representing the learners and the environments, such as the Brandenburg Gate in this example, are clearly recognizable as digitally produced entities, maintaining a clear distance from sensually experienced reality. In augmented reality applications, virtual elements are added to physical reality in such a way that these two worlds can come together in the user's mind; in 360-degree applications (cf. Ketzer-Nöltge 2022 for an overview), immersive experiences can be created through realistic recordings of places from the target language world, which was traditionally only possible in highly elaborate simulations.

This means that we are dealing with teaching materials that can go far beyond what classical textbooks could achieve in their recording of the target language space. At the same time, it is possible to integrate exercises, i. e., a core area of classical textbooks, into digital experience contexts. Someone who has to survive an interview in a serious game (cf. Blume et al. 2017), whether for a job or a place in a flatshare, will perhaps, after the first communicative failure, consider whether he or she should not do some form-related training on the linguistic and professional aspects that led to their failure in the interview before the next one, and go to the language studio within the game that offers form training.

In the case of the classic course-guiding textbook, it is clear that the course book was mainly used for synchronous joint learning in the classroom (and possibly still later at home for reference) and the workbook for individual practice as homework or for silent work in the classroom. In the case of serious games or 360° applications, a decision about its synchronous or asynchronous state is less clear-cut. Groups of learners can work with them individually while being physically present in a room and then reflect on their experience of the alien world in a group discussion. But they can also visit such worlds on their own before or after lessons – or even completely independently of lessons – as a

preparation or follow-up to a lesson-led learning phase or simply because they enjoy it.

10. Increased Individualization and Increased Cooperation

Digitization is expanding both the possibilities for cross-border cooperation and the opportunities for more individualized learning. Individualization, in this context, has two different meanings. On the one hand, it refers to learners learning on their own, as opposed to learning in social contexts. On the other hand, it refers to the fact that learning objects, learning paths, and teaching activities can be more strongly related to the learning individual; this concept of individualization is neutral with regard to the question of whether learners learn alone or in a social context. This ambiguity of the concept of individualization has not only existed since the advent of digital media; as early as the 1970s, there was a discussion in North America about 'individualised instruction' which addressed these two varieties (cf. Rösler 1984: 187–194 for an overview).

Virtual exchanges, E-Tandems, and meetings of groups of learners from different countries in virtual worlds are examples of how digitization makes more cooperation between learners possible and more diverse, how these encounters can create opportunities for engagement with and reflection on phenomena from the target language world, and how the diversity of this world can be experienced early and directly through the individuality of these contacts. In such interactions, learners are themselves, when they say 'I', they mean themselves and are usually as honest or dishonest in what they say as in their other interactions⁴. They talk about objects which interest them, at least if the exchange is not thematically predetermined by teachers in such a way that their own interests are lost in the process, and they may or may not know about these objects. This means that, in contrast to a text in a textbook that has been meticulously checked for correctness by an editor, they can also absorb incorrect information. An impressive early example of this is the German-Chinese dialogue analyzed

4 The situation is different in the so-called global simulations (cf. Maak 2011), where learners have to pretend on two levels: They have to pretend to be in another place, and they have to pretend to be a target language person. Here learners are required to put themselves in the shoes of a target language person and try to be that person. This approach, which has many advantages in terms of trying out language and attempting to immerse oneself in a target cultural setting, is somewhat naive in terms of the notion that just because a learner simulates residing in city X in target language country Y, they will actually take on that identity.

in Tamme (2001: 128–130), in which two students exchange their subjective views of the advantages and disadvantages of German and Chinese men, but also convey factually incorrect information about their countries. When individual learners or groups of learners interact with people from the target cultural context, they will probably refer to each other's stereotypes, with a bit of luck they will laugh about them, and otherwise, due to the individuality of all the participants, come to a differentiated picture of all the cultural contexts, which could not have been provided by a classic intercultural textbook.

The fact that, in contrast to the classic textbook, 'false facts' are also conveyed is not an unsurmountable problem: this happens just as much as when people from a supposedly similar cultural context talk to each other. The more open learning activities are, i. e., the less they can be totally controlled by teachers and material makers, the more likely they are to be erroneous in the classical sense. The more diverse the learners' interactions are with people from the target cultural context, the more the corrections of these errors will take on the character of corrections in everyday interactions: some will persist, some will be corrected years later, some will trigger a misunderstanding and be addressed in the very next conversation. Teachers' fear of allowing mistakes or making them themselves is very understandable and an important contribution to quality assurance. However, the more we accept that the thematic self-determination of learners and their independent learning path are important factors for learning a foreign language and acquiring a differentiated view of the target cultural context, the more important it is to trust that even the detours along this path, and the revisions necessary as a result of these, are ultimately a valuable contribution to successfully achieving that goal.

In such interactions, individualization means the learning process is more closely related to the interests and characteristics of the individual learner and is not in contrast to learning in social contexts. When these learners say 'I', they are referring to themselves, unlike in a classroom where they also say 'I' but do not refer to themselves at all or only partially. There are exercises where it is quite clear that an 'I' or 'we' in the exercise has relatively little or nothing to do with the person learning the language in the foreign language classroom. This is especially true for closed exercises on form. Learners who fill in gaps to practise the conjugation of verbs, for example, usually do not feel addressed by the content assigned to the first-person singular of the verb in the exercise. But even here there are exceptions. A transformation exercise whose content related to domestic activities led to a lengthy discussion in a group of learners of German about role distributions and appropriate activities for men and women (cf. the documentation of this discussion in Rösler / Zeyer 2021).

When talking about foreign language learning with digital media, however, the keyword 'individuality' frequently does not refer to this kind of individualized experience in social contexts, but to how teaching materials can be tailored more precisely to individual learners by learning analytics, and how self-learning can be supported by special materials. This is, in my opinion, a failing in the first quarter of the 21st century of the discussion on foreign language learning with digital media, because this aspect of individualization only covers one-half of the potential of digitization and is, additionally, often too strongly focused merely on teaching the form elements of the new language.

This narrowing, in my view, means that greater responsiveness to experiences and interpretations of phenomena of the target culture that learners bring with them as individuals and as a group of individuals is less likely to be made the starting point of intercultural learning than would now be technologically possible.

The two different variants of individualization require different types of textbooks. Material that is more strongly geared to individual interests and that has to respond to the experiences of individual learners in social interactions cannot be course guided. It will correspond to prototype A outlined above, where modules as diverse as possible for different learning objects etc. are provided. In the case of individualization, on the other hand, which is aimed more at self-learning or increased learning on one's own, even in class, the textbook must largely determine the learning process, i. e., belong to prototype B mentioned above. The challenging question will be whether, even with the tendency to learn alone, it will be possible for the textbooks to also provide these learners with opportunities for intercultural learning.

11. Self-Determination of Content from Level A1 Onwards.

An Interesting Target with Potentially Problematic Side Effects

As diverse as the groups of global learners of foreign languages are, from children at school to senior citizens in adult education, from special skill-related courses to general language and job-related courses, from the motivation to subsequently travel to a country where the language is spoken as a tourist or as a student, or to stay at home and use the new language there culturally or for business, what they all have in common is that they have to include an element of pretence in class. Learning from interactions, as is possible in second language acquisition within the target language-speaking world, does not take place predominantly in the classroom. The history of foreign language teaching over the last 50 years,

with its attempts to get learners to use language through increasingly complex tasks and projects, is nothing more than an attempt to create spaces within the framework of the artificiality of communication in the classroom that enables learners to use the new language in interactions as intensively and content determined as possible.

The enormous expansion of possibilities for interaction in digital media described above is not only a quantitative expansion: the fact that it could become natural for learners to be able to communicate in the target language about topics that interest them, regardless of where they are, has a new quality. In contrast to traditional activities such as reading books and newspapers or writing letters, the ubiquitous availability of texts and channels could allow learners to communicate in the new language when the content is relevant, either because certain information is only available in that language, or because they have something to share in a context where the language is spoken.

Making content self-determination possible even at the lower levels due to technological development sounds like great progress at first. However, one should also keep in mind that this can also be associated with problematic side effects. When learners are asked in class what they think about something, they can either respond with their own opinion or say something that is easy to say with their current level of language, but which does not necessarily correspond to their opinion. This is unproblematic as long as the content is about trivialities or topics that are not important for the people speaking. However, if a statement on a certain experience or a topic close to the heart of the learner is requested at a language level at which, in the learner's assessment, an appropriately differentiated answer is not possible, then this direct connection to the experience of the learner is problematic: This involves an encroachment on private, and potentially painful experiences – for example in the case of refugees learning a new foreign language – in the protected didactic space of the classroom. Whenever emotionally and substantively relevant topics are discussed with a low level of language proficiency – which is, in principle, desirable – the learners must be allowed to refuse to engage with the topic. The more often an attempt is made to address the learners' 'I' that does not pretend, the more important are chunks that mean 'I don't want to talk about that' in the respective foreign language when teaching at lower levels.

If problematic topics for learners are introduced by teachers or textbooks, there is a danger that learners will be pushed into a communicative situation in class in which they perceive themselves as deficient or even threatened. To avoid such situations, foreign language teaching, especially in beginners' classes,

usually works with so-called universal topics at a rather banal level. The well-known side effect: Boredom.

Not wanting to talk about certain topics and experiences in class is a learner's right. A class is, after all, forced communication; you sit with people with whom you would not necessarily want to talk to about topics that concern you outside of class. In comparison with natural language acquisition, where people mostly decide for themselves with whom they talk about what topic and how extensively, honestly, and committedly, the problem in guided foreign language learning is that the artificiality of the classroom makes certain interactions problematic. It is important, therefore, to find out how the opportunity to communicate with people in the new, still foreign language about a topic that actually interests the learner can be brought together with the classic protective didactic function of the classroom: Protection from shaming, provision of free space to try things out, systematic cognitive access to regular phenomena and systematic practice.

12. What Do These Developments Mean for the Future Role of Textbooks? (2)

In the context of digitization, it might be possible, in my opinion, through the expansion of the learners' self-determination of content, to push back the artificiality of communication in the classroom and the associated problem of inappropriate choice of topics, in favor of a quasi-natural communication between learners or between learners and people from the target language context, which addresses topics relevant to the participants if and only if they are considered discussable by the people involved and only if addressed voluntarily by them. Foreign language learning based on the communicative intentions and content-related interests of individual learners would lead to the incidental acquisition of world knowledge and vocabulary playing a greater role, a reduction in the dominance of the classroom and the textbook as a place of learning, and an exciting reassessment of the relationship between natural and guided foreign language learning (cf. Rösler 2020: 607–610).

In the long run, this could lead to the design of language courses in which learners will take their own interests as a point of departure and look for suitable ways to communicate about these that are not, or at least not entirely, controlled by teachers, curriculum planners, textbook authors, etc. Language learners will thus become self-determined language users in terms of content at an earlier stage and more intensively, with more or less intensive use of assistance systems. This has implications for the role of teachers – the more independently learners choose their content and means of communication, the more teachers will

become advisors for form-related and intercultural challenges which learners encounter in their interactions – and, above all, it has an impact on the development of teaching materials.

In my opinion, greater self-determination of the content does not mean that you won't need teaching material and that you won't need textbooks. But it does mean that different kinds of material will be needed. For example, linguistic and cultural aids to be able to communicate appropriately on the meta-level about one's understanding or non-understanding of the communication process, or to be able to realize politeness appropriately in language, will have to be provided more extensively and about different cultural contexts.

On the more abstract level of the structure of learning materials as a whole, it means that the two prototypes A and B described above will have to coexist: On the one hand, it will have to be possible for learners to be systematically guided through textbooks, at least at the beginning, for certain learning goals such as intercultural learning. And there will have to be a large and continuously growing database of auditory, audio-visual, and printed materials available from which learners could pick out the assistance relevant to their communicative problems arising from the interaction. The old concept of the teaching material quarry from the 1980s, which in the analogue times was more a metaphor in the discussion about the role of teaching material than a realistic proposal for the collection of target group-related materials (cf. Rösler / Skiba 1987), could thus be revived and realized digitally.

Is that a realistic expectation? Probably not. Dystopically, one could argue that foreign languages will have disappeared from the curricula of general education schools in 30 years, they will be considered too expensive and a luxury item. Where communication across language barriers will still be necessary for workplaces, language assistance systems will take over. For the richest 5 % of the world and the functional elite, foreign languages would then be taught as a mark of distinction and as a necessary educational element for managerial tasks, individually coached by people who resemble the home teachers and governesses of past centuries.

But looking 30 years ahead, one is also allowed to create a positive utopia. Let us assume that lifelong learning of unknown languages and engaging with other cultural contexts by all citizens might have gained a high social status because they will be seen as a contribution to peace (and undisturbed economic activity). People will learn in an interest-driven way, as described above, using a wide range of language assistance systems. To systematise what they have learned, learners will have a cornucopia of language learning opportunities at their disposal. Differentiated digital diagnostic tests and personal language learning advisors will analyze the informally achieved level and refer to a multitude of

materials – modules on specific subjects and topics or courses with a course-guiding textbook – which the persons thus advised will work on partly as self-learners, partly in groups assembled ad hoc or for longer periods, learning together virtually or in the presence (depending on which working and social forms have proven particularly helpful for the respective subject).

The production of such materials would probably no longer be a purely commercial affair. The individual production of materials by teachers for their respective learners that exists in many places, limited to use with one group and slumbering in the drawers or on the hard drives of individual teachers, would also cease. Instead, many decentralized qualified teaching material makers would further differentiate the materials in the database by adding increasingly specific materials which had been tried out and revised.

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Part II: Specific Technologies and Media

Where Tasks, Technology, and Textbooks Meet: An Exploratory Analysis of English Language Teachers' Perceived Affordances of an Intelligent Language Tutoring System

Abstract: Intelligent language tutoring systems (ILTS) can potentially enable more individual and adaptive focus-on-forms practice than traditional workbooks. However, the ways in which these systems are implemented in the task-based language learning (TBLL) classroom depends both on the technology itself and on teachers' understanding of the digitally-mediated pedagogic and subject-specific affordances of such applications. Based on the development and research of the interdisciplinary and multisite initiative *Interact4School*, this section analyzes how participating teachers perceive the affordances of a purpose-built ILTS for use in seventh-grade English language teaching classrooms. The analysis of teacher interviews through qualitative content analysis reveals how teachers' understanding of differentiation, subject-specific learning processes, and their professional roles mediates their perception and use of an interactive alternative to the traditional workbook. This study contributes to an understanding of how teachers conceptualize and use materials that incorporate machine learning processes in their language learning classrooms. Based on these findings, implications for future development are considered.

Keywords: intelligent language tutoring system (ILTS), task-based language learning (TBLL), affordances, focus on forms, differentiation

1. Introduction

Preparing students for communicative language use is a core objective of English language teaching in many contexts. Given their emphasis on authentic, meaningful, and relevant language usage, tasks have emerged as a preeminent

1 This publication is based on work carried out in the projects *Interact4School: Außerschulisches individuelles Lernen und die Schnittstellen zum Schulunterricht: Effektives digitales Üben als Basis für den kompetenzorientierten Fremdsprachenunterricht*, an initiative of the *Metavorhaben Digitalisierung im Bildungsbereich* and *K4D – Kollaboratives Lehren und Lernen mit digitalen Medien*, an initiative of the *Qualitätsoffensive Lehrerbildung*. The programs are funded by the German Federal Ministry of Education and Research. The authors are responsible for the content of this publication.

methodology used in formal language learning settings to achieve this goal. Textbooks and workbooks play an essential role in this regard, serving as fundamental sources of input and practice for task-related language and skill development that contribute to complex, authentic, and meaningful situations requiring the use of multiple competences. In one complex task, for example, taken from a popular German textbook for secondary students learning English, pupils encounter a communicative target task at the conclusion of the second chapter. After having spent the previous lessons learning about the textbook characters and their problems, students are instructed to “talk about the changes in Gillian’s life. Ask and answer questions in the hot seat [...] Put yourself in the situation of [a textbook] character [...] Think about: [...] How can you help Gillian?” (Claussen et al. 2017: 16). The task assumes substantial prior knowledge about what a hot seat is, as well as obliging students to assume various personas, and synthesize the issues Gillian is facing, which have been presented through a variety of dialogues, narrative texts, and facsimiles of letters and chats over the course of the preceding pages. It also necessitates mastery of a variety of language means that are easily apparent to a competent foreign language teacher: Students need to know how to formulate questions, adopt various points of view, and give advice. More specifically, there is a long list of vocabulary, grammar, and communicative competences that are required. In terms of grammar, pragmatics, and lexis, students need to know how to

- form queries using both question words and inverse word order;
- use the past tense to narrate the context of the issue;
- integrate modals to give suggestions;
- express feelings and empathy.

Although easily summarized in a handful of bullet points, each of these elements belies a complex set of linguistic and pragmatic rules that, in the case of most learners, need to be explicitly taught and practiced. However, given the heterogeneity of learners in any given language-learning classroom (Meurers et al. 2018: 66), the nature of the practice each learner needs to successfully complete the target task varies. Whereas one learner might struggle with word order in questions that begin with ‘do’, another student consistently forgets to consider noun-verb agreement in those same questions. A third student has mastered questions framed in the affirmative and negative but is at a loss as to which modal verb is appropriate when trying to give the fictitious character recommendations. Their partner struggles to form irregular past tense verbs.

While contemporary textbooks and their accompanying workbooks designed for classroom use as in this scenario might offer exercises that address all these

language means, their ability to offer adaptive scaffolding that reflects the individualized needs of these four learners, and the twenty-odd others sitting in the classroom, is often limited. While there are many forms of interactivity incorporated into digitally-mediated textbooks, as described by Ketzer-Nöltge and Würffel (in this volume), practice materials in the popular textbook series are frequently digitized versions of existing workbooks (cf. Marx 2019: 169). Those materials that offer immediate responses to student input typically limit their feedback to indications as to whether students' answers are correct or incorrect (Blume et al. 2017: 224). Likewise limited are the teacher's resources: Their ability to precisely diagnose these different needs, offer appropriate scaffolding, and give formative feedback that takes into account each learner's unique motivational and metacognitive preferences is bounded by human capacity.

Not subject to the limits of human capacity are intelligent language tutoring systems (ILTS). Relying on principles of machine learning, well-designed ILTS can theoretically accommodate the individualized needs of the aforementioned learners on all the targeted language means more effectively, offering repeated practice at the precise level of challenge, with appropriate scaffolded, feedback, and motivational elements designed for language learners united primarily solely by their chronological age in one classroom.

Although ILTS can thus offer the adaptive practice for specific language means that are necessary to meet students' individualized language learners' needs in this regard, the goal of the secondary language learning classroom is communicative competence, most frequently realized as task-based language learning (TBLL). Lexical and grammatical practice are a means to a communicative end that the ILTS cannot address. The role of the teacher in light of such tools thus becomes to design language learning settings that rely on the technological capabilities of the ILTS to foster preparation for communicative tasks. How teachers do this – how they integrate a responsive digital workbook with meaningful task design and implementation – results from both what the ILTS can do and how the teachers avail themselves of it. A multi-faceted undertaking, it relies on teachers' understanding of the premises of TBLL, the purpose and design of form-focused practice, and the role of the ILTS within this context. It is this knowledge that mediates how these teachers perceive the potential affordances (cf. Blin 2016) of an ILTS in the communicative ELT classroom.

This article examines the implementation of an interactive workbook known as FeedBook, by analyzing how three educators perceive the affordances of a purpose-built ILTS within the TBLL classroom. This analysis will contribute to researching and developing digital programs for language practice that work hand-in-hand with textbooks incorporating tasks and focusing on language

competence. Based on data derived from semi-structured interviews, we examine the perceptions the teachers have about the technological resource itself and the implications of its use for form-focused practice in heterogeneous ELT classrooms with a TBLL approach. Contributing to an understanding of what is referred to as technologically-mediated task-based learning and teaching, or TMTBLT (Smith / González-Lloret 2020: 1–2), the findings reveal how the perceived affordances are informed by the teachers' understanding of both the technology itself and their own roles in a heterogeneous, task-oriented ELT classroom.

Following a brief introduction to issues of form-focused practice in ILTS in Section 2., we will introduce FeedBook as an illustrative ILTS that is one part of a larger undertaking known as Interact4School (Section 3.). After subsequently describing what is meant by the notion of affordances in this context (Section 4.), we will introduce the qualitative study that focuses on the informants' verbalized perceptions regarding FeedBook (Section 5.). We will show how teachers' reception of an ILTS for skill-driven practice within a TBLL framework is mediated by, and itself mediates, their understanding of the role of technology and the role of the teacher in the heterogeneous TBLL classroom. From this analysis, implications for the future of the ILTS in this context will be considered (Section 6.).

2. Form-Focused Practice with Interactive Language Tutoring Systems (ILTS)

Form-focused practice, in controlled settings, has been shown to reduce the demand on working memory (Segalowitz / Hulstijn 2005: 382–383) and to contribute to fluency, automaticity, and proceduralization (Kieweg 2014: 3, Loewen / Sato 2018: 292, Pili-Moss et al. 2020: 647–648). It is thus regarded as essential to language learning. Well-designed practice requires exercises that incorporate scaffolding, individualization, differentiation, and adaptivity while allowing for learner autonomy. The goals should be authentic and transparent and include the development of metacognitive language learning skills – a tall order for teacher-designed practice (cf. Schmidt / Strasser 2022: 172–173).

The result, as documented in research, is frequently a disjuncture between TBLL and focus-on-form(s) practice in many ELT classrooms (Müller-Hartmann / Schocker 2018: 123, Rymarczyk 2016: 265). Not only do teachers need to address several issues that limit the practicality of providing individually appropriate skills-based practice; complementing this practice with adequate, timely, and meaningful feedback within the context of TBLL poses a further

challenge. It is not surprising that this is the case, considering the myriad factors teachers need to consider when giving feedback. Amaral and Meurers (2011) focus solely on written feedback, such as the kind that might be given for homework assignments, identifying for this subset of corrections a wealth of knowledge that includes

information about: the learner: level, age, L1, maturity, knowledge of grammatical terminology, motivation to perform the activity, etc. (cf., e. g., Dörnyei 2005); the task: type of activity (reading, listening, composition writing, etc.), type of question item (wh-question, fill-in-the-blanks, link the columns, etc.), level of question in relation to level of student, time available, material to be consulted (dictionary, grammar book, internet), etc. (cf., e. g., Willis / Willis 2007); the language: grammatical competence exhibited by the linguistic properties of the learner language (lexical, syntactic, semantic, pragmatic), the nature and type of deviations in ill-formed utterances (duplication of letters, agreement, wrong synonym, lack of anaphoric reference, etc.), level of learner language in relation to scales of language complexity and development, as well as sociolinguistic, discourse, and strategic competences. (cf., e. g., Canale / Swain 1980). (Amaral / Meurers 2011: 13)

This list is by no means exhaustive, and does not even touch on the competences teachers need to translate this information into a written or verbal output that likewise takes into account these and further kinds of information about, for example, the types of possible feedback (direct or indirect; linguistic or metalinguistic; focused or unfocused), the modality of the feedback (written, oral, graphic, or some combination thereof), and the purpose of the feedback (formative or summative; Moser 2020: 58–63).

So-called artificially intelligent tools offer many potential advantages in this context (Heift / Hegelheimer 2017: 55–56, 59–60, Schmidt / Strasser 2022: 172). Instead of requiring the teacher to apply all the aforementioned analytical competences to each item, for multiple exercises, for large numbers of students, a responsive digital workbook can potentially address the logjam of teachers' capacities. It can offer practice on targeted grammatical constructs, for which learners receive immediate error corrections reflecting the aforementioned considerations that are otherwise the teacher's responsibility. Moreover, using the data derived from learner input, the system can convey criterion-referenced information to teachers, who are then better able to diagnose and address individual learners' needs. It potentially adds value as a digital workbook that might improve both learning and teaching.

However, while various intelligent tutoring systems developed on the basis of machine learning principles have emerged in educational contexts over the last few decades, their real-world application to language-related subjects

(e. g., intelligent language tutoring systems, ILTS) is slow. The need to combine scaffolded responses to infinitely varied learner input can only be realized by large language corpora, methods of natural language processing, and didactic mediation, necessitating substantial linguistic, computational, and pedagogical resources (Tafazoli et al. 2019: 62). One challenge in devising ILTS lies in the complexity of well-formed language on the one hand, and the infinite variation of learner language in the second (or subsequent Lx) on the other hand (Meurers et al. 2018: 67). Pedagogical considerations are equally substantial, with previous ILTS frequently neglecting theories and practices of second language acquisition (Tafazoli et al. 2019: 63). Moreover, while an ILTS can arguably address some of the aforementioned principles of good practice better than an individual, some areas of pedagogically sound practice are largely beyond the capacity of an ILTS. Addressing communicative needs, for example, poses a unique challenge for ILTS.

A further problem ILTS need to address is the need to attend to individual exercises that are appropriately contextualized for automatic evaluation (Meurers et al. 2018: 71–72). While an ILTS can recognize an ill-formed variation that is not linguistically possible, it is unable to contextualize well-formed variations that are used in the wrong context. This is something a teacher can do naturally when reviewing workbook exercises for example, but for which an ILTS needs to be specifically programmed. If, for example, Gillian's friend in the target task wants to report that Gillian had been tearful due to a particular problem, an isolated analysis of the input 'crys' can recognize the incorrect formation of the present tense 'cries', and offer appropriate feedback. However, in order to assess the choice of tense, the learner input needs to be considered in the context of narrating an event in the past tense. Only then can it become clear that the response 'she cries' is linguistically correct, but inadequate for the fictitious situation that should describe a past event.

Despite the theoretical advantages and technological feasibility, therefore, the complexity of designing a pedagogically sound ILTS means that previous efforts have tended to focus on narrow linguistic aims. Individual tools have focused, for example, on vocabulary, definite and indefinite articles, the passive voice, and communicative skills based on a limited number of predetermined scenarios (Tafazoli et al. 2019: 68). FeedBook, the ILTS implemented in this study, focuses on selected grammatical, pragmatic, and lexical forms of the seventh-grade English curriculum in German *Gymnasien*, based on an analysis of the target tasks and predictions from teachers, ELT experts, and researchers in second language acquisition regarding language means likely to pose challenges to the learners. Its emphasis on form-focused practice aligns with findings from second

language acquisition research that demonstrate the role grammatical practice plays in language learning.

3. FeedBook

FeedBook was initially developed within the framework of a pilot project to enhance the content of an existing workbook with adaptive, scaffolded, and immediate feedback for learners (Meurers et al. 2019: 164). In its current incarnation in the Interact4School project (3.1), FeedBook serves as one element of the overall task cycle, offering grammatical, lexical, pragmatic, and listening skill practice in preparation for communicative language episodes. The goal of FeedBook is to implement exercises based on form-focused practice that allow for the acquisition of skills necessary to complete subsequent target tasks. The desired outcome of the overall Interact4School initiative is a tight interweaving of individualized practice phases with overarching didactic objectives realized through tasks.

In this capacity, FeedBook supplements the print-based textbook in alignment with the seventh-grade curriculum. Conceptualized as an alternative to the existing workbook for out-of-class practice in order to provide adaptive exercises, FeedBook offers opportunities for more autonomous practice on targeted constructs, with corrective feedback that reflects both metalinguistic and linguistic elements, reflecting skills and competences necessary to successfully carry out the target task.

Organized in units that reflect the textbook currently in use, exercise formats in FeedBook include gap completion, matching, short answer, multiple choice, open-ended, and listening comprehension activities. Students select from available exercises that reflect forms relevant to the current target tasks, proceeding at their own pace with an individualized browser-based account. In the case of another target task, a helpline dialogue in which students role-play calling a trained volunteer for assistance with Gillian's problems, learners complete grammar exercises on the regular and irregular simple past tense, the formulation of queries using question words and 'do', and modal verbs. The exercises are scaffolded in difficulty internally and across language means. For example, in the case of the past tense, students initially complete exercises that require them to form regular verbs in the past tense. The subsequent exercise centers on irregular past tense verbs. A third exercise includes both regular and irregular past tense verbs, while the final exercise in this sequence requires students to select the correct verb tense and form the verb correctly.

As this grammar is taught in previous grades, the exercises in this particular example can quickly be completed by those learners who have already mastered these language means. However, many learners still struggle with these concepts. For them, item-by-item scaffolding and additional practice exercises offer support in achieving a better understanding and ultimate success. When students input a response, they receive immediate feedback through color coding and symbols (Fig. 1A). If their answer is correct, the input turns blue and the cursor moves to the next item in the exercise. If the answer is incorrect, the student's input shows in red and an information box appears (Fig. 1B). The information in the box initially offers learners metalinguistic feedback. If students decide they require more information about the given feedback, they can select an embedded icon, which offers them a link to the textbook's explanation of the grammatical concept. Alternatively (or subsequently), students may enter a new response to the item. If this input likewise contains an error or mistake, the information box will re-appear with more concrete information that addresses learners' linguistic knowledge (Fig. 1C). This scaffolding thus takes into account the fact that learners in the targeted age group are differentially able to apply metalinguistic explanations to their own language development. Optional exercises are available for further practice, and the student dashboard recommends these if warranted.

Grammar - Simple Past 59001 Regular verbs 3

Write down the correct form of the simple past for the following verbs.

Student 1: Last Wednesday I jumping ❌ (jump) with a rope.

Student 2: On Monday morning I _____ (start) school again.

Student 3: Last month I _____ (call) my grandparents.

Student 4: Yesterday I _____ (want) to eat ice-cream.

Student 5: Last week I _____ (talk) to my teacher.

Student 6: On Friday I _____ (watch) a movie. I _____ (like) it a lot.

1A

Grammar - Simple Past 59001 Regular verbs 3

Write down the correct form of the simple past for the following verbs.

Student 1: Last Wednesday I jumping ❌ (jump) with a rope.

Student 2: On Monday morning I _____ (start) school again.

Student 3: Last month I _____ (call) my grandparents.

Student 4: Yesterday I _____ (want) to eat ice-cream.

Student 5: Last week I _____ (talk) to my teacher.

Student 6: On Friday I _____ (watch) a movie. I _____ (like) it a lot.

Feedback für "jumping"

An expression like 'Last Wednesday' tells you that something happened in the past and is over now. It is a signal word for the simple past.

Ist dieses Feedback hilfreich?

👎 👍

1B

Grammar - Simple Past 59001 Regular verbs 3

Write down the correct form of the simple past for the following verbs.

Student 1: Last Wednesday I jumpet ❌ (jump) with a rope.

Student 2: On Monday morning I _____ (start) school again.

Student 3: Last month I _____ (call) my grandparents.

Student 4: Yesterday I _____ (want) to eat ice-cream.

Student 5: Last week I _____ (talk) to my teacher.

Student 6: On Friday I _____ (watch) a movie. I _____ (like) it a lot.

Feedback für "jumpet"

We are talking about something that happened in the past. Please use the simple past.

Ist dieses Feedback hilfreich?

👎 👍

1C

Figure 1A–C: Scaffolded feedback from FeedBook.

After completing an exercise, the learner dashboard offers feedback that shows how many questions learners answered correctly without any scaffolding, the number of correct answers they obtained after receiving feedback, and the number of questions that remained ultimately incorrect or unanswered (Fig. 2). This information offers the learner metacognitive feedback. Learners are then given options regarding whether to continue to practice the targeted language item or to move on to another relevant construct.

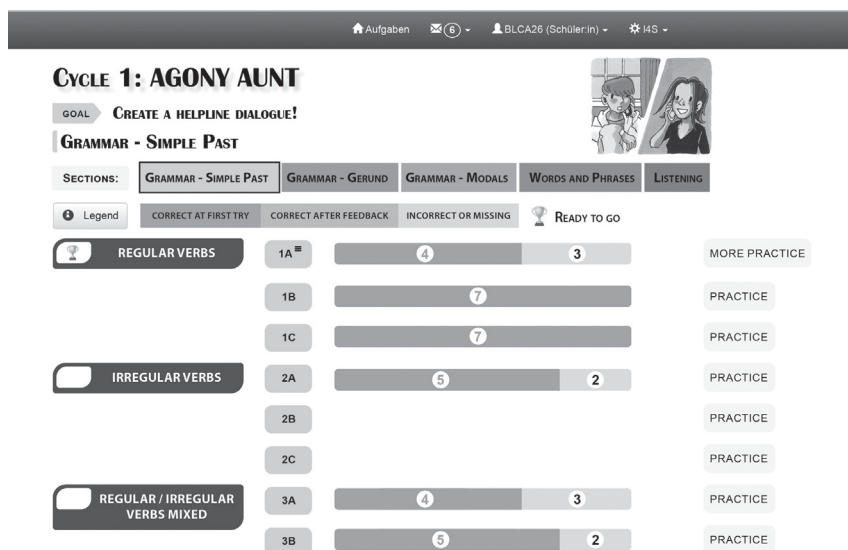


Figure 2: Sample student interface from FeedBook (this image has been reformatted for print production).

An early version of FeedBook convincingly demonstrated its efficacy in improving students' competence regarding targeted language means. In a pilot study with just over 200 students, those participants who received a version of FeedBook that included the scaffolded feedback outperformed students who received a version that only offered corrective ('right/wrong') feedback (Meurers et al. 2019: 181). Importantly, the results also indicated that those learners who were less competent in the targeted language means prior to using FeedBook made the greatest gains over the course of the year-long intervention. While these results need to be interpreted cautiously due to possible ceiling effects, they suggest that FeedBook can improve the acquisition of forms for all learners in heterogeneous ELT classrooms in the German school context.

This initial instantiation of FeedBook did not offer a student dashboard. Moreover, it only addressed aspects of practice that would, in a typical classroom, be served by a workbook. In this sense, it achieved its initial aim of offering an adaptive, individualized, and scaffolded resource for language learning, but did not address the communicative competences that are the overarching and meaningful goals of English instruction in German schools. Thus, the subsequent development of FeedBook within the Interact4School project has focused on integrating the form-focused practice provided by the ILTS into a comprehensive, communicative ELT curriculum resting on the principles of TBLL. Using backward design procedures, the exercises have been redesigned to align grammar, pragmatics, and lexis with the identified task demands. In this way, FeedBook now supplements the meaning-driven foundation of TBLL with a necessary language focus. In doing so, it seeks to address the challenge of aligning task demands with pre-communicative skill development.

3.1 Interact4School: A Comprehensive TBLL Approach

While FeedBook is currently designed to facilitate individualized, scaffolded, and adaptive form-focused practice, it is intended in the overall Interact4School approach to work as one component of a TBLL classroom, flanked both by the textbook itself and communicative activities deriving from the textbook and the target task. By relegating independent practice to an ILTS, the assumption is that limited classroom time can be used to focus on communicative activities.

To facilitate the task-based approach, a team of didactic experts and ELT classroom teachers in the Interact4School project designed multiple task cycles aligned with the existing curriculum, using as a conceptual framework a task model that includes four basic phases (Fig. 3). While this schematic representation of the task does not reflect the ongoing diagnostic activities and iterative nature of task implementation, it illustrates how form-focused practice is embedded within a meaning-based approach that increases in complexity regarding necessary learner skills and competences. In the case of the aforementioned task, the complex task of a helpline dialogue is scaffolded, not only by ILTS-delivered form-focused practice, represented in the form of 'exercises' (Fig. 3), but by situated tasks and additional communicative exercises. These include, for example, as a situated task, role-playing a discussion between a teenager with a problem and their friend. Communicative exercises leading up to this dialogue include narrating events in the past tense in a gamified approach. These are preceded by a motivational impulse designed to engage learners in the topic and provide transparency about how to reach the ultimate outcome in the form of a complex

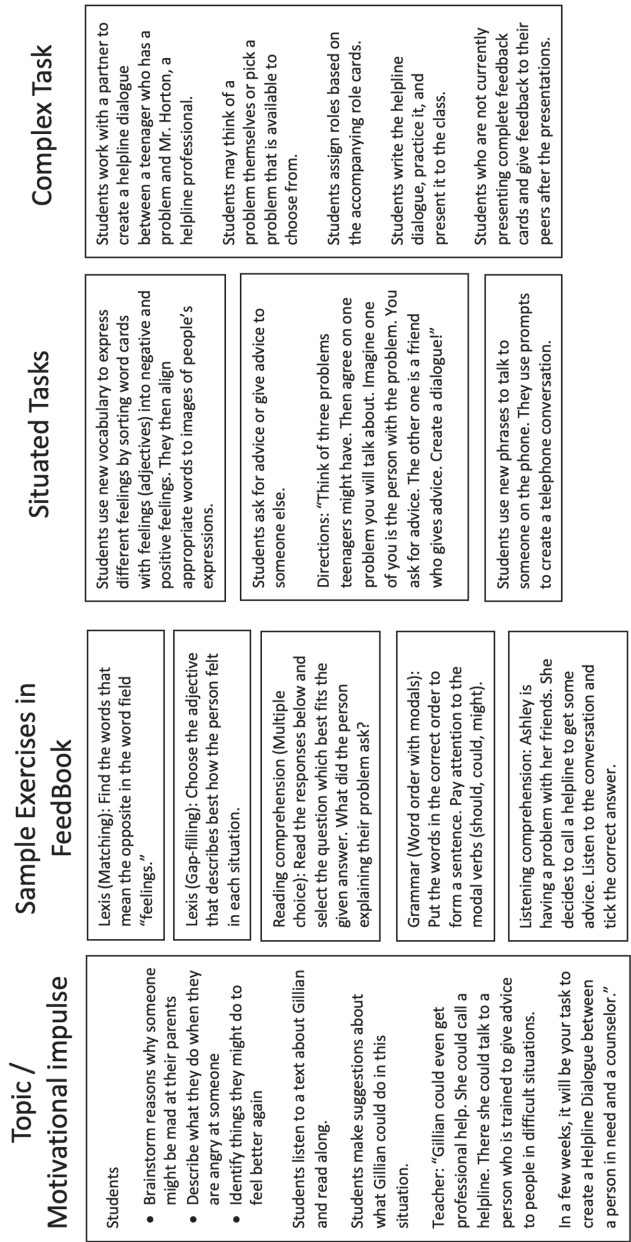


Figure 3: Schematic representation of selected elements for Task Cycle 1. Template from Gerlach et al. (2012; transl. authors).

Kompetenzen	Mandatory	Optional	Leistungs- differenziertes Üben Leistungsschwache SuS	Leistungs- differenziertes Üben Leistungsstarke SuS	Digitale Übungen
Kernkompetenz 2: SuS können um Rat bitten und Ratschläge geben	<p>TB, p. 15 B7 a B8a</p> <p>Gillian is still very upset and doesn't know what to do. Do you have an idea what she could do in this situation?</p> <p>L-S-G → SuS machen Vorschläge</p> <p>She could ask someone for advice.</p> <p>Gillian could even get professional help. She could call a helpline. There she could talk to a person who is trained to give advice to people in difficult situations.</p> <p>Bewusstmachung:</p> <p>In a few weeks it will be your task to create a Helpline dialogue between a person in need and a counselor</p> <p>What skills will you need to be able to act out a helpline telephone conversation?</p>	<p>TB, p. 15 B7 b, c</p> <p>WB, p. 20 + p. 24 E5 Reading check: Running away from home / ChildLine</p> <p>WB, p. 22 E2 Listening: A radio show. Ask Ally.</p> <p>M04: Worksheet B1_conversation between Emma and Gillian give advice</p>	<p>WB, p. 7 A1 WB, p. 8 A3 + A4</p>	<p>M06: Worksheet Young people's problems - Give some advice!</p> <p>M07: Worksheet_ What are the teens' problems?</p>	<p>12 Listening comprehension: Helpline Dialogue</p> <p>13 Showing empathy (Phrases)</p> <p>14 Asking for advice (Phrases)</p> <p>15 Giving advice (Phrases)</p>

Figure 4: Excerpt from the handout for teachers, illustrating the integration of FeedBook with classroom exercises and communicative activities (Pili-Moss et al. 2023).

task. This works in concert with the student dashboard in FeedBook that offers students insight into their preparedness to complete the target task in the form of a motivational visualization – a trophy that is earned for each language construct when they are ‘ready to go’ (Fig. 2). Teachers are provided with an explicit example of how to introduce the task cycle to highlight the relevance of the motivational impulse for the final complex task (Fig. 4).

Ancillary materials, including instructions for teachers regarding meaning-related objectives and language constructs, were likewise developed to facilitate classroom implementation and to ensure that the coherence between the exercises and the complex tasks is clear to classroom teachers and learners. Teaching suggestions and opportunities for extension activities offer a comprehensive task cycle aligned with the textbook, incorporating FeedBook, and offering additional communicative activities focusing on the identified linguistic constructs.

The overall design in Interact4School thus consists of a task-based instructional cycle with substantial communicative elements and an integrated ILTS as the primary source of grammatical practice. Intended to replace the static workbook, FeedBook is in this way a new kind of learning material designed to support individualized learning in a heterogeneous class that can accommodate both different teachers’ implementation and different learners’ needs. Whether, and how, an ILTS is able to address these challenges depends not only on the technology’s capabilities as an interactive workbook but also on how teachers perceive and implement these capabilities and what they can facilitate. Understanding how TBLL and technologies are mediated by teachers is determined in part by the affordances they perceive.

4. Affordances

The term ‘affordances’ is often used to refer primarily to the benefits associated with a digital medium or application (Blin 2016: 42). Numerous articles emphasize the affordances of individual digital applications or categories of digital tools that describe the potential benefits that may accrue to the users (see, e. g., Guikema / Menke 2014a). An example Berthelsen / Tannert (2020: 7) give is that of phones: Whereas both make long-distance communication possible, mobile phones offer the opportunity to talk while walking. This can be a positive affordance if the speaker is in a hurry, but a negative one if it leads to dangerous distractions in traffic. However, the concept of affordances may also refer to ‘the perceived and actual properties of the thing’ (Norman 1988: 9, quoted in Blin 2016: 42). A key component of affordance in this sense is recognizing the centrality of the relationship between affordances and the user’s perception of these

affordances (van Lier 2008: 597–598). While an affordance exists regardless of whether it is perceived by the user, only perceived affordances can play a role in shaping the user's interactions with the medium (Blin 2016: 52–53, Kaptelinin 2014: 45). According to socio-constructivist theories, these perceived affordances emerge in the interaction of the user with the medium, with cultural backgrounds and extant knowledge informing the nature of these perceptions. Illustratively, Jones (2021) uses excerpts from tertiary-level students' reflections to trace how they interact with familiar algorithms to achieve personally desirable outcomes. In describing how his informants curate their Spotify lists, for example, he explains how the preferred collections of soundtracks are deliberately 'negotiated' (ibid.: 3) between the app and the user to, alternatively, broaden the range of music they hear, ensure optimal functionality, or attract a potential love interest with a particular musical preference. Jones (2021), while only glancingly referencing the term *affordances* (ibid.: 5) emphasizes how these digitally reflective users apply their understanding of how Spotify functions to pursue relevant goals.

Addressing specifically educational settings, but not necessarily technologically-mediated ones, van Lier (2008: 598) describes affordances as those properties in the language learning environment that the learner identifies as potential opportunities for action that lead to learning. These properties, which may be educational and social as well as technological, mediate one another and the interaction with the learner (Blin 2016: 53). Pre-existing expectations and an identified need will determine whether learners (or teachers) perceive an affordance of a potential educational, social, or technological opportunity (Guikema / Menke 2014b: 271–273, Kirschner et al. 2004: 50–51), with Blin (2016: 55–57) adding linguistic opportunities as an additional component in computer-related language learning environments. A teacher who understands the theoretical underpinnings of a communicative language learning approach will perceive very different affordances related to digital media than her colleague who relies on widely available applications to implement a lexical approach (Brinegar 2021: 43). Blin (2016: 57–58) names among those technologies that may offer learners complex and rich affordances tutorial systems, computer-mediated communication, various ICALL tools such as grammar checkers and corpora, and ILTS. It is within this last category that FeedBook can be located.

Given that affordances are shaped and mediated within particular contexts, it is only possible to understand the affordances teachers perceive by focusing on a particular digital instantiation. In this case, the focus is on the affordances recognized by ELT teachers working with an ILTS substituting for a traditional workbook as one component of a TMTBLT setting.

5. Teachers' Perspectives Regarding ILTS

This particular study is a qualitative analysis of the teachers' perceptions regarding FeedBook and the accompanying materials, to gain insight into the affordances these educators identify regarding this new kind of workbook. The three teachers interviewed for this study are among 21 teachers in three German states who used an ILTS for the first time in their ELT classes instead of a paper-based workbook. This examination is one study conducted to analyze the implementation of FeedBook in a TBLL context within the Interact4Schools project. Other studies were simultaneously carried out over the course of the 2022/2023 school year by one or more of the three universities that developed and implemented the Interact4School project.² These additional investigations used survey-based data to examine learner's state and trait motivation each time they log into FeedBook, pre- and post-cycle tests to measure their cognition and language acquisition, and continuous log data that allow for analyses of their behavior. Additionally, in the three classes where the teachers were interviewed for this study, students' written and audiotaped work beyond FeedBook is evaluated to examine how they transfer the practiced language means into performance (Pili-Moss et al. 2022). In two of the cycles implemented in these classes, multi-perspective classroom videography traces classroom interactions and performance (Schildhauer et al. 2023). In sum, the questionnaires, language tests, keystroke logging, video and audio files, and interviews provide a comprehensive set of data that allow a nuanced understanding of the initiative's implementation from the perspectives of educational psychology, computational linguistics, second language acquisition, classroom interaction, English didactics, and teacher behavior and beliefs. While some of the aforementioned items are large-scale quantitative studies based on pre-post study designs and learner log data examining all 600-plus learners' affective states and language learning, as well as the teachers' perceptions of their learners' preferences and performance in relation to the project, the analyses of student work and classroom interaction focus on one school. This school is also the focus of the study described here. Carried out by the Leuphana University Lüneburg and the TU Dortmund University, as described in the following sections, it focuses on the teachers' perceptions of FeedBook as a tool for ELT within a TBLL approach. The research questions are thus as follows:

2 The three universities are the University of Tübingen, Leuphana University Lüneburg, and the TU Dortmund University. More information about the Interact4School project can be found at <http://interact4school.de> [15.04.2024], and details of all of the empirical studies can be found in Parrisius et al. (2022).

Research Question 1: What affordances do teachers in the FeedBook study identify with regards to implementing TBLL with the help of an ILTS?

Research Question 2: How do the teachers in the study perceive their roles in a didactic setting mediated by an ILTS?

In this contribution, the data addressing these research questions derives from the nine semi-structured interviews described in 5.1 and 5.2.

5.1 Context of the Qualitative Study

The teachers interviewed for the qualitative data all work at the same school in a German city-state. Given the fact that the implementation of FeedBook relies on certain structural conditions, such as access to individual internet-connected devices that allow for keyboard-based input, the school was not selected randomly, but rather in coordination with local experts familiar with the digital infrastructure in various schools and the anticipated receptivity of school administrators, classroom teachers, and parents to participate in the intervention and the concomitant study.

As a result, the project, comprised of FeedBook and the ancillary TBLL materials designed in the Interact4School initiative, was implemented in one school in the three seventh-grade classes of all three of the ELT teachers. Despite the lack of random selection and school diversity, the exploratory nature of the study and the variability among teachers even in one school are felt to be sufficient to warrant a focus in one setting. In this way, differences among the teachers' statements cannot be attributed to factors having to do with school structures, demographics, or varying professional cultures. Instead, the focus is on the digital and ancillary materials, and on the individual teacher differences themselves. In other words, the fact that all three work at the same school allows us to focus on the complexity of teachers' perceived affordances regarding the implementation of TBLL using FeedBook, given the same institutional structures, student demographics, and curricular frameworks.

5.2 Methodology

The analysis here reflects the data derived from three rounds of interviews, corresponding to three of the four implemented task cycles. Each of the three teachers were interviewed once per cycle, for a total of nine interviews. The interviews were conducted in the periods between task cycles, i. e., after task cycle one was completed and before task cycle two began. The data analysis that follows represents preliminary findings based on ongoing research.

The interviews were conducted as semi-structured interviews, transcribed with F4, and coded in MAXQDA (2022). The three teachers were interviewed within a few days of each other; each interview was timed to coincide with the end of a task cycle. Using a semi-structured interview format, each teacher was asked similar questions at the same time. Each round of teacher interviews had a different emphasis, in order to focus on different aspects of the entire intervention and capture the complexity of the teachers' emerging understandings of FeedBook in a TBLL setting (Table 1).

Table 1: Interviews 1–3 with main topics.

Interview	I1	I2	I3
Main topics / focus	<ul style="list-style-type: none"> – biographical background – previous knowledge about TBLL approach – expectations for the use of FeedBook – role of practice ideal and perceived interactions in the classroom – diagnostic approaches – handling of heterogeneity 	<ul style="list-style-type: none"> – evaluation and reflection of task cycle one – perceptions of students' focus-on-form practice – use of FeedBook to support diagnostic competences – connections between computer science and language learning – trust in digital systems 	<ul style="list-style-type: none"> – evaluation and reflection of task cycle two – perception of students' focus-on-form practice – reflection on role as a teacher working with an ILTS – desiderata for an ILTS comparisons between use of an analog workbook and FeedBook

5.3 Introducing the Informants

After initially identifying concept-driven thematic and theoretical categories in accordance with the topics of the interviews and the underlying constructs, discussion of the data among the three co-authors led to the inductive development of data-driven analytical categories (cf. Kuckartz / Rädiker 2019). These were subsequently further refined discursively among the co-authors with selected portions of the data. In the case of differing interpretations, a consensus was

negotiated in light of additional transcript excerpts, generating a deeper understanding of the material.³

All three teachers differ significantly in their biographical backgrounds and their teaching experience. Anna⁴ is currently teaching her first school year after successfully completing a teaching qualification for professionals from other fields.⁵ Her colleague, Frida, on the other hand, has been teaching for 21 years, five of them at the school where the study took place. Additionally, Frida prepares pre-service teachers, supervising and observing their lessons and evaluating their certification-related performance.⁶ Susan has been working as a teacher for several years now, albeit primarily in a different German state. She had been working at the school for one and a half years at the time of the first interviews. Susan serves as a liaison between the school and the I4S project as one of several practitioners who cooperate in the development and implementation of the task materials. As such, Susan is thoroughly involved in designing the classroom materials for the task cycles complementing FeedBook. As a result, her insights into FeedBook and the project's overall design may be expected to differ from that of her colleagues. She participates in the project more intensively than the other teachers, but given that she is not involved in the project's overall conception, technical development, study design, or data analysis, it was anticipated that she would be able to provide important insights from the perspective of an informed participant.

Thus, despite this formal similarity regarding the fact that all three informants are teachers of seventh grade in English at the same school, they bring to their work very different personal and professional backgrounds. While some of these differences are identifiable based on quantifiable characteristics (Table 2), differences in their beliefs regarding the work with FeedBook emerged in the interviews themselves.

3 An unexpected methodological affordance emerged in the process of translating the interviews into English for the purposes of this article. The co-authors' bilingualism and the subjects' code-switching offered opportunistic instances to deliberate on the nuances of the informants' word choices and led to further insights regarding the data.

4 The teachers' names are pseudonyms.

5 For details regarding the alternate certification program (in German), see <http://quer-einstieg.de> [15.04.2024].

6 For details regarding the system of teacher education in Germany, see Terhart (2019).

Table 2: Characteristics of the informants.

Pseudonym	Anna	Frida	Susan
Working experience as fully trained teacher	1	22	14
Other professional activities (previous or concurrent)	Computer specialist with basic computer HTML and SQL programming knowledge	Teacher trainer / supervisor	Develops curriculum materials in a university-aligned project
Other	German is not her L1. her teacher training took place through an alternate certification program	Co-developer of a training for supervisors of PSTs on mentoring roles and attitudes. Certified Transactional Analyst in the field of education (IATA)	Experience in multiple German <i>Länder</i>

While there is no explicit analysis of issues of gender, socioeconomic status, language(s), or ethnicity, we are well aware that an examination of the fields of (educational) technology and (foreign language) education in German schools need to take these contexts into account, both in terms of practice and research (cf. Bündgens-Kosten 2016, Gülen 2021, Holthaus et al. 2012, Vandrick 2014, Wilken 2021). In our analysis, this becomes most evident as regards Anna, who, as a woman with a professional background in the field of technology and personal migration history, brings relatively unique expertise to her ELT classroom in a German selective school form. These attributes likely play a role in shaping the affordances she perceives regarding FeedBook a part of a TBLL approach to language teaching. The role these personal-professional identities play in mediating the way they see digital tools is potentially significant but remains in our analysis subordinate to their professional experiences and expertise.

The overall Interact4School project is embedded in a multidisciplinary consortium, drawing on expertise from various fields (Parrisius et al. 2022: 1–2). The data in focus here (ibid.: 24) examines teachers' initial experiences with using FeedBook over the course of one school year. With the data collection process ongoing, these early findings highlight the interplay between the tool itself and the teachers in the heterogeneous ELT classroom.

6. Findings

An analysis of the data reveals several perceived affordances the informants recognize in relation to FeedBook. However, it is only in some instances that these affordances align with those that were intended. What becomes clear is that the teachers' use of this new kind of workbook is intertwined with their understanding of what the ILTS can do, and what they understand as their roles in the TBLL classroom. The interview data reveal how the teachers identify and make didactic sense of a number of recognized affordances, showing how this kind of workbook can change 'business as usual' in school-based language learning. At the same time, some potential affordances of FeedBook are not identified or are misconstrued. These incidents impart critical lessons regarding the future development and implementation of classroom materials that incorporate artificial intelligence in ways that are unique to expert practitioners. Given that educators are the key actors in determining how an innovation is implemented in the classroom, understanding how they realize its potential and reflect on how it informs their instructional planning and practice is critical for designing effective tools and professional development opportunities vis-à-vis digital materials. Illustrations of the potential affordances teachers recognize and value, and their impact on their professional practice, are the focus of the following analysis, highlighting the complexity of how teachers make sense of FeedBook to meet their needs while shaping the future of ELT instruction. The analysis that follows focuses on three critical areas of ELT teaching and learning, highlighting pedagogic issues, subject-specific considerations, and teacher roles respectively.

6.1 Affordance 1: Facilitating Individualization and Differentiation

The data reveal that the teachers in the study welcome the idea of using an ILTS to provide individualization and differentiation as part of their overall efforts to accommodate the prior knowledge and competence of their heterogeneous learner groups, with varying degrees of prior knowledge, (meta-)cognitive and (meta-)linguistic competence, learning differences resulting from special educational needs, and family backgrounds. Given previous research that shows how German educators grapple with implementing differentiation in heterogeneous settings more generally (Gerlach 2015: 130–131, Reh 2005: 79), the teachers' receptivity to do so in this context seems to suggest that appropriate resources can foster their inclination to address it. Moreover, while the data is inconclusive, it seems to be the case that these teachers recognize the potential of using a digital tool specifically to facilitate individualization, as Frida indicates:

[G]enerell glaube ich, dass es sehr, sehr gut ist und dass es auch die verschiedenen Tempi der Schüler viel besser bedienen kann, als ein einzelner Lehrer oder auch ein Workbook, das könnte, weil ich natürlich noch 'ne viel größere Range an Aufgaben hinterlegen könnte, jetzt auch für die Guten. [...] Die sind auf so unterschiedlichen Niveaus [...] das sehe ich auch in ihren Schreibaufgaben. [...] Um dieses, was wir ja eigentlich wollen, im Schulsystem, die Individualisierung hinzukriegen wäre, glaube ich, so ein FeedBook-System, [...] die Lösung [...] also tatsächlich die Lösung.

[G]enerally, I believe that it is really, really good and that it can address the students' different paces much better than a teacher or a workbook could do because I would of course be able to deposit a much wider range of activities as a resource, also for the good ones. [...] They have such differing levels [...]; I also see that in their writing activities. To achieve what we actually want in our school system, to manage this individualization, I believe, something like a FeedBook system would be the solution, so really the solution. (EK_2_243/253)

Interestingly, Frida's response addresses first and foremost the need to differentiate for learners who are more capable ELT learners. Given the emphasis in research and professional development on the needs of learners who find ELT difficult due to disabilities, linguistic barriers, or socioeconomic disadvantages, this focus on learners who require more challenging exercises reflects a unique nuance largely absent in the predominant discourse surrounding inclusion in ELT (cf. Benitt et al. 2019, Biedroń / Pawlak 2016, Hollenbach-Biele / Klemm 2020). Although students who are proficient in English are not Frida's sole focus, they figure relatively prominently in the interview data. For her, an affordance of the ILTS is that it facilitates requisite differentiation, in light of wide-ranging heterogeneity, for all students:

Und dann würde ich auch gucken, dass man es individualisiert benutzen kann. Also, ich habe ja durchaus Schüler wie N., die schon auf sehr hohem Niveau sind und auch glaube ich zu Hause sehr viel schon geübt und gemacht habe[n]. Da hab ich [...] andere Schüler, wo jetzt, wo ich sie näher kennenlernen, auch deutlich wird, bestimmt auch so fünf, sechs, die ganz schön struggeln. Also so, und da müsste man/ das wäre dann auch der Vorteil so eines Systems zu sagen: 'Okay, wir gehen noch, wir sechs noch einen Schritt zurück und üben noch mal auf dem Niveau A1/A2, damit ihr Rückenwind unter den Füßen [bekommt]/'. Während andere tummeln sich schon im B1 und probieren auch schon mal B2 Übungen.

And then I would check if one could use it individualized. I mean, I definitely have students like N. who are already at a high level and who study and who, I believe, have already practiced and done a lot at home. Then I have other students, where now, as I get to know them better, it is clear that, likely five, six students are really struggling. There, one could / It would be the advantage of such a system to say 'Ok, we six are going one step back and practice again on level A1/A2, so that you [get] some wind beneath your feet.' In the meanwhile, the other students are busying themselves already at level B1 and even try B2-level exercises. (EK_3_288/302)

In this regard, Frida recognizes that an affordance of the ILTS lies in its capacity to support her in effectively meeting the needs of diverse learners. As regards the less competent learners, Frida focuses on the role of appropriate differentiation to provide these learners with support to address their sense of self-efficacy, revealing how she takes into account both the cognitive and affective dimensions of classroom-based language learning.

Anna likewise addresses the needs of her more competent learners when discussing the benefits of FeedBook, noting that it is important, in her opinion, to have

so eine systematisierte, so integrierte Differenzierung [...], dass das System gleich entscheiden kann, also welche Schwerpunkte oder zu welchen Aufgaben, je nachdem nach Schwierigkeitsgrad, sollten einzelne Schülerinnen und Schüler sofort hingehen. [...] [M]anchmal ist es so, dass manche dann vielleicht mal gelangweilt [sind], weil die Aufgaben viel zu einfach sind, und dass denen direkt gesagt wird ‚okay du. Nach diesen Prä-test stellen wir fest, dass du direkt zu den schwierigen Aufgaben gehen kannst‘ oder ‚bleib mal bitte doch bei den Basics‘. Und das finde ich vorteilhaft an solchen digitalen Tools.

systematic and integrated differentiation, so that the system can right away decide to which focus or activities, depending on the difficulty level, individual students should go. Sometimes it is the case that some students are bored, because the activities are too easy; then, they are directly told: ‘Okay, you. After the pre-test, we know that you can directly go to the more difficult activities,’ or ‘please stay with the basics.’ That is what I think is advantageous regarding such digital tools (AR_1_189/198).

Frida's and Anna's statements indicate that they recognize the inherent affordance of this interactive material to achieve differentiation. While they do not contrast FeedBook explicitly with traditional practice materials, their statements indicate that the ILTS offers unique opportunities for individualization, especially as regards form-focused practice.

6.2 Affordance 2: Facilitating Focus-on-Form(s) Practice

The data reveals the teachers' understanding of the need for dedicated form-focused practice within a TBLL approach, and the roles an ILTS can play in this regard. Demonstrating a sophisticated understanding of linguistic issues that are relevant for low-intermediate language learners, they emphasize the potential number and variety of practice activities FeedBook can offer, foregrounding this element over features of interactivity or adaptivity.

The teachers refer casually to specific language phenomena commonly used within instructed (second) language acquisition settings, and how they rely on FeedBook to give them information about their students' proficiency regarding

these forms, in much the same way they would otherwise use worksheets or other materials:

Weil, ich habe dann nachgeschaut und sie haben dann teilweise anstatt Type Two, dann auch Type eins⁷ [...] und irgendwann dachte ich okay im Unterricht soll ich dann auf jeden Fall das noch mal betonen, dass das Type Two ist, das dann Past Simple plus ein would oder could im Neben-Clause stehen sollte.

Because I looked at the exercises, and sometimes they used instead of type II, type I [...] and at some point, I thought, okay, I definitely have to emphasize that again during class, that that is type II, that then past simple plus a 'would' or 'could' should be in the subordinate clause (AR_1_59/67).

At the same time, the fact that FeedBook provides exercises aligned with the task demands is perceived as superfluous. For example, Frida would prefer a resource that offers 'intelligent practice opportunities', organized not by task demands, but by grammatical phenomena:

Also ich würde mir wünschen, dass es so eine intelligente, Übe-Möglichkeit gäbe. Da kann ich also eine Art, ich sage jetzt mal eigentlich, so eine Bildungsplattform für Englisch [...] wo ich hingehen kann und sagen kann: 'Wow! Jetzt sind wir auf das Phänomen gestoßen. Was gibt's denn da, für Übungen?' Und dann kann ich den Schülern aufschreiben, 'übt mal, das, das, und das'. Und dann gehen die da eigenständig auf die Plattform, holen sich das runter und üben.

I would wish that there would be a general intelligent practice opportunity. Then I can have a type of, I'll say, like an educational platform for English [...] where I can go and say 'Wow! We have encountered this phenomenon. What exercises are there for practice?' And then I can write down for the students: 'Go practice this, this, and this.' And then they go to the platform independently and download what they need and practice. (EK_3_245/252)

Frida verbalizes both her understanding that a communicative need should drive attention to forms, a hallmark of many TBLT frameworks (Samuda 2009: 380), and that an ILTS is a tool that can potentially facilitate form-focused practice. However, the benefits she perceives in an 'intelligent' digital tool are those of a type of repository where exercises can be downloaded for practice. It seems that the ability of FeedBook to offer more adaptive and immediate feedback to learners remains opaque or uninteresting.

Likewise, the organization of FeedBook to work in co-constructive alignment with the task is apparently largely irrelevant; if Frida is selecting the exercises

7 The teacher is referring to Conditional Sentences Type I and Type II. Whereas Type I sentences are generally formed using the simple present and will-future, Type II sentences are formed using the simple past and a modal + infinitive.

based on her judgment of relevant language means, then exercises organized by language elements, and not as components of the task cycle, reflects her needs better. It may be that an intelligent workbook's ability to provide substantially more exercises at differing levels of complexity offers adequate affordances that make a traditional organizational structure irrelevant.

Both Frida and Susan make it clear that their expectation for a digital tool is that it serves as a repository from which they select appropriate material for their learners. In this conceptualization, FeedBook is 'intelligent' in the sense that it has a vast stock of resources appropriate for practicing various language elements. The role of the teacher is that of an informed curator, selecting those exercises from FeedBook that reflect the learners' linguistic needs as they arise, and assigning them to students to complete. The guiding hand of the teacher is preeminent, the ILTS is a resource library, and even the potential use of immediate and scaffolded feedback plays a subordinate role, evident in how the teachers intimate that learners will work on the identified exercises in a pen-and-paper format once these are downloaded. Susan echoes Frida's perception, seeing the potential of FeedBook in its capacity as a collection of practice exercises:

Und ich würde es gern eben als Übungsfundgrube nutzen, dass ich sage, okay, die Schüler haben dann eben mit dem FeedBook die Möglichkeit, digital zu üben. Ich würde es mir so vorstellen, dass ihm das FeedBook verschiedene Aufgabenfelder zur Verfügung stellt, das ich auswählen kann. [...] So ähnlich wie es ja schon ist, dass man einfach sagt: 'Hier gibt's die Conditional Clauses', 'Hier gibt's noch mal Wiederholung zum Past Tense.', 'Hier gibt's das und das.', und, dass ich dann, den Schülern eben sozusagen Aufgabenpakete an die Hand geben kann, dass ich sage: 'Geh zu diesen Aufgaben und bearbeitet die.' Und, es würde mir eben die Möglichkeit geben, dass ich auch nochmal differenzieren könnte, welche die eben auch nur mal eine Wiederholung bräuchten in Bereichen, die wir vielleicht schon längst behandelt haben [...], 'Irregular Past Tense Forms', oder so was. Dann könnte ich eben sagen: 'Schau mal, du machst das und das noch mal. Die anderen arbeiten an anderen Aufgaben.' So würde ich mir das vorstellen, dass ich so eine Auswahl habe, wo ich rauspicken kann, was denn nun dazu passen würde.

And I would like to use it as an exercise treasure trove, so that I can say 'okay, the students have the opportunity to practice digitally with FeedBook'. I would imagine that there are different types of activities available that I can choose from. [...] Similar to as it already is, so that one can simply say 'here are the conditional clauses', 'here is another review of the past tense', and 'here is this and that'; that I can give the students something like packets of activities, that I say 'go to these activities and work on them'. And that would give me the opportunity that I could differentiate again, between the ones where they just need a review in some areas that we have already covered a while ago [...], like, I do not know, irregular past tense forms or so. Then I could say 'Look, you do this and

this again. The others are working on different activities.' That is how I would imagine it, that I have a choice to pick what would fit (EZ_3_205/226).

These passages paint vivid images of how the teachers conceptualize the materials they use to address individual learner differences and targeted linguistic means. For them, the ideal practice materials are available in large amounts, well-sorted, and easily classifiable according to a specific grammatical skill, delegated to the student according to the teacher's assessment of learner needs. The idea that the materials themselves can interpret learners' input, assess the correctness of learner language, provide corrective and scaffolded feedback, and adapt to the learner by recommending exercises addressing component skills leading up to the target element (Muldner et al. 2015: 4), does not figure into their notions of ELT worksheets, or these apparently more interactive varieties. As a result, the benefit of organization around task-relevant language for form-focused practice is irrelevant.

6.3 Affordance 3: Distributed Roles

While all three teachers thus welcome FeedBook as a resource for differentiated activities, they clearly distinguish the role the ILTS plays as a facilitative tool, and their own role as arbiters of content, diagnosis, and assessment. They do this in different ways, mediated by their perceived affordances of FeedBook on the one hand and their conceptualizations of their roles as professionals on the other.

Through the data, a picture develops in which the teacher is the arbiter of tasks, classroom activities, and independent practice assignments such as homework. They are, in this sense, choreographers who see the students as dancers and FeedBook as the musical repertoire the teachers themselves select from to highlight the learners' (language-related) movements. This is particularly evident when it comes to the sequence of instruction and exercises, as Anna indicates:

Also was schwierig war, fand ich, dass die [Schüler*innen] schon mit cycle two angefangen haben und grammatische Übungen durchgeführt haben, obwohl [...] die Grammatik im Unterricht noch nicht eingeführt wurde.

It was difficult, I found, that they [the students] had already started with cycle two and completed grammar exercises, even though [...] the grammar had not yet been introduced in the classroom (AR_3_51/59)

Susan elaborates on this issue, making it clear that she grapples with the fact that an ILTS may necessitate a shift in her lesson design, in terms of sequencing, a key concern voiced by teachers in similar settings (Holstein / Aleven 2021: 3). She

anticipates not just how her teaching practice might evolve under the influence of a reliable ILTS that provides form-focused exercises, but how this has implications for her understanding of her role as a teacher:

Das ist mir im Moment noch schwergefallen, ja da loszulassen und zu sagen: ‚Okay, wir üben jetzt eben nicht so viel oder eben nur durch das Sprechen‘. Aber das kann ich mir schon vorstellen. Na, wenn das funktioniert und man sieht [...] sie haben die Übung. Sie haben die Möglichkeiten, das da zu machen. Und ich habe auch so ein Blick darauf [...] [Da] kann ich mir eben auch vorstellen, dass es wirklich das Unterrichtsgeschehen beeinflusst und [...] ich mich dann auch umstellen würde. Dann sage ich, ich kann da guten Gewissens dann mehr, ja mehr Freiraum geben, das einfach auch in diesen Gruppen gesprochen wird und dass wir einfach Anlässe geben und nicht so viel [...] klassisch üben.

That has been hard for me until now, yes, letting go, and saying: ‘Okay, we are not going to practice so much, or just do speaking practice.’ But I can certainly imagine that. Well, if it works and one can see that [...] they are getting the practice. They have possibilities to do that there. And I have an eye on it [...] I can imagine that this would really affect the teaching routine, and [...] I would adjust, too. Then I say, I can, with good conscience, give them more freedom, that also simply the groups can talk and we also can offer more occasions and not do so much [...] classic practice (EZ_3_273/281).

Her reflection highlights how the ILTS causes her to re-think how the classroom orchestration shifts, in a way that fosters more interaction.⁸ It highlights what Easton (2003) described as an impending “paradigm shift in perceptions of instructional time and space” (Compton 2009: 75). Susan is grappling productively with the implications for the existing ‘grammar of schooling’ (Tyack / Tobin 1994: 454) that has heretofore dominated her teaching.

Anna identifies an additional potential affordance available with FeedBook, intimating how the data it provides regarding analyses of student competence can inform her instructional decisions in a way that parallels what she would do with a paper-and-pencil workbook, but with more depth and accuracy. She understands that the content of the system will allow her to diagnose students’ performance based on large amounts of data:

Mit so einem digitalen FeedBook kann man auch [...], wenn das vorgesehen ist, alle Daten dann sortieren. Und das geht ziemlich schneller einfach. Man kann dann auch mal den Meridian dann rausziehen und sagen okay ‚Was ist ein Durchschnittswert?‘ Man kann so ein bisschen daran [...] schauen. ‚Okay, wie hat die Klasse dann

8 Dillenbourg et al. (2018) use the term ‘orchestration’ to refer to the ways teachers skillfully combine methods, management, and (digital) materials for a specific learning aim.

abgeschnitten insgesamt bei den Übungen?’ Wenn man einfach mit einem normalen analogen Workbook arbeitet, kann man das auch machen, kostet aber viel Zeit. Würde ich wahrscheinlich nicht tun, also das wäre ziemlich subjektiv dann, so eine Arbeit. In dem Sinne ist es möglich, dass das Workbook objektiver, so Statistik, sag ich mal so.

With such a digital FeedBook [...], if it is intended, one can sort all the data. And that simply goes more quickly. One can also pull out the meridian and say, okay, ‘What is the average?’ One can then [...] look at that a bit. ‘Okay, how did the class do overall with the exercises?’ If one works simply with a normal, analog workbook, you can do that too, but it is very time-consuming. Probably I wouldn’t do it, well, that would be pretty subjective then, a task like that. In this sense, it is possible that FeedBook is more objective, in terms of statistics, I’ll put it that way (AR_3_226/234)

In highlighting the effortless data analysis FeedBook can offer to target learners’ needs on an individual and group basis, Anna reveals her understanding of how FeedBook can support her diagnostic activities. FeedBook does not substantially change her responsibility to assess students’ competence. Rather, it adds the benefit of being able to do this with more data in less time, and with greater precision than would be possible for a teacher without a workbook with these capabilities. Her role as a teacher is not necessarily altered, but with the assistance of such materials, her role as a diagnostician has new importance. Given studies suggesting that “actionable data [...] are not easily accessed by all stakeholders to improve online teaching and learning, especially [by] instructors who do not specialize in statistics or data visualizations (Chatti et al. 2014, Wilson et al. 2017)” (Youngs 2021: 73), it may seem relatively surprising that Anna, as a novice teacher, highlights this potential of FeedBook. While more data is necessary, it seems that she is able to extrapolate from professional experience in information technologies outside the classroom to her teaching role in the classroom. This leads her to perceive affordances regarding the data provided by FeedBook in a sophisticated way.

7. Discussion

While this analysis reflects the views of only a few educators, it affords rich insights into how three very different ELT teachers perceive the affordances of an ILTS. The data suggests that their perception of FeedBook’s affordances is influenced by their didactic priorities regarding the need for easily accessible, well-structured, and plentiful differentiated exercises to support their overall objectives. While they continue to grapple with the changes the ILTS foretells regarding their own roles, they clearly recognize its utility in improving their objectives regarding individualization and in integrating form-focused practice.

At the same time, the data indicate that many of the potential affordances of FeedBook are not highly valued. While FeedBook is in a position to offer immediate, scaffolded feedback to students, for example, the teachers do not mention how this aspect of the ILTS informs their teaching. Moreover, the integration of form-focused activities aligned with task demands, a significant element of the overall Interact4School approach, runs counter to their preference for a wealth of materials organized by linguistic means. These findings highlight how FeedBook, as one element within a fully elaborated task-based setting, prioritizes benefits derived primarily from theoretical analyses of instruction over ones given greater importance by classroom practitioners. While classroom teachers were included in the development of FeedBook, the premise of the application emerges from a theory of English didactics. As such, it prioritizes task-based language learning as an instructional method, with issues of implementation secondary. The teachers who implemented FeedBook, on the other hand, had to grapple foremost with the implications of its use vis-à-vis core classroom practices. What becomes clear is that the research-based design coupled with teachers' input does not meet the complex demands of addressing an ILTS-supported task approach mediated by teachers' expectations and experiences regarding their own roles and classroom activity. For future initiatives to more fully address these different priorities effectively, development might need to be located within a design-based research approach that would allow for the participants to negotiate their priorities, align expectations, and reflect in process.

One affordance that Anna perceives uniquely, in comparison to Susan and Frida, regards the use of diagnostic data that can be derived from FeedBook and used to accommodate students' learning needs in relation to linguistic elements. As Youngs (2021: 83) points out, the use of the student data is essential, not just for diagnosis, feedback, and assessment regarding learners, but for instructional improvement as well. Well-organized and easily interpreted data can offer teachers reflective opportunities for evaluating course content, instructional methods, and individual exercises. While all three teachers discuss how they diagnose students in terms of their English proficiency and remediate or enrich the exercises they offer their students based on this analysis, only Anna describes how FeedBook can support her in this aspect of her practice.

While Interact4School involved teachers in every stage of FeedBook's development, it seems apparent that a fuller explication of teachers' preconceptions, preferences, and expectations might have led to a greater emphasis on the benefits relevant to practitioners. In addition to improving tools like FeedBook, the co-construction of innovations with both educators and designers would offer

myriad opportunities for all of these involved in the development to explore the implications of such applications for classroom-based teaching and learning.

8. Conclusion

This research set out to explore what affordances ELT teachers identify with regard to an ILTS within a task-based setting, replacing a traditional workbook. With an emphasis on FeedBook as one element of a TBLL approach, the intent was to examine how teachers perceived the capabilities of an intelligent tool to offer immediate, scaffolded, and adaptive form-focused practice to support the acquisition of language means necessary for a target task. While the results can only offer insights from three teachers' perspectives, they highlight the ways in which subject-specific didactic priorities influence how this 'intelligent tool' is incorporated into the educators' practice. These priorities, centering around a desire for differentiation and innumerable opportunities for form-focused practice, relativize additional potential benefits of an ILTS. At the same time, even though FeedBook does not entirely reflect the teachers' ideal digital tool for form-focused practice, it challenges them to reflect on their role in the classroom. They are cognizant of how the capabilities of digital tools such as this one mediate their future teaching practices that are not significantly altered, but that shift in incremental ways.

Two of these developments the informants refer to regard the use of classroom time and the use of data to diagnose and address student learning. In both cases, the teachers do not describe a radical departure from extant teaching practices. Instead, they highlight how FeedBook can support them in pursuing effective practices, such as increasing speaking time in class and allowing for greater student autonomy in form-focused practice. These shifts align with task-based objectives. Likewise, Anna's explicit description of how she could use the data to analyze her students' performance builds on the implicit diagnostic activities that underlie Frida's decisions about working with some students at one level while others proceed to a new level of challenge. It is a difference, not of type, but of degree – made possible by an ILTS. At the same time, these findings suggest that the introduction of so-called 'intelligent' applications like an ILTS requires more – and not less – of those implicit, complex, evaluative processes that lead to the many, almost instantaneous and subconscious decisions that teachers make within the course of a lesson (Cuban 2011: n. p.). With traditional workbook exercises, teachers might assign a uniform set of activities or differentiate according to a small set of identified, varied needs. With an ILTS, teachers need to navigate student responses to a vast array of exercises that they have

not developed and that, due to their sheer number, they cannot preemptively preview. Likewise, with an ILTS, they have substantial additional data at their disposal that can theoretically be used for planning. However, this is only the case if it is perceived as manageable and useful, and can be quickly synthesized and translated into a course of action.

In addition to these continuities in teacher practice, the discrepancies between the anticipated affordances that teachers would perceive and those that these teachers ultimately realized indicate that there is a need for further research, ongoing technological and conceptual development, and teacher (initial and further) education. While classroom teachers should be engaged in all phases of application design and analysis, the results here suggest that the focus should be on settings in which pre-service and in-service teachers are given opportunities to explore specific digital innovations in interim stages, as well as during adoption phases. Only in this way can technological designs reflect teachers' priorities while simultaneously expanding their range of possible recognizable affordances. If we consider the real possibility that ILTS will replace paper-and-pencil workbooks or less smart exercise tools in the future, it becomes critically important to understand how these tools work – not necessarily (solely) on a technological level – but in terms of how they are implemented in complex classroom environments, where the applications themselves and the interaction that occurs around exercises such as these are mediated by teachers' recognition of their affordances. The 'task' of early-twenty-first century language teacher education is to design learning opportunities that foster this recognition and reflection of affordances regarding emerging tools and technologies.

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Manuela Franke

The Use of Digital Components of Textbooks in Foreign Language Teaching: A Study Using the Example of Homework Assignments in Lower Secondary Education

Abstract: The textbook is still considered to play a central role in foreign language teaching and is frequently used for homework assignments. The study presented here first asks about the new possibilities for homework through digital media. After a presentation of the digital components of the textbooks used in the sample, 133 observed French and Spanish lessons of 45 or 90 minutes are used to show how teachers in classes with students aged 10–15 use the existing digital and analog components of textbooks for homework. The questions addressed include: Do teachers exploit the potential of the textbooks for the unique homework format? How do they design homework assignments that introduce pupils to independent learning? The study aims to gain insights into the homework practice of foreign language teachers to draw conclusions about teacher training.

Keywords: Textbook use, homework assignments, digital components of textbooks, classroom observation, didactics of foreign language teaching

1. Introduction

Textbooks consist of a variety of different media: student material, teacher material, audio-visual media, and task collections (cf. Fuchs et al. 2014: 9). Currently, textbooks are offered as printed and electronic multi-component systems (cf. Kurtz 2020: 198) and already include a variety of digital components (cf. Würffel in this volume). Many textbooks are nowadays available as e-books; as a rule, however, the print version is (still) favored. In contrast, the accompanying material for teachers is already mainly available in digital form (cf. Franke / Plötner 2022: 8). More recent textbooks focus on the use of digital media and the introduction to media literacy (e. g., for French textbooks Lachmund 2022: 88 and 94, for English textbooks Kurtz 2019: 119).

Digital applications, in general, and digital textbook components, in particular, do not improve the quality of foreign language teaching through their use alone (cf. Würffel 2018: n. p.). Still, they do bring with them a multitude of possible additions, supports, and extensions to the foreign language teaching process. Sometimes they enable new or different activities that can be used to implement

certain principles of a method differently and perhaps more effectively (*ibid.*). Digital elements can, for example, influence the relevance to the pupil's reality and thus result in a stronger learner-centeredness. If used in a didactically sensible way, they can lead to more effective differentiation and allow access to various information sources in different languages, multiple interaction possibilities, and an improved design of learning materials (e. g., by appealing to several senses or controlling one's own learning process; cf. Hattie 2009, Würffel 2018).

Given that homework assignments are a self-organized element of the learning process (cf. Keck 2004, Trautwein / Köller 2003), they should be reconsidered in light of the multiple facets of digitalization. For example, digitally supported solutions or aids such as explanatory videos open up the possibility of direct auto-correction of tasks or new ways of learning vocabulary. By individualizing the learning process, digitally supported homework enables a targeted and individualized promotion of independent, self-reliant, and autonomous learning, in combination with the rise of media competence. Even though it is often the subject of controversial discussions, the topic of homework – especially in foreign language learning – is nevertheless critical. Still, there is a lack of empirically proven findings (cf. Lütge 2016: 281, Würffel 2019) not only on the use of homework designed in analog but especially in digital ways.

The study investigates the use of textbooks by teachers in the context of homework assignments. It will be shown to what extent the potential of the analog and digital materials offered by the textbooks are used. The focus is on questions regarding the support of learners in the development of independence in the learning process and the goal-oriented interaction of analog and digital textbook components. The study, which is based on semi-structured lesson observations, is supplemented in the first step by an overview of the digital components offered by the textbooks used for the 133 lessons observed for the study. The analysis of the observations on the use of the textbook in French and Spanish lessons is carried out concerning the following questions:

- Which analog and digital textbook components do teachers select for homework?
- How do teachers design homework that includes these textbook components?

2. New Opportunities for Homework Practice Through Increased Use of Digital Media

The change that has taken place in recent decades concerning an orientation towards action, tasks, and pupils has resulted in changed conditions for foreign

language teaching, which must also entail a change in homework practice. As early as 1996, Pauels pointed out that homework practice in foreign language teaching urgently needed further development due to increased teaching of strategy and learning skills and the promotion of autonomous learning (cf. Pauels 1996: 4). His demand is still significant today (cf. Würffel 2019: 557).

If one understands homework as a separate, independently oriented phase of teaching, the question, which has already been much discussed in the literature, arises as to which functions it can and should perform. Based on a learning goal-oriented understanding of teaching, homework can be of a preparatory or follow-up nature (cf., e. g., Aßbeck 1998: 372) and fulfill a variety of functions¹ (cf. Haag / Brosig 2010: 307). Especially against the background of the manifold possibilities of an increasingly digital world, the functions of homework appear in a new light, and new approaches, as well as extended options of homework design, arise, which become apparent in particular based on these three areas: (a) promotion of orality (2.1), (b) use of cooperative forms of work (2.2) and (c) autonomous design of the learning process (2.3).

2.1. Promoting Orality in Homework

Modern foreign language teaching should be based on the actual communication needs and the communication necessities of the learners. In this context, the use of language should be given more space than the language system. This means that the learners' ability to communicate in a foreign language and to use it for personal participation in target language communication is the overarching learning goal of foreign language teaching (cf. Schumann 2017: 163).

Digital media are the means of communication for young people per se; they communicate in writing and orally in various social software programs (e. g., chat programs; cf. JIM-Study, MPFS 2023: 32–35). This necessitates the application of skills (listening, speaking, reading, writing) and the existence of language knowledge (vocabulary, grammar). Through digital media, learners can be stimulated into communicative action with exciting and relevant materials. The aim is for learners to acquire linguistic competencies and use them independently. On the other hand, they should develop discourse strategies in dealing with communicative situations and topics, and experience communicating in a foreign language as social action (cf. Schumann 2017: 163 f.). Through digital media, those

1 A detailed list of the functions of homework can be found, for example, in Standop (2013: 18–19).

two demands can also be made possible in the context of homework (cf. Reisener 2005: 32 or Schreiber 2010: 200, cited in Würffel 2019: 558).

Due to the relatively limited contact time with the foreign language in everyday school life, the competence area of orality in general and the individual training of speaking competence, in particular, is often neglected (cf. Würffel 2019: 558). Digital media offer a variety of possibilities to promote orality, even in the context of homework. For example, podcasts can stage learning settings that allow for integrated competence acquisition and simultaneously promote listening, oral, and even written language production simultaneously (cf. *ibid.*: 559). Possible task formats – not only for the use of podcasts – could be, for example, the exchange about a topic using voice messages and the recording of oral answers to questions, which then serve as the basis for further work in class (cf. *ibid.*: 559), the recording of presentations or the preparation for short presentations in class, e. g., with the help of text-to-speech applications, which support a correct pronunciation (for details on homework and flipped or inverted classroom, see Würffel 2019: 561–563; on homework and blended learning models, also see *ibid.*: 563–566).

By designing homework in this way, pupils' speaking time can be increased and their language production documented. Teachers thus can give each student individual feedback on pronunciation, intonation, linguistic, and content-related correctness. In addition, language inhibitions can be reduced through the individual (temporal) processing of the task in a familiar home environment (cf. *ibid.*: 558 f).

2.2. Use of Cooperative Tasks in Homework

Cooperative collaboration represents – especially in the digital environment – the basis of working models in a networked world. In particular, the achievement of compromises is to be understood as a central element of democratic procedures. For this reason and based on learning theory considerations, cooperative forms of learning have been understood as promising forms of teaching since the 1980s (cf. Bonnet / Hericks 2020: 98). Especially in the context of the focus on orality and action orientation, cooperative forms of work play a central role in foreign language teaching.

In the secondary literature, more than four distinctly different definitions of cooperative learning can be found (cf. *ibid.*: 36–41), ranging from a very narrow (implementation of the think-pair-share pattern) to a very broad understanding of the term (negotiation of goals and ways of working between learners and teachers). A definition of cooperative learning based on so-called essential elements

(Johnson / Johnson 2003) has proven itself. According to Bonnet and Hericks (2020: 98), the most common elements are the following five, all of which can also be considered in the context of foreign language homework: (a) supportive direct interaction, (b) acquisition and use of social skills, (c) reflection on group processes, (d) positive interdependence, and (e) individual accountability (*ibid.*).

The advent of digital formats has transformed the landscape of homework assignments, offering new and previously unthinkable possibilities for incorporating all but especially the elements of (a) supportive direct interaction and (b) acquisition and use of social skills, which can only be promoted in contact with other people. Digital media, such as chats, forums, wikis, or other software applications that enhance communication and interaction can make both more accessible and more time-saving in the context of foreign language homework. Learners can learn physically alone in social exchange or work together on a shared digital document (cf. Würffel 2019: 557).

2.3 Designing Autonomous Learning Processes in Homework

Homework, *per se*, lends itself to developing and promoting independent learning. The concept of learner autonomy means the conscious ability to learn, i. e., to design and organize one's learning process, to choose the content of learning oneself, and to take responsibility for monitoring learning success or progress and learning behavior (cf. Neuner-Anfindsen 2005: 41, Wolff 2003: 838). Self-directed learning includes (a) self-organized learning, i. e., the free choice of place and time (learning objectives, subject matter, and path are predetermined), and (b) self-determined learning, in which place, time, and method (often also to a large extent the learning environment) remain open, but the learning objective and subject matter are determined by others (Röll 2009: 69). Since the school context is an externally controlled learning situation bound to institutional conditions, the degree of freedom or the number of self-determinable factors can vary depending on the student's learning level and degree of independence (cf. Krauß 2019: 79 f., Rösler 1998: 8).

Digital formats allow for more flexible and interactive assignments that can incorporate multimedia elements, such as videos, audio recordings, and images, and can enable students to engage with their assignments using a variety of devices, including laptops, tablets, and smartphones, giving them greater autonomy over their learning experience. The use of digital elements, therefore, opens a variety of new possibilities, even if computer-supported learning does not automatically have to lead to independent learning (cf. Rüschoff / Wolff 1999: 64). The autonomous and goal-oriented use of analog and digital media

is a challenge for learners that should not be underestimated. They must be able to grasp what the respective material or tool has to offer, determine the significance of the individual elements for their learning process and use the material or tool relevant to this phase at the appropriate time in the learning process (cf. Rösler 2004: 42). Particularly in the context of beginning foreign language teaching, there is thus a need for step-by-step instruction in independent learning, especially in homework, because – as Hosenfeld noted as early as 1976 – “[t]he lesson for us as classroom teachers is that students are often doing something very different from what we assume they are doing” (Hosenfeld 1976: 123). For learners to complete their homework successfully and to have suitable strategies and resources for maintaining and expanding their foreign language skills in the sense of lifelong learning, learners need to be gradually empowered to learn autonomously. A teacher’s supportive guidance on the way to this goal includes not only the presentation of suitable choices but also guidance in reflecting on one’s learning process and checking the suitability of different materials or analog as well as digital media. Even if learners of French and Spanish already know about foreign language acquisition and digital media are part of their life, this does not automatically mean that the formation of suitable strategies or (media) competencies will be trained accordingly or transferred to the second or third foreign language (cf. Conole / Alevizou 2010: 18 f).

Teaching that promotes autonomy and gradually reduces teacher control is always accompanied by well-thought-out internal differentiation and structured strategy training (cf. Tönshoff 2004: 229). Internal differentiation is understood here as the totality of instructional-organizational and didactic-methodical measures that are taken within a learning group to facilitate the different prerequisites and individually appropriate learning processes (ibid.: 277) so that all learners (weak as well as substantial) can be supported in the best possible way. In this context, open task formats that allow freedom and can be worked on according to individual abilities are particularly relevant (cf. ibid.: 228 f.). In competence- and task-oriented teaching, which is thought out from the students’ point of view, there are also differentiating measures in the context of homework. These can relate, for example, to the learning pace, prior knowledge, performance, etc. Current textbooks offer activities with different levels of difficulty marked by symbols. Differentiation essentially takes place through the following three measures: (a) the provision of aids, (b) additional offers (additive activities for learners with weak or strong performance), and (c) the consideration of different student activities in the tasks (cf. Junghanns / Schinscke 2015). Especially in the context of internal differentiation, digital media offer promising possibilities, for example, if one thinks of the provision of individual learning paths through

tools, but also the possibility of choice concerning learner products (e. g., students can decide for themselves whether they want to design a blog entry, an e-mail or a poster) or if one takes into account the variety of task formats possible through the digital additional offers (4.1) for the in-depth practice of different competence areas according to one's perception.

3. Study Design

To address the question of how teachers give homework with the support of the textbook in French and Spanish lessons in classes with students aged 10–15 and what proportion of this is taken up by digital, available formats, a sub-sample was drawn from a larger-scale qualitative primary study based on semi-structured lesson observations (Dewalt / Dewalt 2002) with supplementary quantitative analysis. The primary sample consisted of 133 French and Spanish lessons of 45- or 90-minute length delivered by 44 teachers at 31 schools in Berlin and Brandenburg (Germany) before the onset of pandemic-related restrictions (10.2019–2.2020).

The decision to observe so many different teachers is intended to minimize the possible influence of a particular teacher's teaching style on the total sample. With a total number of 133 observed lessons, a teacher was observed at least once (0.8 % of the total sample) and at most nine times (7.0 % of the total sample).

The resulting observation protocols were first categorized deductively-as well as inductively (cf., e. g., Kuckartz 2012: 69) and then analyzed. The overall study aims to capture teachers' curriculum-based teaching practice.

3.1 Data Collection Instrument

The observation is based on a semi-structured observation sheet developed in a peer-group procedure.² The students (16 French and 16 Spanish) document in this sheet, among other things, which textbook component (e. g., workbook or learner's book) is used by the teacher and what homework is given. In addition, the page, the task number, the beginning, and end of the work with the individual textbook element (for example, a set of tasks, textbook texts, listening texts, drawings, etc.), the work assignment formulated by the teacher, and the social form are written down.

2 The observation sheet was also presented and discussed in the colloquium on foreign language didactics of the Freie Universität Berlin (lead: Prof. Dr. Daniela Caspari) with experts from the field of language didactics.

Before the observation sheet was used, it was piloted with students and subsequently revised. For the validation of the observation instrument, the sheet was used by 9 student teachers of French and Spanish and the researcher to document the same lesson. The subsequent qualitative testing of the instrument revealed that 8 of the 9 observers (89.0 %) correctly documented the homework. One of the observers did not give any information about the homework assigned by the teacher. It can therefore be assumed that the validity of the observation instrument is high regarding the area of homework that is relevant here. To achieve the highest possible degree of objectivity in the observation, additional targeted methodological training (theoretical input on the topic of lesson observation, as well as the use of the observation instrument applying the example of a video lesson, reflection on the observation, clarification of abbreviations, sensitization to the difference between observation and interpretation) took place before the observation sheet was used for the data collection.

The method of semi-structured observation by the students was chosen because it is an everyday teaching setting and, therefore, familiar to the teachers. They were regularly accompanied and observed by their internship students during four months so that the observed lessons – unlike, for example, video-taped lessons – are likely to reflect teachers' authentic teaching style and, therefore, could be guided less by the premise of wanting to deliver a 'perfect lesson'.

3.2 Data Processing

To analyze the observation forms, an Excel table was first created for the general information on the lessons in which the following information was documented: type of school, grade level and year of learning, lesson format, information on the textbook, number of activities carried out with the textbook per lesson, total time of textbook use per lesson and the homework given. Subsequently, the observed lessons were sorted by activities with the textbook (e. g., reading a text, solving a task, etc.) and documented in an Excel spreadsheet. For each activity carried out with the textbook, the teacher's statement, a note on whether a change in the activity took place or not, the chosen social form, information on the differentiation of the activity, and on how it was dealt with, and the results from the activity were noted. For the qualitative analysis of the data with MAXQDA, the relevant textbook elements or activities from the textbook as well as the teachers' statements were sorted thematically (e. g., according to homework or work with texts, etc.) and subjected to a qualitative analysis according to Kuckartz (2014). The categories were formed deductively and inductively, initially theory-guided, with subsequent modification of the preliminary categories

based on the empirical material (cf., e. g., Kuckartz 2012: 69). The seven core criteria for assessing the quality of qualitative studies according to Steinke (1999) were used for quality assurance. Two independent researchers carried out the coding in MAXQDA at random. Through the regular exchange, appropriate adjustments were made to the coding system to ensure inter-coder reliability (Przyborski / Wohlrab-Sahr 2010).

3.3 Sub-Sample for the Analysis of Homework Assignments based on Different Components of the Textbook

From the total sample of $n=133$, a sub-sample of $n=98$ was drawn to analyze homework assignments with the textbook. The criteria for forming the sub-sample are explained below.

In five cases (four French, one Spanish), no information on homework was given in the observation record, so these were excluded from the sample. A further 30 lessons were excluded due to country-specific requirements regarding homework at different types of schools in Germany, as explained below.

The observed lessons took place at a total of 31 different schools in Germany. Of these, 102 lessons were observed in Brandenburg, 20 in Berlin, and 6 in Hamburg. 57.0 % of the lessons were given at grammar schools, 26.6 % at comprehensive schools, and 16.4 % at secondary schools. Secondary school here includes the following three types of school: Integrated secondary school, Oberschule (Brandenburg), and secondary school with integrated upper school. While the term *Oberschule* means regional schools for grades 7 to 10 in Brandenburg i.e., an integrated, comprehensive school without a *gymnasiale Oberstufe* – it is a generic term for secondary and grammar schools in Berlin.

13 of the lessons were observed at an integrated secondary school, four each at a secondary school in Brandenburg and a secondary school with an integrated upper school. Secondary schools are usually all-day schools, so a distinction must be made between ‘open all-day-schools’ (German: *offene Ganztagschulen*) and ‘bound all-day-schools’ (German: *gebundene Ganztagschulen*). ‘Open-all-day schools’ are mainly oriented towards the structure of traditional ‘half-day schools’. In the afternoons, pupils have access to an additional program that is not compulsory. In ‘bound-all-day-schools’ on the other hand students are required to take part in the school’s activities for at least three full days, for a minimum of seven hours each day.

Through the expansion and conception of ‘bound all-day schools’, homework completion is integrated in the school day. This means, among other things, that they must no longer be designed in such a way that learners can

do them without the support of others (cf., e. g., Standop 2013: 12). Whereas in Berlin and Brandenburg, homework should not be given at all in ‘bound all-day schools’³ (cf. GEW Berlin 2012: n. p., Münch 2011: n. p.), in ‘open all-day schools,’ it is part of everyday teaching. The study took place at state schools subject to administrative regulation. It is unclear from the data whether teachers at ‘all-day schools’ refrain from giving homework for didactic and methodological reasons or because of state regulations. Individual schools decide to what extent the afternoon program includes compulsory homework supervision. For these reasons, and to avoid falsification of the data due to the official requirements, the 30 lessons from ‘bound all-day’ schools are excluded from the following analysis so that the subsample comprises 98 lessons ($n=98$; Table 1):

Table 1: Homework assignments at ‘half-day’ and ‘open all-day schools’ according to school type.

Type of school	No homework	Homework without textbook	Homework with textbook	Observed Lessons in total
Grammar school	25	6	40	71
Comprehensive school	4	0	10	14
Secondary school	3	4	6	13
Total	32 (33,0 %)	10 (10,0 %)	56 (57,0 %)	98 (100 %)

Now that the criteria of the sub-sample have been clarified, the following sections analyze the assignment of homework in the subjects French and Spanish at ‘half-day’ and ‘open all-day schools’. In this sub-sample, the type of school does not influence the homework set, which is why this variable is not considered further in the following paragraph. Instead, the influence of the subject (in this case: French or Spanish), among other things, on homework assignments is examined in more detail.

3 For detailed information on the legal framework conditions for the state of Brandenburg, see https://bravors.brandenburg.de/verwaltungsvorschriften/vv_ganztag/2 [10.04.2024]; for Berlin, see <https://www.gew-berlin.de/fileadmin/media/publikationen/be/Schule/Schulrecht-Infos/SG15.pdf> [10.04.2024].

4. Results: Homework Assignment with the Textbook in French and Spanish Lessons

In the following paragraph, the extent to which textbook-based homework is used is examined. In 66 of the observed lessons homework is given, of which only 10 % is set without the textbook. Of the 66 homework assignments, 84.8 % were textbook-based. In lessons in which the textbook is used, the homework is usually also based on the textbook (Table 2).

Table 2: Homework with and without a textbook according to the subject.

Language	No homework	Homework without textbook	Homework with textbook	Total
French	21 (42,0 %)	3 (6,0 %)	26 (52,0 %)	50 (100 %)
Spanish	11 (22,9 %)	7 (14,6 %)	30 (62,5 %)	48 (100,0 %)
Total	32 (32,7 %)	10 (10,2 %)	56 (57,1 %)	98 (100,0 %)

In 21 (42 %) of the French lessons, no homework was set; in three (6 %), the homework was designed without a textbook; in 26 lessons (52 %), it was homework with the textbook. In Spanish, however, no homework was set in only 11 (22.9 %) of the lessons. The homework for 30 lessons (62.5 %) was set with the textbook and 7 (14.6 %) without a textbook. In both languages, more lessons have homework set with and without a textbook than not (66 units, 67.3 %; Table 2). The chi-square test (significance = 0.044) showed a statistically significant difference between the languages in giving or not giving homework with and without a textbook.

In the following, it will be shown which digital components the textbooks used in this sample include (4.1), which textbook components are used by teachers for homework (4.2), and how teachers design homework with these textbook components (4.3).

4.1. What Digital Components Do Textbooks Include?

Current textbooks include a variety of analog and digital components (e. g., learner's book, workbook, grammar book, CD for the learner's book or workbook, digital supplementary offers, etc.; cf. Würffel in this volume). The following gives an overview of the digital components offered by the textbooks used in this study and relevant for processing homework.

In all observed lessons, the textbook-based homework was always set with the textbook used to design the corresponding units.

4.1.1 *Digital Components of French Textbooks*

In one lesson each, homework was set using the following textbooks: *À toi! 1A* (2016), *À toi! 1* (2017), *À toi! 3* (2017), *À plus! 2* (2018), *À plus! 3* (2014). In three of the lessons observed, homework was assigned with *À plus! 1* (2017) and in twelve with *Le Cours Intensif 1* (2016). *À toi! 1A* (2016), *À toi! 1* (2017), *À toi! 3* (2017), *À plus! 1* (2017), *À plus! 2* (2018), *À plus! 3* (2014) and *Le Cours Intensif 1* (2016) are available as e-books in addition to the print version and are complemented by the following digital components: digital access to audios and videos, interactive task formats (e. g., matching terms, filling in cloze texts, etc.) with direct correction, digital vocabulary trainer (in the case of the *À plus!* series in the form of an app). All these textbooks offer free access to digital components via a code printed in the textbook. *Découvertes 1* (2012) was used in five lessons, *Découvertes 2* (2013) in four, and *Découvertes 3* (2014) in one. All three volumes of *Découvertes* offer freely accessible digital access to audio texts and videos with worksheets to print out and solutions to various tasks in the textbook. In one lesson, homework is given using *Horizons* (2017), which is available both as a print version and as an e-book. The following digital components are available via a code: Vocabulary overview with tasks to print out and internet links (e. g., YouTube). The textbook *Tous ensemble 1* (2013) was used in one lesson, *Tous ensemble 2* (2014) in three, and *Tous ensemble 3* (2016) in two. All volumes of the *Tous ensemble* textbook series used in the sample offer audio texts, videos, grammar explanation films, and interactive exercises digitally and are freely accessible without code.

4.1.2 *Digital Components of Spanish Textbooks*

The textbooks *¡Apúntate! 1* (2008) and *¡Apúntate! Paso al bachillerato* (2008) were used in two lessons each, *¡Apúntate! 4* (2011) in one lesson. All textbooks provide access to the audio files via a code. *¡Apúntate ya! 2b* (2016; used in one lesson), *¡Apúntate! 1* (2018; used in 21 lessons), *¡Apúntate! 2* (2016; used in one lesson), *¡Apúntate! 3* (2018; used in one lesson) and *¡Apúntate! 4* (2019; used in three lessons) offer access via a code to audio files, online solutions, a class-work trainer (this includes, among other things, learning tips, score and mark tables for self-assessment, the transcripts of all listening texts and solutions for self-monitoring), a novel as an audiobook with online worksheets, diagnostic and support material. In addition, the textbooks are available as e-books, and a

vocabulary app is offered. *¿Qué pasa? 1* (2015), used in seven lessons, comes with learning software on CD. In addition, students and teachers can use the textbook as an e-book via the so-called education box ('bibox' for short), which is subject to a fee, and they can access audio texts, videos, and interactive exercises. *¡Vamos! ¡Adelante! 4* (2017) and *¡Vamos! ¡Adelante! Curso Intensivo 1* (2016) are each used in one lesson. *¡Vamos! ¡Adelante! 2* (2015) and *¡Vamos! ¡Adelante! Curso Intensivo 2* (2017) are used in two lessons each and *¡Vamos! ¡Adelante! 1* (2014) is used in 17 lessons. The users of the *¡Vamos! ¡Adelante!* series have access to audio and video files, slideshows (= PowerPoint presentations set to music), and online exercises via a code. All volumes of the textbook series are available as e-books, and there is a learning app and a digital vocabulary trainer.

Except for the older textbooks *¡Apúntate! 1* (2008), *¡Apúntate! 4* (2011), and *¡Apúntate! Paso al bachillerato* (2008), which only offer digital access to audio files as a supplement to the CD, all textbooks used in the observed lessons include a variety of digital components, usually freely accessible or accessible via a code which can be used for students' autonomous work at home (e. g., digital vocabulary trainers or solutions for self-monitoring). Video and audio material could also be easily integrated into the homework, with learners being able to independently determine the pace and repetition with which they want to consume these materials. Collaborative work on audio or video files would also be conceivable in the homework.

4.2. Which Analog and Digital Textbook Components Do Teachers Select for Homework?

Since each textbook component is embedded in its context of use (e. g., audio file for the learner's book used by the teacher in an instructional setting, grammar book used more for individual follow-up of lessons by learners), the question arises as to which of these components are used by teachers in the context of homework. At all schools included in the study, at least the learner's book and the workbook were permanently available to the pupils. In the present sub-sample, only three textbook components were used: 1. the learner's book, 2. the workbook, 3. a combination of the learner's book and the workbook, and 4. the CD for the learner's book (Table 3).

In the sub-sample here, the workbook in its original function as an exercise book seems to play a rather subordinate role, at least in the context of homework. 60.7 % of homework was set with the learner's book and 30.4 % with the corresponding workbook, whereby the difference between the languages is minimal: 69.3 % of French homework and 53.3 % of Spanish homework was set with the

Table 3: Use of textbook components for homework in French and Spanish lessons.

	French	Spanish	Total
Learner's book	18 (52,9 %)	16 (47,1 %)	34 (100,0 %)
Use of textbook component per language ⁴	69,3 %	53,3 %	60,7 %
Workbook	7 (41,2 %)	10 (58,8 %)	17 (100,0 %)
Use of textbook component per language	26,9 %	33,3 %	30,4 %
Learner's book and workbook	0 (0,0 %)	4 (100,0 %)	4 (100,0 %)
Use of textbook component per language	0,0 %	13,8 %	7,1 %
CD for learner's book	1 (100,0 %)	0 (0,0 %)	1 (100,0 %)
Use of textbook component per language	3,8 %	0,0 %	1,8 %
Digital component of textbook	0 (0,0 %)	0 (0,0 %)	0 (0,0 %)
Use of textbook component per language	0,0 %	0,0 %	0,0 %
Total	26 (46,4 %)	30 (53,6 %)	56 (100,0 %)
Use of textbook component per language	100,0 %	100,0 %	100,0 %

learner's book; 26.9 % of French homework and 33.3 % of Spanish homework with the workbook (Table 3). Thus, in French classes, there is a slight preference for using the learner's book in the context of homework compared to Spanish classes; in Spanish classes, the workbook is slightly more popular for homework than in French lessons. In four cases (all Spanish), tasks were solved from the learner's book and the workbook (7.1 %), and in only one case of a French lesson, the CD was used to support the reading process (BoFr.19/20_16.6). None of the teachers used the digital components of the textbooks for homework. Digital elements that are not directly related to the respective textbooks were integrated into homework in only one lesson of French to support vocabulary acquisition: "Wir werden es heute nicht schaffen die Aufgaben zu vergleichen. Ihr macht bitte die S. 34, n°2 fertig. Das ist [sic!] Hausaufgabe. Und ihr lernt die Wochentage! Dazu könnt ihr auch das Lied nutzen. Das findet ihr auf You Tube, es heißt 'les sept jours de la semaine' von Etienne."⁵ (BoFr.19/20_4.3) In this example, the teacher allows the learners to work voluntarily with a digital element that does

4 "Percentage of the subject French or Spanish" refers to the relative frequency with which a textbook component is used in the respective subject.

5 "We won't manage to compare the tasks today. Please complete page 34, exercise 2. That is homework. And learn the days of the week! You can also use the song for that. You can find it on YouTube, it's called 'les sept jours de la semaine' by Etienne" (transl. author).

not belong to the textbook (namely, a song on YouTube). This results in a multimedia approach to vocabulary acquisition and the possibility for the learners to decide which learning strategy suits them better. The use of the song can also serve to support pronunciation (cf. Franke 2023).

4.3 How Do Teachers Design Homework That Includes These Textbook Components?

All homework was planned as individual work. Eleven of the homework assignments (six Spanish, five French) are activities started in the lesson and then to be completed at home. In 25 lessons (13 French and 12 Spanish), the learners were asked to learn vocabulary as homework. In 21 of the 25 cases, the teachers formulated the task as learning the vocabulary without further instructions on the learning strategy (e. g., “Estudiad el vocabulario.”⁶, BoSp. 19/20_11.1; or “Bitte lernt die Vokabeln zu Montag, da wollen wir einen kleinen Test schreiben.”⁷, BoFr.19/20_13.5). The students must copy and learn the vocabulary twice (BoSp. 19/20_15.3a+b and BoSp. 19/20_15.3a+b). As already mentioned above in one French homework assignment, learning the French days of the week can optionally be supported by using a YouTube video (a song about the days of the week; BoFr.19/20_4.3; cf. Franke 2023). In 17 cases, the teachers provided information about which vocabulary should be learned and in eight instances the students didn’t receive indications as to exactly which vocabulary they should study.

Eight French and two Spanish homework assignments involved working with a text; in four cases, the students were only asked to read the texts (three French and one Spanish homework assignment); the text is to be read once and all verbs copied into a conjugation table (BoSp. 19/20_3.4a+b) and the verbs are to be copied and underlined (BoFr.19/20_12.1a+b). In one of the cases, the learners were supposed to listen to the text on a CD at home and practice reading (BoFr.19/20_16.6); the audio and video texts that are available for free via codes or apps are not used for homework in this sample. The text should be read once and then the unknown terms translated (BoFr.19/20_9.5a+b).

In addition to this homework with the textbook, where the teachers formulate the desired activities themselves, 49 activities suggested by the textbook were given to work on at home. Since not all parts of an activity are constantly worked on, partial activities count as separate activities for the analysis. For example, if a task consists of a, b, and c, it is counted as three activities for the analysis.

6 “Learn the vocabulary” (transl. author).

7 “Please learn the vocabulary for Monday, as we will have a small test” (transl. author).

None of the 49 activities were modified by the teachers. Three of the activities are open task formats, 17 are semi-open, and 29 activities are closed. Closed task formats mean activities where both learners and teachers know the solutions (Graf 2001: 422); in semi-closed task formats, learners have some leeway and do not have to work out the solution entirely on their own (Kuhlmann / Horstmann 2018: 17). With open task types, different correct answers are conceivable (ibid.: 16).

In two lessons, the homework is supplemented by a supporting element (in one of those cases this supporting element consists of a textbook component, namely the CD):

- “Lehrerin verweist auf CD im Lehrwerk, welche zum üben [sic!] genutzt werden kann.”⁸ (BoFr.19/20_16.6)
- “Wir haben ja subjuntivo wiederholt, ihr habt da ein Blatt mit Verwendungen, da guckt ihr bitte drauf.”⁹ (BoSp. 19/20_6.5a+b)

A structured differentiation of homework, which, based on the analysis of students’ strengths, weaknesses, and needs, allows students the possibility to choose tasks or focal points themselves and to work on them according to their own learning strategy and abilities, could not be observed.

5. Discussion

The data in my study show that French and Spanish teachers at the lower secondary level do not use the digital components of textbooks for homework. This is particularly surprising with regard to the audio and video documents made available for free by the publishers (via codes or apps), as these could provide a good basis for working on listening or listening-viewing comprehension at home.

The observation that homework is usually worked on individually, which Aßbeck had already noted in 2009, could also be confirmed in this sample: All homework was intended as individual work and lacked the possibility of collaborative learning. However, this would be conceivable – mainly due to the new possibilities arising from digital media – both at the micro level (e. g., in the form of a think-pair-share setting) and the macro level (e. g., in the form of joint work on a topic over a school semester or a sequence).

8 “The teacher refers to the CD in the textbook, which can be used for practice” (transl. author).

9 “We reviewed the subjunctive, you have a sheet with uses, please look at it” (transl. author).

As a rule, the homework analyzed here did not allow for self-directed or target-differentiated work tailored to the needs of individual learners. Only in two cases (BoFr.19/20_4.3 and BoFr.19/20_16.6) were concrete suggestions made as to what additional exercise options could look like (inclusion of a YouTube video or the CD for the learner's book). However, subsequent development of learning strategies and step-by-step instructions for autonomous learning could not be established. This is particularly regrettable because homework per se requires self-directed learning and, at the same time, provides a meaningful framework for promoting it. Especially when the entire learning process is transferred to the pupils – as is the case, for example, when the information on vocabulary learning in the first year of learning lacks not only the information on the approach to learning but also on the vocabulary to be learned (e. g., BoFr.19/20_11.2a+b or BoFr.19/20_16.4) – it is easy to become overtaxed (cf. Launer 2008: 43, Rösler 2004: 10). In the context of vocabulary learning, this leads to a return to 'cover-and-variants' as a learning strategy, which the direct integration of analog (e. g., card index system, making word nets) and digital vocabulary learning strategies (e. g., use of Quizlet or the publisher's vocabulary app) could easily prevent.

Against the background of the current focus on orality, homework should also be designed in such a way that it either prepares or follows up oral language activities (e. g., in the form of vocabulary preloads for a later speaking task in class) or integrates oral activities (e. g., pronunciation exercises or the creation of voice recordings) into the work at home. In none of the homework observed here was a digital tool used to promote speaking skills (e. g., text-to-speech programs for improving pronunciation, etc.) included.

The homework in this sample primarily has a follow-up function. It consists of supplementary exercises for consolidation or homework started in the lesson and to be completed at home. In addition, reading texts is outsourced to homework and, to a large extent, vocabulary learning. Only one homework assignment is a preparation of short presentations that are to take place in a following lesson: "Pour vendredi, vous lisez le texte page 22 de votre cahier d'activités – Et vous n'oubliez pas de penser au monument que vous présenterez."¹⁰ ["Für Freitag lest ihr bitte den Text auf Seite 22 in eurem Arbeitsheft – Und ihr vergesst nicht an die Sehenswürdigkeiten zu denken, die ihr vorstellen werdet."¹¹] (BoFr.19/20_

10 "For Friday, you read the text on page 22 of your workbook – And don't forget to think about the monument you will present" (transl. author).

11 "For Friday, please read the text on page 22 in your workbook – And don't forget to think about the landmarks you will present" (transl. author).

10.4). Here, too, the support of digital components (e. g., creating a word cloud with a digital tool) is dispensed with.

Since the activities chosen for the homework of this sample are primarily closed or semi-open task formats, in which the solutions allow for limited scope for interpretation, could the correction also be assigned to the students as homework. Digital media could be helpful in this context. For example, learners could compare their results individually or in pairs/groups with provided solutions and collect questions in a digitally shared document to be worked on in the next lesson. The creation of digital, automatically correctable task formats would also be conceivable.

6. Limitations

When interpreting the results, several methodological limitations must be considered. Due to the relatively high number of observers (32 persons), subjective distortions of the documented lessons cannot be excluded entirely, despite the qualitative validation of the observation instrument. The sample mainly comprises lessons from the 7th grade and first year of learning, and thus does not give a representative insight into all years of learning and does, therefore, not allow for a comparison between the grades. By focusing on the observation of the use of the textbook, there is a limited view of what happens in class. Therefore, the interactions between textbook-based phases and teaching times without a textbook could not be documented.

Since there was no data triangulation in the form of, e. g., interviews with the teachers on their use of textbooks, no statements can be made about the functions of homework intended by teachers.

7. Conclusion

Extracurricular learning opportunities – such as homework – play a central role in pupils' successive acquisition of knowledge. They offer the opportunity to revisit, reflect on and review what they have learned or to prepare new learning processes. At the same time, homework is a form of self-directed learning (cf. Pauels 2007: 318, Standop 2013: 13 f.). The use of digital media – especially in the context of self-directed learning or homework – holds great potential for foreign language teaching (cf. Marx 2019: 170). It enables learning opportunities to be made more flexible and learning to be individualized (cf. Landesregierung NRW 2020: 8 and 25).

Current textbooks include a variety of analog and digital components (cf. Fuchs et al. 2014: 9). The extent to which teachers have an overview of these

needs to be empirically tested (cf. Kurtz 2020: 198). In the classroom, it is primarily the student's book, the digital teaching assistant, and – depending on the school's internal regulations – the workbook that are in use. As a rule, other curriculum components are rarely integrated into lessons. In the context of homework, digital components of textbooks are not considered in this sample. Against the background of the manifold possibilities of redesigning homework through digital media (Würffel provides three concrete examples of digitally conceived homework, 2019: 561–567), a rethinking of homework practice away from solution- or result-oriented activities towards process-oriented, open-task formats can be initiated (Würffel 2019: 555). For example, collaborative homework settings are conceivable which could also focus on orality. Learners' independence and the promotion of media competence, especially concerning the self-directed foreign language learning process, can also be promoted in a targeted manner in the context of homework using digital media.

To make this possible, teachers must, on the one hand, gain a structured overview of the didactic materials, in this case, the textbooks with their various analog and digital components and their structure and content. The components must then be checked for their didactic suitability and, if necessary, modified for target-oriented use. In this context, digital textbook components can be a useful support for the domestic work phases (e. g., the use of interactive exercises or the textbook's vocabulary apps); supplements, e. g., pronunciation training, can also be easily implemented through digital elements. For university teacher training and foreign language didactic research, this means a structured engagement with the various components of textbooks, the use of textbooks as practised by teachers, and the significance of homework, as well as homework practice in modern foreign language teaching.

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Selmin Hedemann / Yibo Min

Online German Language Courses with Augmented Reality – An Empirical Study on the Use of the Merge Cube in Two Online German Courses

Abstract: This study explores learning the German language in an online course with the help of an Augmented Reality (AR) tool called the Merge Cube. Several studies have shown that AR technology brings advantages to foreign language learning. Based on previous research, we can posit that AR technology enables the presentation of known course learning content in a new form. With this technology, static content becomes dynamic and interactive. An image in a course book can be presented as a 3D animation on an electronic device, such that the subject of the image can be observed in three dimensions. The focus of this project lies in the investigation of the perspective of the teachers and learners in using this technology in an online German course, as well as their expectations concerning this technology. Based on the data, future teaching materials or instructional activities with AR technology that meet learners' expectations will be discussed.

Keywords: Augmented Reality (AR), Merge Cube, online teaching, interaction, mobile learning, German as a Foreign Language (GFL)

1. Introduction

A customer may want to download the AR app *Ikea Place* to see if the couch fits the room in terms of color and size. Others download AR apps for fun and games such as *Pokémon Go*, which enables you to collect Pokémons outdoors, or the AR app *Harry Potter: Wizards Unite*, where you can run around in the real world fighting enemies and dealing with disasters. Those who are curious about constellations, planets, and satellites, can expand their knowledge about the stars through the app *Skyguide*. Not only can AR be used in the shopping or gaming scene, but it is also frequently used in education. The AR *Human Anatomy Atlas* app for the biology class, for example, shows the human body. The AR app *WDR AR 1933–1945*, for history lessons, represents the contemporary witnesses from the time of National Socialism in Germany. Many more AR apps can be integrated into the classroom. Studies show that the use of AR technology has increased in the field of general education since 2010 “which has led to AR systems being integrated into mobile devices making this technology

available” (Garzon et al. 2019: 447). The authors (ibid.) analyzed 61 studies published between 2012 and 2018 related to AR technology and education. They explain that “AR has a medium effect on learning effectiveness” (ibid.), but has a large impact on learning motivation.

In this article, we delve into the potential of Augmented Reality (AR) in the field of foreign language education. The exploration begins by providing a precise definition of AR and interpreting its possible didactic functions in the context of foreign language learning. Following this, we present the outcomes of a study focused on the integration of an AR app into a German as a Foreign Language course. As part of a summer course conducted online in 2021 at Justus-Liebig-University Gießen due to the COVID-19 pandemic, a collaborative effort with instructors led to the development of a didactic scenario. In this scenario, an AR technology, specifically the Merge Cube, was utilized as a supplementary didactic tool. The application of this app was then systematically observed and researched within the framework of an online course.

In the first section, this paper tackles theoretical questions by surveying definitions and terminological approaches to the concept of AR before moving on to the practice of teaching with AR, especially in German as a Foreign Language classrooms. The second section is a description of the empirical study carried out in the language course mentioned above. After having laid out the procedure of data collection, this section reports the findings and concludes the interviews with the language course teacher and five of its participant learners. The aim is to develop didactic proposals and approaches for activities based on research results regarding the use of AR technology for language teaching and learning.

2. Theoretical Background of the Study

2.1 Definition of Augmented Reality

The term AR has been appearing more frequently in recent years. AR is currently seen as a highly modern technology. The development of AR, however, reaches back as far as the 1990s. The computer scientist Ronald Azuma coined a definition in 1997, which is still the most widespread and well-established today (cf. Schart / Tschanz 2015: 22):

Augmented Reality (AR) is a variation of Virtual Environments (VE), or Virtual Reality as it is more commonly called. VE technologies completely immerse a user inside a synthetic environment. While immersed, the user cannot see the real world around him. In contrast, AR allows the user to see the real world, with virtual objects superimposed upon or composited with the real world. Therefore, AR supplements reality, rather than

completely replacing it. Ideally, it would appear to the user that the virtual and real objects coexisted in the same space [...]. (Azuma 1997: 2)

Azuma (ibid.) aims to stress that AR does not constitute a complete immersion into a synthetic environment as in Virtual Reality (VR). To clarify even further, we want to use this definition to highlight the differences between AR, VR, and even augmented virtuality. Milgram et al. (1994: 3) visualize the differences in their model by pointing toward a virtual continuity (ibid.; Fig. 1).

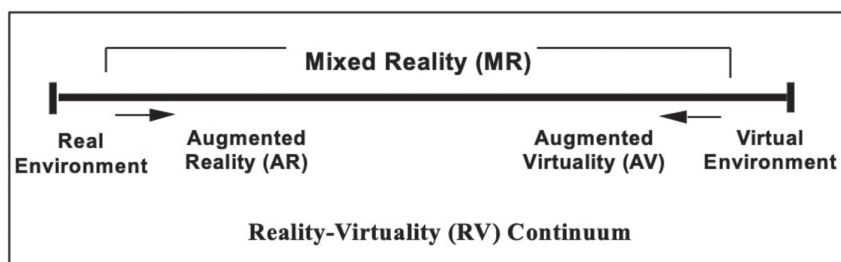


Figure 1: Reality-Virtuality-Continuum (Milgram et al. 1994: 3).

The reality-virtuality-continuum encompasses all possible combinations and variations of real and virtual objects. As Fig. 1 shows, both real and virtual environments exist. The virtual environment is one in which an individual completely disconnects from reality and immerses oneself in the virtual world. Projecting virtual objects into the real world, accordingly, is AR. This expanded version of reality becomes accessible with the help of devices such as smartphones or tablets. These devices display videos, texts, animations, 3D objects, or audio clips that are intended to expand and explain the image captured by the device's camera. Building on the definition by Azuma (1997: 2), three characteristics are essential when it comes to AR systems:

- combine real and virtual,
- be interactive in real-time,
- be registered in 3D.

The combination of the virtual and the real context, the interactivity, and the 3D environment of the object is thus the component of an AR system. The first factor plays an important role in the AR system, as the physical world is overlaid with virtual elements. Next, the AR system must be computed and displayed both interactively and in real-time. In other words, the input from the mobile

user's devices must be registered by the system in real-time, before it modifies (also in real-time) the virtual objects according to this very input. The third characteristic pertains to the ability of the AR system to register objects within three dimensions. As such, the virtual elements are positioned in the projection of real space in a way that evokes the co-presence of the virtual elements in the real world on-screen.

In contrast to Azuma (1997), Ludwig and Reinmann (2005) define AR as a new form of human-computer interaction that augments real senses with virtual objects provided by a video camera in real-time (*ibid.*: 4). They explain that AR technology allows users to receive and see the most important "information right where they need" (*ibid.*). This has the potential to lead to cognitive relief and allows learners to think deeply (*cf.* Bower et al. 2014). Zhou et al. (2008) mention that AR "allows computer generated virtual imagery to exactly overlay physical objects in real-time" (*ibid.*: 193). A study by Wu et al. (2013) shows that even though AR has received considerable attention in research, the term AR itself has been endowed with different meanings by different researchers. But the common ground of their interpretations consists of a combination of the real world and virtual/digital objects (or contents) and the representation of both: Observing the smartphone's or tablet's screen displaying the images produced by the built-in cameras reveals an object that is not present within the real world captured by the cameras. This interpretation of AR technology is also shared in the present work. AR, therefore, is constructed in the combination or integration of objects into the real environment. These objects are virtual and only perceptible through an app on a mobile device such as a smartphone or a tablet etc.

2.2 Application of the AR Technology

AR technology has already been used in various fields and industries. For example, this technology is used in the medical field, where medical students use it to gain specific hands-on training in a realistic environment without endangering patients. In industry, AR technology made great contributions, such as helping manual manufacturing, in terms of millimeter-precise overlays positioned to avoid incorrect placements. In terms of gaming and entertainment, the use of AR technology is also becoming more common. In education, the use of AR technology can add a new dimension to learning with 3D digital teaching tools for learning anywhere with the combination of multisensory learning.

For some years, AR technology has also received increasing interest in school contexts with a considerable number of research projects. For instance, the study of Salmi et al. (2016) analyzed science education with AR technology

and its motivational and cognitive aspects in the context of informal learning scenarios. 11- to 13-year-old Finnish pupils visited a science center exhibition about the “Doppler Effect” and “Molecule Movement in Gas”. The AR app enabled the participants in these AR exhibitions to see something more than in an ordinary experiment in the classroom (Salmi et al. 2016: 5). The knowledge tests with questions (31 items) concerning the content areas of the school curriculum in combination with AR solutions and the science exhibition showed that the implementation and experience of AR technology were beneficial for all participants involved but with even more pronounced effects for female participants and lower performers. Additionally, long-lasting intrinsic motivation among some participants had been enhanced after the AR science exhibitions as measured by questionnaires. Hsu et al. (2017) investigated the perception of AR lessons about medical surgery for grade 10 high school students (n=32) from Taipei City by using an Android tablet computer and also the students’ interest in STEM (Science, Technology, Engineering, and Mathematics) after these lessons. The result of their study showed that the participants’ engagement and motivation were enhanced by embedding AR technology. Their interest in STEM increased through the AR lessons and they were also inspired to select a major related to STEM in college. These two studies as examples showed that the use of AR can increase learner motivation. Therefore, it is also interesting to investigate whether the motivation of the learners also increases for foreign language learning.

However, the field of foreign language instruction has been notably slow in adopting and integrating this innovative technology (cf. Scrivner et al. 2016). Cai et al. (2022) conducted a meta-analysis to systematically summarize the results from primary studies published between 2008 and 2020 to determine the effects of AR on language learning gains and student motivation. Richardson’s investigation (2016) related to the study of the potential of AR games for English language teaching. Through a mix of observation during gameplay and feedback from participants, the study showed that the application of an AR game can engage advanced learners. A study by Karacan and Akoğlu (2021) also showed that AR apps provide many affordances for language learning ranging from motivation and enjoyment to collaboration (Karacan / Akoğlu 2021: 71). However, they mentioned that teachers should consider the integration of this technology into the language course carefully because this technology is not specifically designed for foreign language learning (ibid.: 76). In this context, further studies are needed regarding the use of AR technology for foreign language teaching. In addition, there are not many empirical studies concerning

the integration of AR technology into German language courses. This is the reason for the present empirical study on the use of the AR Merge Cube in online German courses.

Based on the above, it can be assumed that AR could present conventional content for language learning in a new form. An image in a course book can be presented as a 3D animation on an electronic device so that the subject of the image can be observed in three dimensions. Therefore, it is important to further explore and develop the potential of AR technology for digital foreign language teaching to develop future foreign language methodological proposals and approaches. To achieve this, more data from empirical research into foreign language teaching is needed. The following section is intended to portray our empirical research into smartphone AR technology in the context of German as a Foreign Language. Our collected data can be used to analyze the use of AR technology in language learning.

3.2 Interaction and Interactivity

One of the potentials often discussed in connection with the implementation of technology in the foreign language classroom, is the increase of learner activities in terms of interaction and interactivity (Arnold et al. 2018: 51 ff.). As mentioned above, this can also be found in the discussion of AR in educational contexts (Azuma 1997: 2). As this is also mentioned repeatedly by the participants of our study, it is necessary to provide a definition for the terms interaction and interactivity. There are several attempts to define the terms from different disciplines since they are partly related. In this paper, interactivity is defined in terms of human-machine communication and is used in the context of Computer-Assisted Language Learning (CALL). However, as Kilsbach mentions (2016: 63 ff.), there is no semantic clarity in these terms because the term interactivity is multifaceted and difficult to define clearly in terms of media-supported interaction of learners (cf. Rösler 2016: 69). Niegemann et al. (2008: 293 ff.) define interaction from a social science perspective, as the reciprocal action of two subjects acting on each other. They add that interactivity refers to the extent to which a learning environment enables and promotes interactions (ibid.). Haack (2002: 128) also mentions that in social science there is a certain “mutual influence” on individuals who “interact with each other” (ibid.). Since the discussion on the definition of the term is diverse and open, we would like to narrow this down. In terms of interactivity, we focus on interactivity with human-machine communication and the mutual action or interaction between people who connect.

3. Method

3.1 Research Questions

The goal of this study is to assess the potential of AR for teaching and learning German as a Foreign Language in an online course. Hence, the overarching question is how AR technology can be incorporated into German online courses. To answer this question, a qualitative-empirical study was conducted in which the AR Merge Cube was used in online German classes followed by interviews with some volunteer participants. By focusing (mainly) on the perspective of the learners and the attitudes of the teachers, we strove to answer the following research questions: How can AR technology influence teaching and learning (of online courses)? What do learners expect from this technology? Based on the results, we aim to develop concrete didactic proposals and approaches for the use of AR technology in online language courses.

3.2 Participants

The data was collected in two online German language courses from June to August 2021 organized by the international office (Akademisches Auslandsamt) at the Justus-Liebig-University Giessen. Due to the Covid 19 pandemic, the German courses were conducted online via the video conferencing platform Webex. Each course session lasted ninety minutes and the Merge Cube was used throughout the course. In total, three A1-level learners, two B1-level learners, and one teacher participated in an interview for this study. The interviewed learners were from Greece, India, Belarus, the Czech Republic, and Kosovo. The participants were between 18 and 27 years old. All had prior experience with language learning and were able to speak English.

The B1-level teacher was originally from Russia but currently lives in Germany. In the setting of this study, she was the course instructor of a B1.1 online course. At the time of the study, she had already been working for several years in the field of German as a Foreign Language. She has experience and competencies in not only traditional (face-to-face) teaching but also in online course settings.¹

1 The A1-level teacher was not interviewed for the study, because he is one of the two authors of this paper.

3.3 Instructional Materials and Procedure

The Merge Cube is a black foam cube on which silver signs are printed (Fig. 2) and which works in combination with a tablet or a smartphone with a camera to produce an AR experience². In order to use the AR function, an app (here: *CoSpaces Edu*³) can be installed on the respective devices. When pointing the camera towards the cube, the app then displays the cube on the screen. Due to the different prints on each side of the cube, it identifies which side of the cube is directed towards the user and will then display information overlaying the cube's sides. This information (such as the input an exercise described below) has to be put in beforehand via the *CoSpaces Edu* webpage.

The Merge Cube can be also made from paper. The paper template can be downloaded for free on the internet. Therefore, each learner received a pdf file⁴ for a paper Merge Cube from the teacher. All of them were asked to download, print, and assemble their Merge Cube before class. To incorporate AR technology into the online courses, the Merge Cube was used in combination with the app *CoSpaces Edu*, which allows learners to scan the Merge Cube to retrieve the virtual content delivered via AR technology. Thus, the learners were also asked to download the app *CoSpaces Edu* on their smartphones. The contents of the Merge Cube, namely the exercises presented on the different sides of the Merge Cube, will be described in the following.



Figure 2: The Merge Cube.⁵

2 Merge Cube website: <https://mergeedu.com/cube> [11.04.2024]

3 The CoSpaces Edu app: <https://www.cospaces.io/> [11.04.2024]

4 The Merge-Paper Cube-PDF: <https://mergecube.com/paper-pdf> [11.04.2024]

5 Picture of the Merge Cube: <https://mergeedu.com/cube> [11.04.2024].

3.3.1 Merge Cube A 1.1

The content presented on the Merge Cube for the A1.1 class dealt with the topic “food and drinks”. In this online session with the Merge Cube, for example, the learners were trained on how to order food and drinks in a restaurant. Five tasks were placed on the different sides of the Merge Cube (except the unusable bottom-facing side of the cube). The following figure shows the first four exercises on Merge Cube A1.1 with a sequence of tasks that ranges from receptive to productive, and application tasks (Fig. 3).



Figure 3: The Merge Cube for learners at level A 1.1 (designer's perspective).

The tasks on each side of the Merge Cube were exercises with different contents. On the first side, there were many 3D virtual objects (table, chair, cutlery, etc.) and moving figures representing different roles (cooks, waiters, and customers) in a restaurant context. The 3D figures were templates provided by the *CoSpaces Edu* platform. The learners were able to zoom in on the screen of their mobile phones to observe the objects and the people more closely. As a thematic introduction, the students learned/repeated and extended the topic-related vocabulary with this warm-up. Vocabulary was increased through the repetition of previous lessons. The task intended to activate the learned vocabulary and oral participation and increase enthusiasm for the topic.

On the second side of the Cube, there was an image of a menu rendered on the surface, which was taken from the textbook *Das Leben* (Funk et al. 2020: 54). The learners could get the details of this menu by moving the Cube closer to the camera of their mobile device. With this menu, the learners continued practicing talking about food. For example, in the course, learners were trained to express

their own opinions about the taste and preference of food or dishes. In the online session, a plenary exercise was first designed by the teacher and then the course participants conducted a dialogue in pairs based on the content of the menu and the sample. This exercise aimed to try to get learners to speak and pay attention to sentence and word structures.

After this pair work, the participants did the third exercise on the third side of the cube, which was a video from the textbook *Das Leben* (Funk et al. 2020: 59) that can be seen in the right part of Figure 3. It was a video karaoke where the learners could practice listening comprehension and pronunciation by speaking as participants in the real dialogue situation shown in the video and by ‘interacting’ with the person in the video. In classroom practice, learners ‘communicated’ with the person while holding the cube in their hand and listening to what the person said. The fourth side of the cube displayed comics that also focused on ordering in gastronomy. In the course, the learners read the comics and worked together in pairs to retell the story represented by the comics in their own words. The comic was created by the website *Storyboardthat*.⁶

The last side of the cube or the last exercise also referred to a communicative task where all course participants as a group creatively made a dialogue in the context of ordering in a restaurant. Through these exercises, the new words were activated and the students tried to speak freely. As described earlier, only the Merge Cube was used as instructional material throughout the online session. All content on the cube was available by scanning the Merge Cube with a mobile phone and at the same time turning or holding it in front of the mobile phone’s camera. Before analyzing the work with the cube, the next section describes the Merge Cube for learners at level B1.1.

3.3.2 Merge Cube B 1.1

Merge Cube B1.1 tackled an intercultural topic, namely culturally-specific gestures and facial expressions of emotions in Germany versus in other countries (Fig. 4). This was the topic that came next in the teacher’s course curriculum. The topic is only briefly discussed in the textbook *Motive* (Krenn / Puchta 2016), hence, Merge Cube B1.1 expanded on it. The intention was to show the learners how gestures and facial expressions can vary in different countries and how they are used in Germany.

As on Merge Cube A1.1, the sides (each side of the Merge Cube) were also numbered on Merge Cube B1.1 so that the teacher and learners had a linear

6 <https://www.storyboardthat.com/> [11.04.2024].

guideline. Again, each side of the Merge Cube had different tasks. On the first side, 3D figures of people were created, which showed different gestures, facial expressions, and emotions. Through this, the teacher was able to introduce the topic. The learners described the characters on the Merge Cube. In doing so, they also had a brief discussion about how they perceived these characters were feeling.

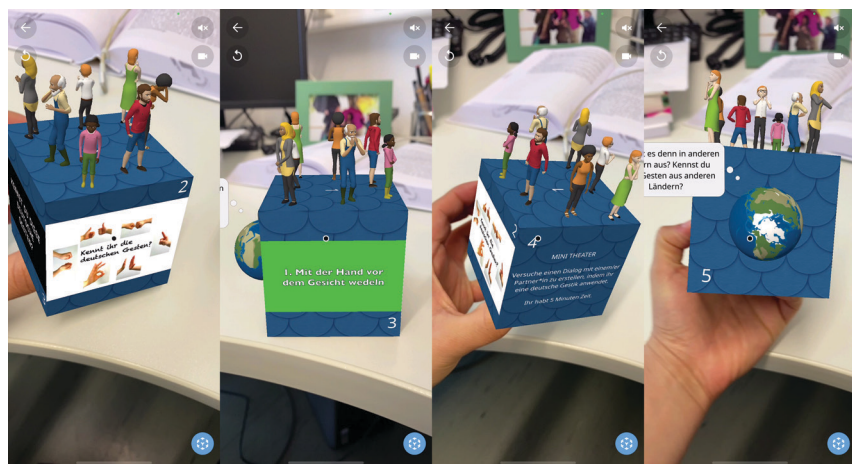


Figure 4: The Merge Cube for learners at level B 1.1 (learner's perspective).

On the second side of the Merge Cube, the learners in the online session discussed gestures used in German-speaking countries. Some learners knew what the gestures depicted while others did not. On the third side of the Merge Cube, other gestures used in German-speaking countries were represented in a video. The video could be viewed multiple times by clicking on an arrow via the app. The video offered a communication impulse since all learners in the online course had never heard of the gesture or the German word *Schweigejuch*⁷ for instance.

The fourth exercise was an attempt to put into practice what had been learned. On the fourth side was group work where the learners were required to create a dialogue about one of the 'German' gestures. The learners were randomly

7 The English translation is silence fox. This sign is used by teachers in German classrooms and the children are required to be quiet.

divided into groups of two and were given five minutes in breakout rooms to create their dialogues. The goal of the exercise was for the learners to use what they had learned correctly. The cultural aspect of gestures and facial expressions in other countries was also addressed on the fifth side of the Merge Cube. On the fifth side of the cube, there was a 3D earth and a virtual speech bubble where the task was written. The task in the speech bubble was: “What does it look like in other countries? Do you know any gestures from other countries?” The goal of this exercise was to expand the learners’ vocabulary and introduce cross-cultural approaches.

3.4 Research Methods and Procedure

In the preparatory phase of the study, a conversation was held with the teacher on how to adapt the contents of the Merge Cube to the content of the German course. In addition, at the beginning of the online class, the empirical study was briefly introduced and all participants gave their consent. To provide better insights and analyze teaching and learning processes, the language learning in the online course was recorded on a laptop with the screen recorder app Quick Time Player. At the end of the online class, the researcher asked if any of the learners would be interested in participating in an interview about using the Merge Cube in the online class. The guiding questions for the semi-structured interviews were created for the participants after watching the recorded video several times. For example, they were asked how often they would like to use the Merge Cube in their online classes, if they found it enriching or gimmicky, a. s. o. These interviews were carried out one week after the online German session with the Merge Cube. Our main focus lay on the ways learners and their teachers engaged with AR cubes in the courses. Most of the students were outside of Germany for the duration of the course, which necessitated the interviews to be conducted online as well. The learners were allowed to choose the language in which they wanted to do the interviews, which means they were allowed to switch between the languages English and German. Following the students’ consent, the online interviews were recorded with the screen recorder app QuickTime Player.

One of the main reasons for choosing semi-structured interviews in this qualitative-empirical research was the ability to engage more closely with the participants’ answers by veering off the strict order of the questions. Consequently, more open prompts for narrative responses were possible and the guiding questions merely acted as a frame of reference (cf. Friebertshäuser 1997: 377).

3.5 Data Analysis

For the analysis of the semi-structured interviews, the qualitative content analysis of Mayring (2010) was chosen, since it is suitable for this work. Content research of semi-structured interviews and qualitative research is employed, aiming to “explore the subjects of investigation to the greatest extent possible from the insider perspective of the participants”⁸ (Caspari 2016: 17; transl. authors). The interviews were transcribed using MAXQDA software and then coded. The data coding follows the standards of qualitative content analysis, as outlined by Mayring (2010). This encompasses methodically controlled analytical procedures enabling systematic structuring of the material, incorporating both deductive and inductive category formation. The coded data were first categorized to structure the profile of the material and to emerge a basic structure. To get more detailed information, inductive categories were formed after the interviews.

4. Results

In this section, we present the results of our investigation. The goal of our study was to investigate the students’ perspective on the impact of AR technology on learning (4.1). The results are structured by the main factors, we identified in the interview data: motivation (4.1.1), and interaction and interactivity (4.1.2). We will also report on the aspect of acceptance of the technology by the students (4.1.3). Subsequently, we will elaborate on the perspective of the instructor (4.2) and how they perceived working with an Augmented Reality Merge Cube in an online setting.

4.1 Perspective of Students

After describing the research design and data collection, this section presents the results of this empirical study. As presented earlier, we conducted guided interviews with five students to gain insight into their perspectives and attitudes toward the use of AR technology in the online German course. The results of all interviews, regardless of group A1.1 and B1.1, are reported together. After analyzing the collected interview data, the following categories were formed (3.5): (1) motivation, (2) interaction and interactivity, and (3) acceptance. These categories will be described in detail next.

8 “(...) die Untersuchungsgegenstände soweit es geht aus der Innenperspektive der Beteiligten zu erforschen (...)” (Caspari 2016: 17).

4.1.1 *Motivation*

Based on the interview data, first and foremost, it can be shown that all interviewees clearly stated that they were motivated when learning German with the Merge Cube and at the same time that the feeling of boredom in the online course decreased, which is mentioned as a frequently postulated effect in the common frameworks regarding the media effect on learning (cf. Kerres 2003: 2). Compared to a 'conventional' (online) German course, the learners experienced a somewhat different German class due to the implementation of the AR Merge Cube. For example, respondent A stated that she found learning German with the Merge Cube very interesting and that she was excited throughout the course.

Student A (B 1.1): It looks like a mandala. I made several cubes and left them in my room because it looks very nice. [...] If we scan the code, we get something in our phone and we can see something. It was quite interesting because something happened in this cube. That was exciting.

This is also the case with student K, who even made a screen recording during the German course and showed her friends how she learned German in the online course in Germany with an AR Cube:

Student K (A 1.1): I can change the sides with my hands and that's nice. I was also inspired, and I made screen recordings and sent some friends of mine who are interested like: guys, look what do we have here in Germany, that's crazy. They were like wow.

Since the students tried this technology in foreign language learning for the first time, it should also be considered whether these reactions should be assigned to the category 'motivation' or whether it should be viewed in terms of the so-called 'novelty effect', whereby the motivational effect reduces relatively quickly after the introduction of the new media or the repeated use of the media (cf. Kerres 2003: 3). As stated by student A:

Student A (B 1.1): I don't learn that much with technology. I'm a bit old and do a lot with paper and normal documents. I have no idea if we're making so many every day with this Merge Cube. Maybe it can get boring, because whenever we have something new, everything is interesting. If we did something every day, it could also be boring, or after a month, two months, no idea. But maybe, I think if you used the Cube once a week in class it would be very good.

Only one student mentioned this point, and based on the learner's statement, it can be spotted that the boredom might be caused by frequent use of the Merge Cube due to her traditional habits. However, to be able to explore this in more

detail, a long-term investigation is needed, which refers to the observation and analysis of the learners' motivational effect after repeated or frequent use of the AR Merge Cube. In consideration of the concept for textbook 4.0, it can be stated that the already developed learning habits of the students should be taken into account when a new didactic concept with innovative technology is created and promoted as far as possible. If the students do not accept the new didactic concept because of their learning habits, it does not make sense, even if it has great learning potential and an added value. Therefore, it is important to use new technologies in the language course in a target group-oriented way, i. e., according to the learners' study habits. In other words, the didactic concept with the new or innovative technologies should be promoted with an appropriate progression. Based on the interview data collected in our project, a further category is formed, whereby it is about the media content or the specific forms of presentation and interaction. This category is described in the next section.

4.1.2 Interaction and Interactivity

In this study, the words interaction and interactivity are two of the most mentioned points in the interview (2.3). We will therefore discuss this aspect in connection to the collected data.

In this study, participants talk about the interactivity with the Merge Cube and the interaction between other participants in the online course that emerged from the Merge Cube. Interactivity with the Merge Cube is of great importance to learners. Student KM explains that before the class, she did not have great expectations when the researchers announced in the online course that they would be working with the AR Merge Cube. During the online session, however, she was positively surprised that the exercises were interactive.

Student KM (A 1.1): I didn't have many expectations; but to tell you something, I thought it would be fun. It would be something yeah, that would be somehow interactive. I could guess from your instructions, but it was like better than I thought. Cause I didn't think, I didn't think that it would be that much interactive like. It eh it was like I mean there was a video yeah, it was really nicely done, and I was personally surprised.

According to the subjects, working with the Merge Cube has also led to interaction in the online course. Student E informed that she appreciated the interaction with the other learners because by working together it was possible to support each other. Student M also stated that she found it a great way to communicate and develop something interactively with other learners through the Merge Cube.

Student M (A 1.1): It was interesting to talk with other people because I love communication. So yeah, in this case, a mini theatre was the most interactive for me because I could speak with my friends. We could create something and use the menu and use the video we watched before.

Student A mentioned that she found all the assignments on Merge Cube B 1.1 interesting because she was involved in the online course through the interactive exercises and was allowed to hear others' opinions and join in the discussion. The learners also said in the interview that all the information is presented on the Merge Cube, i. e., that when they wanted to learn something new, they did not have to click on external sources of information, such as external word searches on the internet or a video search on YouTube. Also, using hand gestures instead of clicking on a mouse was one of the benefits that stood out in the interview statements.

According to the interviewees, interaction and interactivity play a beneficial role with the Merge Cube in online teaching. Statements concerning the acceptance of the learners are explained in more detail in the following section.

4.1.3 Acceptance

The effect of media-supported learning on learning success is essentially dependent on several factors, one of which is acceptance. The intentional orientation of attention is mainly influenced by the following factors: emotions, motivational tendencies, or the learning goal of the learners. In addition, the learning task or the input can also direct attention (cf. Würffel 2006: 94). While using the Merge Cube in the digital language session, the learners' attention could be influenced by several factors at the same time such as the learning contents or the operations of the technology (AR Merge Cube, internet, and meeting platform, etc.). Due to the limited resources of human cognition, various factors in the learning process can lead to so-called 'cognitive overload' for learners (ibid.: 94 f.). Therefore, we also asked relevant questions concerning the acceptance of using an AR cube in the online language session in the interview. For example, an open-ended guiding question "What do you think about learning with the AR cube?" followed by some specific questions, e. g., "What aspects did you (not) like about learning German with the AR cube?". All the interviewees mentioned that their concentration level increased:

Student A (B 1.1): Sometimes, the online course we always visit was boring before we had a lesson with this cube. Since we did something together (with the cube) and something we have in hand and that's also easier that way to concentrate anyway.

Student M (A 1.1): (Normally in the online course,) you're just sitting and listening, you watch out of the window, or you can like searching something but in this case, if you are with the cube and when you are following all the instructions and tasks, you just cannot look out of the window. It is in the environment so that you do not miss anything because if you miss something, you miss everything then. [...] honestly, I was kind of tired to the end because I had my online studies in my home university, and I also had an online study in Giessen and it was like too much on online, so when it's something interesting (like the cube), my concentration is better.

In the online course with the Merge Cube, learners were supposed to focus both on communicating with their teachers and the other course participants and on using the Merge Cube. According to the learners' statements, it can be shown that they had no problems concentrating when using the Merge Cube.

Based on the interview data collected, it can also be observed that the learners hardly criticized the use of the Merge Cube for learning German in the online course. However, the interviewees or the learners would not like to solely use the AR Merge Cube. In other words, it can be said that despite the many advantages of the AR cube, the interviewees also want to use printed media when they learn German. This means that the learners in the online German course do not want to do without a printed textbook. For example, student KM stated:

Student KM (A1.1): From my point of view, I would honestly prefer mixing those two ways of teaching. I think textbook is necessary for us, for beginners too. But here is virtual cube, which was something that puts some great effects, and if I were some a future student, I would absolutely appreciate this kind of new input in the lessons. It's something that makes us more active, more participative.

For her, it was necessary to use a printed textbook as a beginner learning German because the printed medium has advantages (for learners) as well. However, compared with using a textbook, she felt that the Merge Cube encouraged her active participation in the session. Thus, she finds it more useful if German could be learned with a printed book in combination with an AR cube in a digital German course.

A similar opinion about using a printed textbook for language learning was also expressed by student A:

Student A (B 1.1): When learning with the textbook, I can easily open it several times, but with this cube, I must open my cell phone and then this link and such. It's easy to learn by yourself with a book.

Student A stated that she can open a printed textbook (anytime) immediately when she wants to learn German, while she needs a mobile phone, an app, a link, and the internet to use the cube for learning the language. Student A also hoped that the cube could be used to learn grammar:

Student A (B 1.1): I think when discussing practice, maybe vocabulary and grammar as well. I have no idea how to do that with grammar. I'm bad with grammar. I don't understand (some of the rules) at all and that's no fun for me.

Student A assumed that using the Merge Cube could also make grammar more fun. Student KM expected more speaking exercises with the Merge Cube. In the interview, she stated that the course with the Cube often motivated her to speak more. In her opinion, the usage of the Merge Cube increased the appeal of speaking exercises. Another question asked in the interview relates to the frequency of use of the AR Merge Cube:

Student KM (A 1.1): I think maybe after the one the one part of the book, after four or five lessons? After we learn something and then as a thing to show what we have learned so far, so maybe four or five lessons.

Student M (A 1.1): Every third lesson or like every fourth, (but) not more frequently because I guess, teachers maybe have to prepare all the things and also for students, like to be in the classroom with other people, not only with their phones, so that it's very nice like an interactive break between the classes or lesson.

Learners desired a frequent use of the Merge Cube for different reasons. However, one commonality is that they did not want to use the Merge Cube in every session, even though learners perceived the benefits of the Merge Cube. Combining this with the concept of Textbook 4.0, it can be seen, that new media or technologies (with which the learners are not previously familiar) should be used at an appropriate frequency, even if new media or innovative technologies have great potential from the didactic perspective of teachers or researchers. In this context, the didactic concept 'conventional learning with the addition of the Merge Cube' could be more conceivable, which is similar to the concept of 'blended learning'. Hence, based on the collected interview data, there is an assumption that blended learning which combines the advantages of face-to-face and e-learning could become a form of learning that is adopted by most learners.

After discussing the views of the students, the next subsection describes the attitude of one teacher who participated in the interview regarding the use of the Merge Cube in the online German course.

4.2 Perspective of the Teacher

This section is intended to detail the participating teacher's perspective from the interview on the use of the AR Merge Cube in the digital German language course. Even though the focus of this study lies on the perspective of the learners, understanding the teacher's attitudes also plays an important role in the analysis of using an AR cube for language learning. Including this in our observations allows for a contrasting analysis between the learners' and teachers' attitudes toward the use of the Merge Cube. This way, we can more accurately assess how the perspectives of learners and teachers differ regarding the use of the Merge Cube and AR technology in general. Based on the opinions of learners and teachers, the didactic proposals and approaches can be better developed for the educational process and practice regarding the use of AR technology for language teaching and learning.

The participating teacher has experience in the foreign language didactic context, not only in traditional classroom teaching but also in online courses. At the beginning of the study, the teacher was not yet familiar with the Merge Cube, but generally, the preparation and adoption of the Merge Cube were not problematic for her. In other words, she faced no issues handling the cube, which can be attributed to her experience in foreign language teaching and the thorough explanation and guidance provided by the researchers. It is striking that the teacher's enthusiasm for the Merge Cube before the course was high as the gadget aroused her interest significantly. Looking back, the teacher was generally satisfied with the use of the Merge Cube, noting:

Teacher: It's simply playful and it is just more fun. I get the feeling that the students see it as a game somehow and it just motivated them.

Before this study, this teacher had observed that some students were less easily motivated in the online format than in the classroom. This is noticeable, for example, in the learners being unwilling to turn on their cameras in online meetings and during online German lessons. Some learners did not like to speak or communicate in the course. This was interpreted by the involved teacher as a sign of a lack of motivation by the learners. Consequently, this behavior also caused the teacher to lose motivation, as she felt unable to meaningfully influence this perceived shortcoming of online instruction in comparison to in-class teaching. Her perception of increased learners' motivation was based on the fact that the learners were actively participating in the online German course while using the Merge Cube. Furthermore, she added that the learning materials were presented in a multidimensional way thanks to the Merge Cube with the AR technology

and that multiple perceptual channels were activated for learning with the Merge Cube, which also helped increase learners' motivation. This motivational effect or the higher motivation of the learners perceived by the teacher will not be discussed here in connection with the novelty effect.⁹ Since this paper refers to a short-term study, it is difficult to explain if it relates to the novelty effect. The first and main aim of this study is to explore the effects of the use of the Merge Cube for language learning in a digital course. Therefore, it should be mentioned that a longer study or several studies on the Merge Cube need to be done to find out if this is indeed a novelty effect or not. The reason for this is that the data collected in this project refers to the learners' initial and short-term perception of the use of the AR Merge Cube. To analyze the motivational effect versus the novelty effect, an empirical study with long-term observation of learners' reactions with regard to the use of the Merge Cube in the online German course is necessary.

Concerning the frequency of use of the AR Cube in the online course, the teacher expressed that she could imagine using it often. The decision to incorporate it more frequently, however, depends on the laboriousness of course preparation.

Teacher: Yes, this was also my thought that it is pretty cool, but I don't know how to do it and how time-consuming it is to create something like this. I'd have to see what the effort to create it is and how much sense it makes like to put. I would definitely like to learn it and then see if the effort is worth it or not.

Considering the interview data, we can summarize that the teacher judged the use of the Merge Cube in the German language course positively similarly to the students. From the teacher's point of view, some characteristics of game design can be attributed to the AR Merge Cube, which can lead to creating playful learning with a positive emotional atmosphere. Although it is unclear whether this gamification can make a positive contribution to learning German in an online German course in the long-term, it can be seen that the boredom of the learners in the online German course was reduced and that the learners participated actively. During the use of the AR Merge Cube, the active participation of learners in the online course also affected the teacher. As a result, the motivation of the teacher in the online German course also increased accordingly.

9 This implies that the novelty effect, as discussed by Kerres in 2003, is not being addressed. It indicates that, over time, learners may no longer experience a sense of novelty when engaging with digital media for learning.

5. Summary

The previous section described the learners' and teachers' perspectives on the use of the Merge Cube. In our study, we aimed at investigating the opinions of learners and teachers in the teaching practice related to their first encounter with the AR Merge Cube. As the example of the AR Merge Cube in our study shows, AR technology enables the seamless integration of virtual learning content into the real world (cf. Broll 2013: 291). Learners can receive virtual (interactive) learning content, which is not perceptible to their senses in the real environment, with the help of an AR app on a mobile device. Although some two-dimensional contents (e. g., texts or images) can also be presented through printed media, such content can be presented differently through AR technology. This new form of presentation can bring effective excitement and a completely new learning experience to the learners.

In summary, it can be shown that from the participants' perspective, the Merge Cube with AR technology has had a positive effect on the process of learning German in an online language session (in the context of our project). All of them were motivated in the learning process with the cube. According to the interview data, the learners' boredom in the online German course with the Merge Cube was reduced and the learners had more fun in the learning process. However, in terms of identifying the novelty effect, the present study cannot give a clear answer because the data collected in our present study only offers the first empirical evidence of the first encounter with the AR Merge Cube while learning German in an online German session, which needs to be supplemented by further studies. As far as the use of a new technology or medium for foreign language learning is concerned, it is conceivable that ease of use of this technology or medium plays a key role in the learning process so that learners can focus more on language learning during the learning process with this technology, instead of spending a lot of cognitive capacity on dealing with this new technology for foreign language learning at the same time. Through the interview data, it can be stated that an acceptance of the learners and teachers about the use of the Merge Cube can be observed. However, some expectations of the learners about learning foreign languages in an online language session with the Merge Cube or AR technology, unfortunately cannot be met at the moment due to technical limitations. For example, some learners mentioned several times in the interview that they missed writing in the learning process with the Merge Cube. But it is not yet possible to write something directly on the Merge Cube. Learners (in the context of the project) had to write their notes on a piece of paper if they wanted to note something important immediately in the learning

process. They also were reluctant to review the learning content after the digital German course with the AR cube. It would be helpful if learners could see the learning content and the related notes on one medium at the same time.

For teachers, it can be said that when introducing new or innovative technology and its corresponding didactic concepts into the (online) foreign language course (herein focused on the German course), attention should be paid not only to the technical aspects but also to the complexity of developing a teaching concept in which the introduced technology is used. It is conceivable that the didactic concepts or activities with the introduced technology or new media could not be developed or used frequently in teaching practice if the procedure is very time-consuming. This concerns especially the initial phase of using new technology or new media. Hence, after the conclusion, we have created an outlook for the use of the Merge Cube in combination with the concept of a textbook of the future.

6. Conclusion and Outlook

As discussed above, the result of our study showed that the participants' engagement and motivation in digital German sessions were enhanced by embedding AR technology with the Merge Cube, compared to language teaching and learning only with an e-book or a PowerPoint presentation in a digital session. Although the notion of AR technology is not new, the use of this technology in teaching practice in the field of German as a Foreign Language still needs more investigation. Since our empirical study mainly focuses on the learners' perspective and attitudes regarding their first encounter with an online German course with the Merge Cube or with AR technology, the long-term effect of the Merge Cube (or AR technology) on the development of the learners' language skills cannot be examined in detail in this paper. In addition, it could be useful if further empirical research is conducted to investigate how often an AR Merge Cube should be used in (online) German courses. This will help to identify a certain frequency of use so that learners can have fun with the Merge Cube and enjoy its benefits for foreign language learning and at the same time not feel bored because of the repetitive use of the AR Merge Cube.

The AR technology is still developing (for a discussion about the improvement and a prediction of the future, see, e. g., Schmalstieg / Höllerer 2016: 410–422). Thus, it is conceivable that some functions (e. g., of this AR Merge Cube) that cannot be offered at present can be made available with the development of AR technology. As far as a textbook of the future (Textbook 4.0) is concerned, using AR for the language course or the integration of AR into the textbook

is a promising addition. As mentioned above, more possibilities regarding the use of AR for a foreign language course may be expected as technology develops. Accordingly, more methodological concepts or approaches related to the application of AR to achieve a learning goal can be created. In addition, we will mention some examples here in the outlook.

In the conception of our research design, we considered the fact that the budgets of teachers and learners are limited.¹⁰ Nevertheless, we gained a lot of data about the learners' first encounters with the Merge Cube. It could be imagined that its added value can be increased if all the offered functions that the Merge Cube offers are used in the online German course (e. g., adding background sound to the specific learning scenario or adding an interactive object on a cube that connects the cube to another cube on the identical learning topic etc.). Although AR and the Merge Cube are not specifically developed for language learning, we attempt to meet some expectations that relate to foreign language learning with the AR Merge Cube and could be realized as technical progress is evolving. These could also be interesting features for the textbook of the future (Textbook 4.0):

- (1) As the students mentioned in the interview, they usually need paper and pens for taking notes when learning a foreign language. It is conceivable that this is the case for most learners. However, Rösler and Zeyer (2021: 556 f.) observed in their study that although learners in online German courses take screenshots on their devices or write notes in a notebook, learners hardly ever reread the screenshots or notes taken after the course. In this context, it would be helpful if the notes taken by the learners could be transmitted automatically through AR technology and stored on (their) Merge Cube without using a third means. In this case, learners could read and re-edit or add notes related to the learning content directly on the cube during revision, which can encourage further reflection in the learning process. In addition, it is also possible that the likelihood of the observation mentioned in the above study regarding notes can be reduced.
- (2) Another idea would be that an information button could be provided on the Merge Cube. After pressing this button, a virtual person appears as a tutor, who can further help the learners by giving notes on a task.

10 For example, the material of the original Merge Cube, which is made of foam and costs a little more than a sheet of paper that needs to be printed out and glued together. Or that the 'Writing' function on the Merge Cube was not feasible in online classes.

- (3) It would be enriching if different interactive tasks such as drag and drop, multiple choice, true-false, arrangement tasks, etc. could be placed on the Merge Cube.
- (4) Learners could have more possibilities for interaction with the 3D figures that are on the Merge Cube. Learners could interact with them not only by moving their hands but also by using other bodily movements to complete tasks.

For all these enumerated feature examples, further various empirical studies are needed. In this context, it can be said that additional long-term studies are needed to be able to investigate more details on a specific aspect regarding the use of the Merge Cube or AR technology for language learning. Based on the data collected, the methodological added value of the Merge Cube and AR technology can be further researched so that the Merge Cube (and/or AR technology) can be used more effectively in the foreign language learning context (particularly here in German as a Foreign Language). AR technology can provide further opportunities for interaction, but there are still challenges related to how the use of AR technology (in this case the AR Merge Cube) can work effectively for foreign language learning. Furthermore, it is also conceivable that the use of the AR Merge Cube in foreign language learning can interact with other didactic concepts or modes of action of Textbook 4.0 and functionally complement each other through their respective advantages, so that learners can achieve their goals in foreign language learning more easily and successfully.

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The Immersive Digital Textbook: Future Virtual Reality Scenarios in Foreign Language Learning

Abstract: This article presents the vision of possible Virtual Reality (VR) settings in digital textbooks for foreign language learning, e. g., as part of units or as an overall book structure. The ideas were developed, on the one hand, in various discussions and surveys with computer scientists, students, teachers, and publishing stakeholders in recent years, and, on the other hand, by analyzing existing language learning opportunities in VR.¹

Keywords: Virtual Reality, digital textbook, foreign language learning, immersion

1. Introduction

Educational processes and the transformation of the same are decisively supported by educational technologies: Ideally, educational technologies facilitate access to knowledge and competencies and make an active contribution to social enlightenment in the sense of open education and open science. But open education is not always the primary goal, especially when technology for certain areas first needs to be discovered and developed as is the case for VR in relation to language learning. Concerning school learning, the use of educational technologies and digital options that go hand in hand with these technologies must be identified (and investigated) starting with concrete subject-specific needs and existing didactic concepts. It also has to comply with educational policy requirements, content according to educational plans, data protection, etc., which makes the use of new technologies even more difficult. While VR environments have been employed in professional training for an extended period of time (cf. Zernig et al. 2022: 3), their utilization in school contexts remains largely untapped. In recent years, there has been a notable surge in the development and utilization of

1 To the best of my knowledge, none of the ideas have been implemented in German language textbooks thus far. Initial efforts have been made to incorporate 360° scenarios into digital textbooks, as evidenced by examples in the *Green Line series* (Klett) designed for English as a foreign language. This can be regarded as an initial step towards integrating digital 360° spaces into school textbooks. <https://www.klett.de/inhalt/green-line-digital/digitale-medien-im-Überblick/207275> [10.04.2024].

VR technologies, exemplified by their increasing integration into various sectors, including teacher training (e. g., Huang et al. 2023).

VR is often used as an umbrella term, encompassing, for example, 360° applications. The term 360° applications refers to non-immersive visual expeditions, which, due to their two-dimensional representation of monoscopic 360° media, are to be distinguished from VR. In a narrow interpretation, to which I adhere to, VR exclusively refers to fully-immersive experiences that are encountered using a Head-Mounted Display (i. e., Non-See-Through-HMD, cf. Plötner / Nowotny 2023: 133, Huang et al. 2023: 402). In contrast to 360° applications, VR applications fully envelop and integrate users into the virtual environment. This means that users can interact with and navigate through the virtual surroundings, enhancing the sense of immersion and presence.

A unique feature of VR is that it is technology and application at the same time. Access to VR must therefore always be considered, especially if we think about its use in German schools. In this article, my focus will be on exploring the application areas of VR, i. e., I will identify connecting points referring to language learning opportunities for foreign languages in digital (school) textbooks.

2. VR and Learning

There are a number of terms that appear quite frequently within the didactic framework of VR. Two of the most frequent terms are cognitive load and immersion (cf. Frazier et al. 2021). They are mainly used whenever VR and 360° technologies are implemented in educational settings and need to be clarified before outlining (possible) language learning opportunities.

2.1 Cognitive Load

When it comes to VR and school learning, one of the most powerful challenges is cognitive load. Cognitive load refers to how instructions and interactions are concretely designed. It is a characteristic of the learning process. The concept of cognitive load goes back to Swellers's and Chandler's *Cognitive Load Theory* (cf. Chandler / Sweller 1991, Sweller 1994). The authors show that the integration of more information in the same task (in the same picture as in Chandler / Sweller 1991: 299–300) can facilitate the learning process because the learners do not have to integrate two pieces of information represented separately, which reduces cognitive load. Nevertheless, if cognitive load is too high (overload), intended learning goals are more difficult to achieve, as learners have to deal with a lot of additional information. The problem of cognitive overload has already been demonstrated for VR (e. g., Lee / Wong 2014, Parong / Mayer 2018). The

fundamental question here is whether students can learn better when using VR. The findings in Parong and Mayer (2018) show that students who learned with a slideshow performed significantly better in a biology post-test than those who learned in an immersive VR setting. In contrast, Lee and Wong (2014) show that especially low spatial ability learners benefit from VR (here desktop VR-based learning). However, there is still a need for further investigations of the conditions of the successful use of VR.²

2.2 Immersion

Immersion is defined as a response triggered by the brain and a dimension of experiencing visual and other sensual information. It refers to the experience of focusing attention on and moving through a world (cf. Kerres et al. 2022: 314). It is therefore not a feature of technology but is supported by it. Immersion can also be triggered by literature or films, as ‘being swept into another world’, but with the following difference: “Die Protagonisten im Buch oder Film bleiben in ihrer Geschichte. Die Spiel- oder Simulationswelt kann dagegen vorsehen, dass ich mit diesen (nachgebildeten) Charakteren – auf bestimmte, eingeschränkte – Weise ‘interagieren’ kann”³ (Kerres et al. 2022: 314). However, to what extent book or movie characters are also mentally interacted with should be questioned even more.

Following the overview of Kerres et al. (2022: 321), VR environments especially promote the following dimensions of experience: Spatial experience (to be in a three-dimensional space and to be able to move within it), presence experience (experience the presence of others), and agency (to be active in an environment). It is interesting to note that the feeling of presence can take place outside of digital spaces mimicking the real world, i. e., abstract digital spaces also promote the presence experience. Especially social VR, i. e., “systems that prioritize and focus on the in-environment communication and gesturing” (Liu / Steed 2021: 2), where each participant is embodied by an avatar, are said to promote a presence experience, among other things social presence.

2 For more details on the concept of cognitive load see, for example, Huang et al. (2021: 3 f.).

3 “The protagonists in the book or film remain in their story. The game or simulation world, however, can provide an ‘interaction’ with these (recreated) characters – in a certain limited way” (Kerres et al. 2022: 314, transl. KP).

When I talk about an immersive digital textbook, I mean a textbook that includes virtual spaces in which foreign language learning is promoted through spatial and presence experience as well as agency.

3. Foreign Language Learning with 360° and VR

In studies on VR related to education, a distinction is made between entertainment, information, social exchange, and design or creation. Lan (2020: 3–8) defines five categories of VR in the context of language learning: visual experiences, entertainment, social networks, operation, and creation. By mentioning these, the author offers an already established didactic framework that is useful for exploring possibilities and limitations for future textbook scenarios, with the first four categories being particularly significant. The fifth category creation, which is not relevant here, involves the self-creation of VR worlds. The visual experience is mostly associated with 360° applications and videos as it is about getting enhanced spatial perspectives of (natural) spaces, activities, and events. Entertainment refers to VR games which have been in use in the gaming industry for quite some time. They are not yet widely used in the education sector, even though small forms of digital gamification have become very popular in recent years (e. g., Kahoot, Quizlet). Real-life-like interaction in social networks like *Altspace* and *Rec Room*, also known as social VR, enables an authentic interaction with native speakers. Lan understands social VR to include 3D applications such as *Second Life* even though they do not strictly belong to VR (e. g., you cannot enter the room with VR glasses) and are classified as non-immersive (Lan 2020: 5–6). However, I will refer exclusively to immersive social VR applications when using the term. The category operation includes experiences users can engage in when interacting with VR objects. It comprises two main operations: manipulation and simulation. Learning foreign language vocabulary and sentence patterns are prevalent applications within the realm of manipulation-based VR (Lan 2020: 6).

When discussing the use of VR and 360-degree applications in schools, it is crucial to consider both the question of the benefits of VR for foreign language learning and the willingness of teachers to adopt VR technology in the classroom. A study conducted by Chen (2016) indicates phonological and morpho-syntactic knowledge gains for English as a foreign language via a VR platform. However, comparative studies that assess language learning in VR against traditional learning methods are contradictory, as indicated by Kucher Dhimolea et al. (2022: 817). The authors can demonstrate through their systematic review that VR is particularly beneficial for context-related vocabulary learning, but the

effectiveness of VR is still understudied. Additionally, they state that multiple VR applications are necessary for effective language learning (818).

In a study conducted by Plötner and Nowotny (2023) over two semesters with two separate groups of students in a project seminar at the University of Potsdam, two different VR and two 360° applications were evaluated in terms of their potential usefulness and application for language learning in and outside the classroom. This was done by evaluating a questionnaire that was filled out by future teachers (pre-questionnaire: n=24, post-questionnaire: n=18) who participated in the project seminar in which they explored various 360° and VR applications (for detailed information on the seminar structure as well as on the investigation see Plötner / Nowotny 2023: 135 ff.). This study was part of a preliminary study of a larger research project on foreign language teaching and learning processes in and through VR.⁴ The tested and reviewed applications in this seminar were *Lapentor*, *Panolino*, *MondlyVR*, and *AltspacVR* (Table 1).⁵

Table 1: Description of the reviewed applications.

Applications tested in the two seminars	
<i>Lapentor</i> is a 360° tour editor that offers a place to edit 360° images with different cross-medial add-ons such as images, texts, and audio. It can also connect different scenes via portals, which give the impression of a tour.	<i>Panolino</i> is a 360° application that offers a picture and a list of English vocabulary, which the learner has to find and click on within the picture. The rooms can be accessed with VR glasses.
<i>MondlyVR</i> is a VR application, constructed specifically for language learning. It guides the player through different scenarios and offers communication that is based on pre-written answers in combination with voice-recognition software.	<i>AltspacVR</i> is a social VR application that can be accessed by users from around the world. This means that there is a high possibility of meeting someone with whom you can talk and practice a second or third language authentically.

Students deemed *Lapentor* to be the most promising 360° application for teaching. They judged it most fitting for promoting audio-visual competency and

4 Currently, a multilingual VR classroom is being developed at the University of Potsdam, where future teachers will be trained on different forms of error correction in the foreign language classroom (English, Spanish, French) <https://www.uni-potsdam.de/de/multimedia/projekte/anwendungen/x-teach-vr> [10.04.2024].

5 In March 2023, *AltspacVR* was taken offline and transferred to a new platform from *Microsoft*.

commented on its versatility, adaptability, and easy access as positive criteria for using this as a tool in language teaching. They however criticized the time one has to put into creating a tour or exhibition with this tool, as well as the technical difficulties that can occur. It was concluded that there is a palpable need for further development of such tools as *Lapentor* which can be understood as a call and a mandate to textbook publishers.

AltspaceVR received positive remarks specifically concerning the possibility of authentic language use, especially regarding oral practice as a central criterion for this application, which future teachers deemed particularly useful for advanced learners. However, students commented on the reduced usage of other competencies, as well as on technical and organizational additional work for the teacher, especially if they wanted to organize a VR encounter with a partner school to guarantee a meaningful interaction and learning experience.

Concerning *MondlyVR* and *Panolino*, students would rather see their use outside of the classroom, for instance for further individual learning opportunities which cannot be offered in the usual language classroom. At the same time, future teachers would choose these applications for their own individual language training. The main reason for them not to choose either of these options for their teaching is that the applications' scripts are already written and are not able to be adapted, therefore they do not deem them fitting. Here it can be concluded that such kind of VR applications would get higher approval if they were adapted to a textbook and its specific lexis. The study showed that an easy application and individual adaptability, as seen with *Lapentor*, seem to be important criteria for choosing a 360° or VR application to include in the language classroom. Regarding VR applications, there is an apparent hesitation due to the additional work that must be put in, to include such tools in the classroom such as the preparation of the room for the use of VR glasses.

For their own language practice, future teachers largely prefer a social VR application such as *AltspaceVR*, due to the possibility of authentic communication with native speakers. There is however a palpable hesitation when it comes to judging interactions in a digital context as 'real' communication. Plötner and Nowotny (2023: 149) state their curiosity about the fact that none of the future teachers voiced their concerns about data security, nor did any of them mention the possible development of inter- and transcultural competencies, which they attribute to a possible lack of knowledge in that context.

Another study conducted currently by Plötner and Schlaak including teachers' and trainee teachers' opinions shows that 360° is preferred over VR, mainly because of the low-threshold access and the associated feeling of usability. Moreover, there are positive correlations between the assessment of their media

competence and the possible use of 360° and VR applications which suggests that one's own media competence forms an important basis for the courage or will to use still little-known technologies.

4. VR in (School) Textbooks

To my knowledge, VR is neither part of existing German textbooks nor currently planned to be included in upcoming digital textbook series. Nevertheless, publishers and teachers are open to possible learning scenarios, but still have reservations about its use, especially in school environments (cf. Schäfer et al. 2023). There is still a long(er) way to go here, which should be accompanied by research done at universities, e. g., concerning the development of VR applications for classroom environments (design-based research) and implementation issues (belief research, inventory research). Even if there are many publications on usability and presence in VR (cf. Liu / Steed 2021), there is still a lack of research on language learning in VR which ranges from missing VR situations and settings for language learning and the student's perception to studies on the effects VR has on language learning.

In the following paragraphs, different dimensions of VR in textbooks will be presented. I am referring in particular to scenarios that can be assigned to the entertainment, social networking, and operation category (cf. Lan 2020: 3–5). The compilation of possibilities is arranged by scope and size. This means that I start with single applications in VR for specific textbook tasks and end with a vision of a textbook completely designed in VR. All possibilities presented here are to be understood as a preliminary collection of ideas based on the current possibilities of VR.

4.1 VR in Units

It would be possible to link VR scenarios to units in textbooks, e. g., a welcome situation in the first learning year for Spanish as a foreign language. Here, a room could be created in which the learners have to talk to different avatars in the schoolyard, similar to *MondlyVR* and its various tourist settings. Looking further ahead, learners can select from various situations and practice oral utterances in a predefined setting via automatic speech recognition. Various difficulties arise, for example, something has been lost which must be found. It is possible to choose from different linguistic options, so the story can change depending on one's choice.

A simpler VR space would be one in which learners would only need to interact with objects, search for them if necessary, and orally repeat them, similar to

Panolino. It would be interesting to investigate whether learners retain vocabulary better because it is introduced in an active situation. In the questionnaire study by Plötner and Nowotny (2023), the topic of directions was often determined by students to be appropriate for VR use. Here it is conceivable to have the students walk through a city and thus promote authentic language action.

4.2 A VR Unit

It would be possible to replace an entire unit of the textbook with a VR world. Instead of the introductory text of the unit, there would be an initial VR situation in which various actions have to be performed. Students would have to figure out what is happening and how to act linguistically and culturally. Designing a full unit in VR would mean building it like a computer game including different avatars and a storyline.

Here, I take up the topic of directions mentioned by my students in the questionnaire: A unit in which prepositions and directions are practiced in a VR space would be particularly suitable. Learners could walk the streets in a VR world and set up meeting points in front of stores and buildings. They could also enter stores and buildings. VR would replace two-dimensional media for spatial orientation with a three-dimensional space. It would be advantageous to recreate some streets of real cities and to take cultural features into account, e. g., street layouts, typical stores, etc. As already mentioned, a storyline would be necessary to increase the authenticity (e. g., you are in a new city and want to study at the university). Also, VR films and VR series can serve as an inspiration or base for a unit. In recent years, various VR genres have emerged, including action thrillers like *Dispatch*⁶, which, of course, must be adjusted to suit the age of the students.

4.3 The VR Textbook

The idea of the textbook as a three-dimensional space is the most complex version. When entering the textbook, the learner steps into a virtual space: Through different corridors, the learner can reach individual units, where he or she can directly enter into the concrete settings as mentioned in 4.2. At the entrances, the learner is greeted by different avatars and either takes part in the scenario (like in a VR-based computer game or in VR films where you can choose the following actions), or he or she observes the avatars in their actions (like in 360° videos where you can observe people or animals in different actions). Speaking,

6 <https://www.meta.com/de-de/experiences/pcvr/1225454147574882/> [10.04.2024]

listening comprehension, and intercultural competence are practiced in the virtual textbook through interaction with avatars. Writing and reading can be practiced through integrated websites or by accessing additional materials (digital or analog). Certainly, reading activities can be conducted within VR, involving the interpretation of signs, reading words, and even short texts. Additionally, the virtual space allows for the practice of written language through activities such as note-taking.

4.4 Social VR

In social VR platforms, several real people can be active in a room at the same time, which increases, among others, the experience of presence (cf. Kerres et al. 2022: 321). It would be conceivable to offer this form for teacher professional development or for discussions about the textbook, i. e., to think of it as part of the teacher's version/teacher's manual. Teachers could carry out joint activities in social VR, such as playing chess or basketball together, meeting to talk about didactic issues, visiting exhibitions as possible in *Mozilla Hubs*, or participating on the textbook in workshops.

In social VR, however, there remains a privacy problem, which platforms such as *AltspaceVR* were trying to solve through moderators. By requiring logins via email accounts, attempts are made to keep cyberbullying and harassment to a minimum. The VR textbook, as described in 4.3, could also include a social VR space for students. In this room, students using the textbook could meet to solve tasks or practice the foreign language they are learning. It would be particularly authentic and useful if native speakers, e. g., those learning German, also had access to the platform. This would be possible, for example, if a Spanish textbook were combined with a German textbook. Then language tandems could be formed and the languages to be learned could be practiced in turn in the multilingual social VR space, for instance by carrying out joint activities.

5. Outlook

If we want to bring VR into the classroom for further reasons, it is not enough to embed it in textbooks as teaching materials often also only respond to the needs of teachers and schools. The basis for the implementation of new technologies, like VR, in language learning is continued teacher training. Even pre-service teachers show a certain hesitation in using new technology due to their lack of experience (cf. Plötner / Schlaak, in preparation). Lacking authenticity (as a counterpart to the real-world environment) and more additional work stand as arguments against using VR (and 360° applications), whereas adaptivity and

versatility support the optimistic narrative (cf. Plötner / Nowotny 2023: 143 ff). Reservations must be reduced by giving teachers the possibility to get to know the advantages and disadvantages of these technologies. This needs to be done in a supportive environment that offers enough time and space to get familiar with VR on a theoretical and practical level, e. g., exploring VR headsets, experiencing different VR worlds, formulating hypotheses regarding the uses of VR in the language classroom, reflecting on immersion as well as on cognitive load. Through guided experimentation and experience, teachers and future teachers could learn first-hand about potentials and limits in VR.

Finally, VR will be a useful addition to the spectrum of language learning opportunities. Especially social VR and linking it to L1 speakers or using it in the context of school partnerships seems to be a fruitful language learning opportunity. Textbook publishers should not miss the opportunity to network with learners and above all to connect learners. The networking between people on social media (cf. Baliuk in this volume), to which social VR also belongs, is hardly used in the context of language learning although it has great potential in terms of authenticity and situational relevance.

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Discourse Literacy in 360° Two Suggestions for the Language Classroom

Abstract: In this paper we propose two scenarios for the use of 360° media in (German as a) foreign / second language classrooms and textbooks. With discourse literacy (*Diskursfähigkeit*) as an overarching instructional goal of language learning, these scenarios make use of the specific characteristics of panoramic 360° images, 360° videos, and virtual tours: In Scenario 1, a closer look at how information is presented is used to stimulate a discussion on how meaning is constructed in (audio-)visual media by comparing 360° photos with conventional ones. Scenario 2 is based on the multi-perspectivity of 360° video to allow for the recognition of differing perspectives and for changes of perspective in foreign language learners.

Keywords: 360 degree media, discourse literacy, practices of meaning making, multi-perspective material, German as a Foreign / Second Language

1. Introduction

In current research on Virtual Reality (VR) for (cultural) language learning, potentials have been primarily attributed to computer-generated applications in which learners can interact with their surroundings and other characters through an avatar (e. g., Biebighäuser 2014, Peterson 2016). However, these software solutions can be quite elaborate (e. g., financially costly). In contrast, photographic 360° panoramas, panoramic films, or virtual tours are a much more feasible option for adaptation in the language classroom, while also uniquely promising. Therefore, in this short paper, we propose two scenarios for the use of 360° media in the foreign language classroom and their integration into foreign language textbooks. Both scenarios are guided by the instructional goals and principles of culture-related learning in the context of German as a Foreign or Second Language (GFL/GSL) and will be sketched out on the basis of (preliminary) research results.

1 We would like to thank Christine Magosch for her invaluable contributions to the project as well as her continual support and feedback, both during the empirical studies and while drafting the didactic scenarios presented in this paper.

2. What Are 360° Media?

360° media are produced with specially designed cameras or camera rigs that use multiple wide-angle lenses. By digitally stitching together the shots from each lens, an omnidirectional, spherical panoramic image is created. The production of 360° images, videos, and tours via camera technology is relatively simple and affordable – especially in comparison with the effort and coding skills required for computer-generating new virtual worlds – with some end-user model 360° cameras currently ranging between 100–200€.

The resulting images and videos can then be viewed on a variety of devices.² On a desktop computer or laptop, panning around in a 360° image is realized by simply dragging the image across the screen using the mouse or touchpad. Mobile devices such as smartphones or tablets additionally offer the option of navigating in the image by simply tilting and turning the device, using its gyroscope function. This enables viewers to interact with the image more intuitively. Most importantly, however, it also makes the use of VR goggles possible. By placing the smartphone into a VR headset, or Head Mounted Display (HMD), viewers can immerse themselves in the image and look around by moving their heads.



Figure 1: Middle – Placing the smartphone into a simple cardboard VR headset.³ Left – a plastic VR headset for smartphones. Right – a 360° camera with two lenses (here: Samsung Gear 360).

2 Free software solutions for viewing 360° media are also available (currently, e. g., *Theasys*, *Thinglink*, *YouTube*).

3 For more details, see <https://360material.wordpress.com/handreichung/> [19.04.2024].

VR headsets for smartphones range from affordable cardboard models (Fig. 1 middle) to more elaborate HMDs with additional features such as adjustable head straps, integrated speakers, and different settings for the position of the phone and the distance of the screen to the eyes (Fig. 1 left). Advanced models, such as the Oculus series, can also be used to view 360° images or videos. However, these models are designed to keep up with computer-generated virtual worlds or games with real-time rendering and other immersive features such as hand controls. For the scenarios proposed in this paper, these more elaborate (and therefore, more expensive) models are not needed.

3. Potentials of 360° Media

The photorealistic and immersive quality of 360° images is often advertised as allowing language learners to virtually ‘travel’ to distant or inaccessible places (cf. Petersen et al. 2020) and to experience the target culture without physically leaving the classroom. However, we argue that the educational potential of 360° media for cultural learning in foreign language learning and teaching goes beyond such virtual field trips. In her literature review, Ketzer-Nöltge (2022) identifies four aspects (i. e., didactic challenges) of foreign language teaching for which 360° media have the potential to be useful (in addition to the range of media and methods currently implemented): immersion and sense of presence (3.1), learner orientation and multi-perspectivity (3.2), authenticity and constructedness (3.2), and communication and collaboration (3.4). These aspects are obviously closely intertwined (ibid.: 103). Since they are at the base of the scenarios described in Section 5., we will elaborate on them in the following.

3.1 Immersion and Sense of Presence

While immersed in the virtual surroundings, users of 360° media can experience a feeling of local presence (e. g., Rupp et al. 2016). Studies suggest that feelings of presence depend on the degree of (technological) immersion (ibid.: 2110), that is, the more elaborate and multi-sensory the design of the depicted (virtual) world, the stronger the feeling of presence in its various dimensions might be. Dede (2009: 66) distinguishes three factors influencing the feeling of presence: Sensory immersion refers to the technological features provided, actional immersion, to the social presence of users influenced by their interacting with other avatars or by moving around in the virtual space (e. g., via additional hand-held controls), and symbolic immersion, to the plausibility of the projected world and its encompassing narrative. While these factors originally refer to virtual worlds, feelings of presence have also been observed in studies using

the visual or audiovisual stimuli given in 360° media (e. g., Nast / Ketzer-Nöltge 2023, Rupp et al. 2016, cf. Snelson / Hsu 2020).

According to Dede (2009), immersion and presence can positively affect learning processes in at least three ways: multiple perspectives, situated experience, and transfer. First, by providing multiple viewpoints, a change in perspective is possible facilitating the “understanding of complex phenomen[a]” (ibid.: 66). Second, situated learning enables learners to silently observe complex situations in “real-world settings” (ibid.: 66) and by that advancing their knowledge and skills. Third, the virtual world provides an opportunity to apply knowledge and skills obtained in the classroom in a situation similar to the target situation (ibid.: 67). While not all of these effects have been studied for 360° media as they have been for VR, Snelson and Hsu’s (2020) scoping review suggests that they are as feasible for 360° media, although limiting factors remain to be determined.

3.2 Learner Orientation and Multi-Perspectivity

In immersive (audio-)visual media, viewers choose their point of view by freely looking around in the spherical panorama. This is possible by moving one’s head (and body), just as in a natural environment. The technology puts the learners in the center and in control of their experience, which goes hand in hand with a *learner-centered* approach to language learning and teaching as an individual decoding of a depicted scene or situation is enabled (cf. Ketzer-Nöltge 2022: 109 ff.). Ketzer-Nöltge (2022: 111) uses the metaphor of a tourist bus to illustrate a group of learners simultaneously looking at 360° media via VR goggles: All passengers (i. e., learners) can potentially see the same things at the same time; however each person deciphers the scene differently and can (verbally) indicate what they have discovered (for example data see Ketzer-Nöltge / Magosch 2022: 57). Through the individual navigation and the (audio-)visual complexity of 360° media, the probability of differing foci of attention between learners is increased in comparison to conventional recordings, which will lead to diverse descriptions of what has been observed. By comparing these descriptions, multi-perspectivity becomes visible, which then can be used as a basis for uncovering individual interpretations as well as resources and processes of meaning making (see 4.).

In a study by Höfler (2020), three GSL learners watched a 360° video of a demonstration⁴ documenting climate activists from the alliance *Ende Gelände*

4 The video can be accessed via: https://www.youtube.com/watch?v=4pSh6Hp_DBE&t=21s [19.04.2024].

protesting at the Garzweiler open pit mine. The goals of this explorative study were to observe differences in gaze patterns between the participants, to uncover factors that influence individual attention, and – most importantly – to identify differences in interpretation and meaning making processes of the immersive video viewed. Through a triangulation of research methods (gyroscope data, stimulated recall, and retrospective interviews using screen recordings), key sequences were identified to compare participants' gaze patterns and interpretations. Most importantly, Höfler found exemplary instances where learners interpreted moments of the video in contradictory ways. While all participants looked in approximately the same direction during a particular key sequence, one interpreted the scene as “peaceful and friendly”, while another characterized it as “aggressive” (ibid.: 33). This could be attributed to differences in attention and gaze patterns leading up to this key sequence, suggesting that different perspectives offered by the recordings have the potential to lead to differing, even conflicting, interpretations.

In addition, 360° recordings can be seen as a new kind of multi-perspective text that has become part of public discourse (e. g., when cities present themselves in form of virtual tours) and which therefore can be discussed in terms of their function in this discourse: Regarding 360° media as an innovation and digital cultural phenomenon, the participants of the study in Nast and Ketzer-Nöltge (2023: 157) recall a wide variety of prior experiences while working with a 360° tour in the classroom, which, in turn, can be linked to a variety of public (online) discourses. For example, they discuss the added value and benefits of 360° media in different contexts and in comparison to other media as well as its popularity in social media. However, they also clearly state their skepticism regarding the potential mental and physical health risks of immersive media, such as addiction or damage to the viewers' eyesight. As Hallet (2020) argues, a specifically digital discourse literacy should not be an additional instructional goal. Rather, the specifics of digital media and content should be incorporated into the language learning process (Hallet 2020: 201). Similar demands are present in the discourse on visual literacy (cf. Bachtsevanidis 2012).

3.3 Authenticity and Constructedness

The teaching principle of authenticity refers to the use of language, texts, and other materials that either correspond to target language incidents or are taken directly from a target language discourse (cf. Klippel 2016: 218). In this sense, 360° recordings can be used, for example, in the area of career orientation and preparation (e. g., professional German) to provide an insight into professions,

processes, communication patterns, etc. (e. g., 360° videos on www.deinerstertag.de [19.04.2024]). Due to the special perspective of 360° recordings they can provide a more vivid and comprehensive insight into the target culture compared to conventional recordings (e. g., due to a broader situational embedding). However, the feeling of presence and control can easily create a sense of reality, of immediate representation (Ketzer-Nöltge 2022: 112 ff.). It is important, especially in contexts of cultural learning, to deconstruct this illusion of immediate representation. As Hallet (2010) states, even conventional visual media can assert a certain double claim to cultural representation. Not only do photorealistic pictures suggest an immediate depiction of reality (the depicted object really is what it visually appears to be), but they can additionally create a sense of cultural authenticity when included in foreign language learning material (the depicted thing is representative and typical of, for example, Germany as a cultural entity; *ibid.*: 36). 360° shots are particularly well suited for this deconstruction, as the contradiction between the constructed nature of the shots and the hyper-realistic qualities of 360° media (e. g., photographic / video quality, immersion, natural gaze control through head movements) becomes particularly clear in them. Thus, this form of photorealistic representation may be particularly useful in helping learners understand that no media can ever directly represent reality: At first glance, 360° recordings seem to offer a high degree of authenticity (cf. Ketzer-Nöltge 2022); they are more comprehensive than conventional recordings due to their wide angle, and they are potentially more believable than computer-generated media due to their photorealistic nature (cf. Rupp et al. 2016). However, there are limitations to the authenticity of any media experience. Even though 360° media are omnidirectional, immersive, and photorealistic, they are still recordings, i. e., selective snapshots of a past situation. There is a certain contradiction between the constructedness and selectiveness of the recordings and the illusion of reality created by their immersiveness. This paradox has the potential to disrupt the way we usually see visual media and to question the way photographic images in general can claim to depict reality. Therefore, 360° media may be particularly suitable for discussing authenticity in class, as they make this contradiction particularly discernible (cf. *ibid.*). In Section 4., we elaborate on why this is specifically relevant to the development of discourse literacy.

3.4 Communication and Collaboration

As mentioned above, 360° media also offer opportunities for communication and collaboration in the language classroom (cf. Ketzer-Nöltge 2022: 114 ff.).

For example, Nast and Ketzer-Nöltge (2023) experiment with the use of HMDs to create an information gap between participants in a GFL class by asking pairs of learners to navigate through and describe objects in the depicted spaces using a map and a virtual tour. Providing only one participant with an HMD, while the other is not simultaneously in the virtual space, has two main effects that are interesting for classroom interaction: First, both speakers now experience spatially different environments and must verbally communicate to ‘bridge the gap’. The two partners will use various strategies to determine and agree on the location of certain objects. Second, participants will experience what Kurtz (2015: 108) refers to as “bi-locality” (*Bilokalität*, transl. authors), the sensation of being present in both the physical and the virtual space simultaneously. Information gap tasks have been implemented previously using other materials, such as maps or photographs. However, the need to communicate becomes more immediate when using immersive 360° media since the usage of HMDs provide a visual barrier between partners, impairing nonverbal cueing and communication strategies.⁵ Therefore, oral communication is paramount in overcoming the visual barrier of the 360° environment. In the study conducted by Nast and Ketzer-Nöltge (2023), this leads to a moment of critical engagement with the visual medium. Participants in the study jokingly refer to their bi-locality, which is interpreted to show a critical distance to the characteristics of the medium (ibid.: 156), not least because the use of irony has also been described as a mechanism of positioning oneself in a discourse (cf. Altmayer et al. 2016: 14). This adds to the hypothesis that 360° media have the potential to disrupt the way we usually see visual media, as described in Section 3.3.

4. Discourse Literacy and 360° Media

Recent approaches to the cultural aspects of German as a Foreign / Second Language have repeatedly emphasized the importance of a sound theoretical basis for discussions about culture in the language classroom or, more specifically, about the cultural aspects of both the processes and contents of language learning, in order to overcome essentializing and homogenizing understandings of culture (cf. Hu 2004: 149; Zabel / Simon 2022: 80). It is not within the scope of this paper to explore in-depth the different approaches and their respective theoretical and didactic implications. Instead, we focus on the term discourse

5 Due to the gyroscope function of the displaying devices, it is almost impossible to hand over a HMD without changing what is displayed on the screen.

literacy (*Diskursfähigkeit*, transl. authors) as one of the central concepts that are currently being discussed. Discourse literacy, as an overarching goal for language learning and teaching, is the ability to participate in the discourse taking place in the language that is being learned (as formulated and discussed, among others, by Hallet 2008, Zabel 2022; cf. Wolbergs et al. in this volume). It is rooted in a discursive understanding of culture as the processes of meaning-making that we encounter and apply in everyday communication, following the sociological typology of culture definitions by Reckwitz (2000; cf. Altmayer 2023: 53). The ability to participate in these processes of meaning-making encompasses various competencies, such as an awareness of how meaning is created and how speakers position themselves (e. g., by using certain words, phrases, or images), and the ability to actively create meaning and position oneself (cf. Hallet 2008, Zabel 2022; cf. Wolbergs et al. in this volume).

The textbook *Mitreden*⁶ (Altmayer et al. 2016) is one of the first attempts to transfer these theories of discursive cultural learning into classroom materials and activities. As summarized in the supplementary introduction, a discursive understanding of both language and culture necessarily sets discourse literacy as a goal for language learning:

Sprache, so haben wir ja gesehen, dient eben nicht nur dazu, sich in alltäglichen Situationen zurecht zu finden oder mit Menschen aus ‚anderen Kulturen‘ möglichst effektiv, reibungslos und erfolgreich zu kommunizieren, sie dient vor allem dazu, den Dingen und der Welt um uns herum Bedeutungen zuzuweisen, diese Bedeutungen mit anderen zu teilen, sie in der (sprachlichen) Auseinandersetzung mit anderen auszuhandeln und durchzusetzen usw., kurz: sie dient dazu, an den diskursiven Praktiken einer Gesellschaft teilzuhaben. (Altmayer et al. 2016: 8)⁷

We refer to this textbook and its introduction mainly for its attempt to break down discourse literacy into three core competencies:

- A. die Fähigkeit von Fremdsprachenlernenden, an Bedeutungskonstruktionen in der Fremdsprache mitwirken, diese erweitern und hinterfragen zu können,

6 The German verb *mitreden* may be translated into English as to join in, to take part, or to have a say in the matter.

7 “Language, as we have seen, is not only used to find one’s way in everyday situations or to communicate as effectively, smoothly, and successfully as possible with people from ‘other cultures’. It serves, above all, to assign meanings to things and the world around us, to share these meanings with others, to negotiate and assert them in (linguistic) confrontation with others, etc., in short: it serves to participate in the discursive practices of a society” (Altmayer et al. 2016: 8, transl. authors).

- B. die Fähigkeit, Diskurspluralität, d. h. das Neben- und Gegeneinander unterschiedlicher Positionen, Perspektiven und Meinungen im Diskurs, anzuerkennen und auszuhalten, und
- C. die Fähigkeit, die Praktiken der Bedeutungsproduktion im Diskurs zu durchschauen. (Altmayer et al. 2016: 15)⁸

The textbook also selects and discusses certain instructional principles to go along with its instructional goals (Altmayer et al. 2016: 16 f.), such as subject orientation, problem orientation and authenticity of materials, to which we will refer in the instructional scenarios in Section 4. and which will be explicated in connection with the specific examples given below.

One overarching goal of discursive cultural learning, as proposed in *Mitreden*, is to critically examine the contents and materials presented in the classroom. The discursive understanding of culture views classroom materials as fragments of discourse, allowing for an understanding of meaning-making. This understanding serves not only as a competency for discourse participation but also encourages a critical examination of the knowledge presented as truth in the classroom. When selecting materials for classroom use, it is recommended to choose from current and relevant discourses. The sources, authors, and intentions of the material are often made transparent to the learners. Additionally, it is advisable to select multiple texts and materials for any given topic, to highlight the plurality of discourse positions. This approach encourages learners to view information as the result of constant negotiation rather than absolute fact (Altmayer et al. 2016: 12). Scenario 1 (Section 5.) illustrates how a new topic may be introduced by illustrating the process of selection that leads to the new topic for the learners, instead of simply assuming its relevance.

It has been stated that discourse literacy cannot be reduced to written and spoken language, but has to include the understanding (and, in some cases, the production) of multimedia and multimodal forms of communication (Hallet 2010: 29). As a result of our observations⁹ and empirical studies (e. g., Höfler

8 “A. the ability to participate in, extend, and question constructions of meaning in the foreign language; B. the ability to recognize and tolerate discourse plurality, i. e., the juxtaposition and opposition of different positions, perspectives, and opinions in discourse; C. the ability of foreign language learners to ‘see through’, i. e., recognize, comprehend, and be aware of, the practices of meaning-making in discourse” (Altmayer et al. 2016: 15, transl. authors).

9 This refers to observations from practical implications of 360° media in GFL classes as well as teacher trainings we conducted within and following the project “Virtual Lab” (<https://www.uni-leipzig.de/kollektion-lehrpraxis/fakultaeten-und-zentrale-einrichtungen/philologische-fakultaet/virtual-lab>, [19.04.2024]).

2020, Nast / Ketzer-Nöltge 2023) over the past years, we posit that the characteristics of 360° media have specific potentials for working toward discourse literacy in the GFL classroom.

Firstly, awareness and comprehension of the mechanisms of meaning-making in media are vital for the development of discourse literacy. By promising a seemingly more realistic experience than conventional visuals (see 2.), 360° media can draw attention to those mechanisms (cf. Hebbel-Seeger 2018: 268 f.). Since looking at non-immersive photos is such a conventionalized practice in everyday life, learners will not intuitively be inclined to take a closer look at how the photo creates its meaning. In other words, the fact that any photo has a perspective, an origin, and an intention, and that every visual element has a specific function for its message, is not immediately apparent. Hallet (2010: 49–51) argues that the use of *meta-visual* images can draw attention to the visual ‘as a visual’. In his text, this refers to a scene from the movie *The Truman Show*, where the protagonist being seen or watched is part of the narrative and is represented visually. Hallet analyses a still where the protagonist is filmed via a mirror, and argues that this opens up a discussion of what is real – and what is constructed via the media. With their increased claim at photorealism and their added immersive quality, 360° media can be argued to be such meta-visual media as well (Nast / Höfler 2022: 125). The immersive experience facilitates a focus on the characteristics of the medium and its juxtaposition of realism and constructedness as described above (photorealism and immersion on the one hand, and camera placement and selectiveness on the other). The idea is that learners will be prompted to think about the tools of meaning-making in photographic media in a didactic scenario that builds on this focus.

Secondly, our research has shown that learners viewing a 360° video exhibit visible emotional and empathetic reactions (Höfler 2020). One participant in the study reported feeling lonely after watching the video, as he saw one of the demonstrators fall without any assistance from others (cf. *ibid.*: 29). In a different scene depicted in the video, a study participant expresses the desire to position himself as he feels caught between the two opposing groups of demonstrators and policemen while these face each other and the 360° camera is positioned in the middle. The participant wishes to move spatially and in terms of content towards the demonstrators (cf. *ibid.*: 67). This illustrates how 360° media have the potential to introduce diverse perspectives into the classroom, both figuratively and literally: Not only can different 360° images or videos convey different discourse positions and opinions, as any media can, but learners can experience these perspectives first hand by being immersed in the center of the scene and placed in the position of the camera (e. g., Adnan 2020, Berns et al. 2019).

5. 360° Media and Textbook 4.0 – Two Scenarios

This section sketches out two suggestions for how the considerations described in 4. can be implemented in the foreign language classroom. In order to make the two scenarios described here as comprehensible as possible, each subsection is structured as follows: First, we will provide the instructional goal of the scenario, a short description of the instructional implementation suggested, and the instructional principles underlying it (following Altmayer et al. 2016, see above). Second, we substantiate the scenario by explaining our reasoning, meanwhile referring to the theoretical and empirical background described in Sections 3. and 4. Finally, we propose classroom activities in the form of step-by-step teaching units. For each step, a short table is provided including the media used (left) and proposed guiding questions (right), followed by a description.

Overall, the material and instructional steps suggested here can be implemented in language courses on different skill levels, since the negotiation of meaning and the class discussions proposed can take place in the target language or a lingua franca alike, for the instructional goal – while closely connected to the realm and discourses of the target language – concerns overarching competencies, such as recognizing and tolerating discourse plurality. Additionally, we principally recommend following the steps of initial immersion, experience, and reflection as put forward by Ketzer-Nöltge and Magosch (2022), who emphasize the importance of ‘arriving’ at the displayed scenario in an initial step by asking learners to look around and to get a first impression – regardless of an immersive or non-immersive reception of 360° media (ibid.: 58).

The scenarios proposed in this section do not introduce new approaches to cultural learning in language classes, but are based on a long discourse concerning cultural learning (cf., e. g., Altmayer 2023 or Rösler in this volume) and visual literacy (cf., e. g., Bachtsevanidis 2012, Hieronimus 2014) in the field of German as a Foreign / Second Language. However, the affordances of 360° media offer new possibilities to approach challenges of foreign language learning, as described in Sections 4. and 5.

Scenario 1. Looking at Places (Differently).

- instructional goal: ‘seeing through’ practices of meaning-making
- instructional realization: comparing different forms of visual representation, recognizing visual media as part of discourse and discourse as part of visual media
- instructional principles: authenticity and versatility of material, societal relevance, problem orientation, engaging previous knowledge

By decoding the (audio-)visual complexity of 360° media due to their photo-realistic and omnidirectional rendering, learners can develop an awareness of how the ‘illusion of reality’ is created. The goal of this scenario is to then extend this awareness to (audio-)visual media in general: From ‘Why and how does this image / video make me almost believe that I am really there?’ to ‘Why and how do other (audio-)visual media create a sense of reality?’. The goal is the ability to see through the double claim to representation of visual media that has been described above (cf. Hallet 2010; *seeing through practices of meaning-making*).

Nast and Höfler (2022), present and analyze a 360° image of an intersection in Leipzig-Connewitz, comparing it with a *Google Street View* image of the same location. To avoid the pitfall of the double claim (Hallet 2010), we intentionally avoid selecting an image of a well-known area of Leipzig, which could lead to premature conclusions about the site’s characteristics, based on previous knowledge. We have selected a seemingly arbitrary street corner that is culturally significant in a less obvious way than famous landmarks, as it is (visibly) connected to current discourses. In this scenario, we propose classroom activities using these – or similar – images. The primary objective is to examine three distinct visual representations of the same location. Using a detail from one of the images as a starting point, the scenario can then be used as a segue into a chosen topic, as shown here by using the example of recycling and the German bottle deposit system (*authenticity and versatility, societal relevance*).

By comparing the specific characteristics of different forms of visual media, the image itself becomes less of a neutral source of information, and instead rather one of many ways a place could be represented, one of many utterances that form the discourse about any given place. Differences between the images have the potential to perturb the normalized way of quickly glancing at a picture and seemingly just recognizing what it shows, in favor of a more in-depth analysis (*problem orientation*). By then introducing a new topic from a clue in one of the pictures, it becomes clear that, at a closer look, visual media will often reveal certain details of this discourse (*recognizing visual media as part of discourse*). Thus, the scenario allows learners to question the information presented to them, as described above, and to follow the process of how information about a place is chosen for the classroom.

Implementation / Suggested Classroom Activities

Describing a picture	
<p><i>Media</i></p> <p>conventional (textbook) photos of a certain place (or a screenshot from the 360° image)</p>	<p><i>Guiding Questions</i></p> <p>What do you see?</p> <p>Where do you think this picture was taken?</p> <p>Why was it taken? Who took it?</p> <p>What might people do here?</p>

In order to guide learners through the comparison as described above, this scenario starts out with conventional photographs, i. e., rectangular pictures that could be found in a printed textbook. Places and pictures for this task can be freely chosen according to the lesson plan. If a textbook with a lesson on a certain city or place is not used, pictures for this first task can easily be found online and / or in tourist brochures. However, this scenario relies on current pictures of the same place in 360° and on Google Street View also being available. In Nast and Höfler (2022), both a current 360° image of an intersection in Leipzig-Connewitz and the corresponding location on Google Street View have been selected and can be publicly accessed and used for the following steps. An image search of Leipzig-Connewitz, or, more specifically, *Wolfgang-Heinze-Straße*, results in a variety of very different images, all suited for this first activity. Some show night-time scenes of demonstrations and protests, others show people sitting outside in front of stores or in the nearby park and playground.

Learners are asked to describe what they see and formulate hypotheses about the pictures. This is a simple oral language practice activity and aims at engaging and becoming aware of previous knowledge both about the place(s) shown and about the task of picture descriptions in educational settings. Learners could either spontaneously offer their thoughts on the picture(s) to the whole group, or be given a few minutes to prepare them individually and take notes. Alternatively, they could get together in pairs and be handed individual pictures to describe to each other. Either way, the group should come together afterwards and share their interpretations.

Describing a 360° picture...	
360° image(s) of the same place, HMD (VR goggles) or computers/tablets	What do you see? What don't you see? What can you see that you hadn't noticed or seen before? What new information about the place did you get from this picture? What objects/details stick out to you? What are the differences between the two pictures?

Once the group has collected some impressions and interpretations of the photos, the next step is viewing a 360° image. Ideally, the image will show exactly the same area, such as the exemplary image suggested in Nast and Höfler.¹⁰

Whenever learners are given 360° media to view in class, there are two main recommendations to be considered. The first is to make sure the necessary equipment is ready and has been tested, such as VR goggles or laptops to view the image. While the use of goggles adds the experience of spatial presence to the image and therefore heightens the illusion of spatial reality as described above, the scenario also works while viewing the images on a computer screen or tablet. The second recommendation is to plan for enough time both for learners and teachers to get accustomed to the media. Learners should get the opportunity to look around freely and take in the spatial image, and be encouraged to look in all directions (which might mean to stand up and turn if using goggles; often, participants also need to be reminded to look up and down). This initial immersion and discovery phase should be followed by some cues such as the guiding questions suggested above. These make sure that learners do not get lost or overwhelmed by the image and instead have some guidance as to what they will be asked to talk about later. Learners could answer the guiding questions for themselves or take turns with a partner between looking and taking notes.

10 The 360° image can be accessed via: <https://www.thinglink.com/video/1476576812669599747> [19.04.2024].

...and reflecting on the media experience

same as above

How did you feel?

Did this picture seem more 'real' to you than the first ones? Why?

How does your perception of the place change?

How do your assumptions about the place (people you see) change?

Who took this picture and why?

Again, after working alone or with a partner, learners share their observations in a short group discussion. The main focus here is on the differences between the two forms of visual media. Most likely, some of the earlier assumptions about the represented place can now be rejected after viewing the 360° image. Additional information about the place can be collected. The discussion should then circle back to the form of the media: 'Why, if at all, did this image appear to be more real than the photos before?' After seeing the space captured in 360 degrees, it becomes more apparent that for the photos in the first step to be taken, the photographer must have specifically chosen this section of what they saw, a certain camera angle, etc. The reflection on the media experience should center around what was thought to be true about the depicted place in the conventional photos, and what additional information is available now.

Viewing a different 360° image

360° image on Google Street View

What do you (not) see here?

Can you spot the same details that you noticed in the first 360° image? Why? Why not?

How would the picture be different if it was captured at a different time of the day, week, or year?

What would you be able to see if you moved the camera?

In the next step, learners are given a third version of the image. In the material suggested in Nast and Höfler (2022), this is a *Google Street View* image of the same intersection in Leipzig-Connewitz.¹¹ The image is older than the first 360° image and the intersection looks very different, i. e., a lot of the elements apparent

11 On *Google Street View*, search for the corner of *Wolfgang-Heinze-Straße* and *Herderstraße* in Leipzig.

in the first image are not visible here, such as graffiti, store fronts, posters, and even buildings or construction sites. Given that *Google Maps* and *Google Street View* are mostly used as navigation tools rather than visual media, they can easily be misunderstood as neutral renditions of spatial reality. It is important to note and point out, therefore, that both of the 360° images are selective. They, too, can never convey a place exactly as it is, but rather as it was at a certain moment in time. It will become clear in comparison to the other images that every image, immersive as it may be, is still only a snapshot. Even in a wraparound view, a camera position still had to be chosen in order for the image to be taken. Since the camera in two different 360° images will rarely have been positioned in the exact same spot, it becomes clear that even a small difference in positioning will lead to large differences in the details visible in the shot.

Segue into the focus topic	
detail picture from the first 360° image ('Flasch-Back' sign); Website of the campaign <i>Pfand gehört daneben</i> ¹²	Sustainability, recycling, bottle deposit system (<i>Pfand</i> , transl. authors) Was this detail visible in the older Google Street View image? Why do you think that is? What else can we learn about this place by following visual clues?

During the comparison of the different images, learners were repeatedly asked to focus on, note, and describe objects or details that stuck out to them. In the case of the Leipzig-Connewitz material, these are likely to be graffiti, posters, or signs around the intersection. One of these is a sign reading 'Flasch-Back' that has been fixed to a street sign. The word play 'Flasch-Back' combines the English word flashback and the German word *Flasche* and refers to recycling empty bottles. Note that the 'Flasch-Back' sign is not only a reminder to recycle bottles, but more specifically, points to empty cans fixed to the same sign post. These suggest leaving your bottles for people to find and collect the deposit by returning them to a store. This refers to a well-known campaign called *Pfand gehört daneben*, which encourages people to leave empty bottles, which are worth up to 25 cents in the German deposit system, easily visible and accessible next to public trash cans (*daneben*) instead of throwing them in. By using additional materials such

12 "Deposit belongs next to it" (transl. authors) means that a bottle or can with a deposit should be placed next to the garbage can.

as the website <http://www.pfand-gehoert-daneben.de/> [19.04.2024], this detail can be used as an opener to a lesson on recycling, sustainability, and the German bottle deposit system. By following a clue from the image, the scenario follows an approach to the reconstruction of knowledge known from discourse analysis, where intertextual connections are an important tool. In addition, the connection between the compared images and the new topic let learners follow this process – or, if it is feasible for the teacher to include more clues from the learners' own observations, even participate in it. In the latter case, the same method of following intertextual clues can be applied to graffiti, signs, or construction sites and buildings, as described in Nast and Höfler (2022: 119).¹³

In summary, the methods of comparing different images and of using a connection from one of the images to the focus topic, the scenario conveys two central insights about visual media. Firstly, visual media can never fully represent (cultural) reality, but they can reveal what people might talk about at this intersection – and therefore what is culturally relevant. Secondly, every picture has a discursive context, a point of view and, most importantly, a specific form, which significantly contributes to its meaning.

Scenario 2. What Do YOU See?

- instructional goals: recognize and tolerate discourse plurality, express (wishes about) one's physical and/or one's discourse position
- instructional realization: putting learners in the center of 360° video, initiating and moderating classroom discourse about individual observations and interpretations
- instructional principles: authenticity and versatility of material, subject orientation, multi-perspective material, possibly problem orientation

The goal of the second scenario is the recognition of discourse plurality as well as of different perspectives and opinions in or on a discourse. According to the instructional principle of choosing multi-perspective texts from *Mitreden* (Altmayer et al. 2016), additional perspectives should always be added in the form of additional texts. However, it can be argued that in the case of 360° video, a relatively wide range of perspectives can be experienced within one text. Due to their specific characteristics, 360° videos in which different perspectives or

13 Differences and similarities of this approach with the sociolinguistic concept of Linguistic Landscapes cannot be discussed here for reasons of scope. For a discussion on the compatibility of the approaches, see Altmayer (2021) or Badstüber-Kizik and Schiedermaier (2021).

discourse positions become visible (*multi-perspective material*), afford the potential to achieve an awareness of multiple discourse positions: On the one hand, videos allow learners to observe a situation or action from a fixed point of view. However, each individual's gaze may be directed differently¹⁴ (Section 3.; *subject orientation*). Depending on the specific gaze direction chosen, viewers might see different aspects of the video and come to differing descriptions and interpretations of the depicted scenes. On the other hand, due to the immersion and realism of these videos in comparison to conventional videos (Section 3.; *authenticity and versatility of material*), they facilitate a change of perspective, i. e., putting oneself in the shoes of the observed persons or to adopt their positions, and to position oneself in the perceived situation. The subsequent exchange in the classroom about different positioning wishes – in the sense of content (discourse position) as well as space (physical position) – can in turn promote the recognition of the diversity of opinion, i. e., plurality of discourse (*problem orientation*).

This complex input can ensure that a number of meaning-making resources are needed in order to interpret the situation depicted and since these are inevitably only incompletely available to the learner, a number of questions are raised when trying to interpret and discuss the input. As a matter of course, in terms of discourse literacy, the instructional goal cannot be to provide and explain the necessary meaning-making resources in terms of a straightforward solution, but to make learners aware that they might not have the respective knowledge to make sense of everything they have seen. This also entails that learners recognize that other people do have this knowledge, while (for the time being) accepting and tolerating their own state of 'not-knowing'. Which in turn might arouse their curiosity about what they have seen in terms of discourses taking place in the target language. As Bachtsevanidis (2012: 126) writes: "Die Entwicklung einer Ambiguitätstoleranz, einer Toleranz der Zweideutigkeit oder des Ungewissen, soll immer wieder zu einem neuen Zugang des Verstehens führen".¹⁵

For this scenario, we recommend video material filmed in a public location with a diverse range people and groups present. We also suggest a time when multiple events may be occurring simultaneously, while the camera is positioned so that a range of people and incidents can be perceived (such as demonstrations

14 This could also be triggered by the setup of the video, since the starting gaze direction can be predetermined in many 360° software and students could be given differing gaze directions they are starting from.

15 "The development of a tolerance of ambiguity or of uncertainty should always lead to a new approach of understanding" (Bachtsevanidis 2012: 126; transl. authors).

with people with banners or public festivities). In this step-by-step description, we will use the video from Höfler (2020) as an example, since the study's results demonstrated its usefulness and applicability. The video depicts an *Ende Gelände* demonstration, as described above, where police and demonstrators are facing each other. The camera is positioned between the two groups so that an observation of the situation in different directions is possible – and indeed necessary –, since several things happen at the same time from different angles from the camera. It is therefore impossible to perceive all of these simultaneously. Consequently, it is essential that learners have prior experience with 360° media due to the high complexity of the material.

Implementation / Suggested Classroom Activities

Initial immersion	
still from the 360° video, VR goggles pen, paper, and optionally board or panel	What do you see? Where are you?

As stated by Ketzer-Nöltge and Magosch (2022), learners should be given the chance to 'arrive' in the depicted 360° space in order to avoid overstimulation and thereby give them the opportunity to actively make sense of the 360° material viewed. Here, we propose using a 360° still of the video and prompting learners to make use of the 360 degrees of gaze direction. Following this, it is sensible to let them (individually) note down first impressions of what they have seen, possibly collecting these centrally in a mind map.

Viewing of the 360° video	
short 360° video (as described above), VR goggles a worksheet for observations	What have you seen and experienced? What was interesting to you? How did you feel?

After individually watching the 360° video, which should encompass a maximum of five minutes, learners are asked to individually remember (make sense of) and note down what they have seen and experienced. This is important since every exchange with others might result in an unconscious reinterpretation of what has been observed and shift the individual's personal focus. Hence, each learner writes down what they have personally seen, what was especially interesting to them, etc. At this point, it is important to emphasize that everything is

noteworthy, that there is no right or wrong, and nothing is more or less important, so that learners write down everything that comes to mind. For this, we propose a worksheet with the following guiding questions which target different aspects / categories of what has been observed and interpreted:

- 1 – Place: Where do you think that you were?
- 2 – Objects, buildings: What did you see?
- 3 – People: Who did you see?
- 4 – Situation / actions: What did you observe? What took place in the video? Who did what?
- 5 – My own experience: How did you feel? What thoughts and emotions did you experience?

This can be supplemented by an open section for additional notes, in case something cannot be attributed to one of the categories.

Open exchange in pairs (or small groups)	
worksheet for observations highlighter, pen in different colors	What has your partner seen and experienced? What was interesting to them? How did they feel?

At this stage, individual experiences are complemented by that of other learners. Thus, students tell each other what they have seen, interpreted, and experienced by comparing notes on the categories named above. Together, they should highlight differences, i. e., whatever has not been noticed by both and what has been interpreted differently. Since this step is about making differences in perceptions and interpretations noticeable, it is paramount to make these visible, e. g., by writing down additional notes (of what the partner has seen) and highlighting in a different color.

Class discussion	
board or panel	What situations and actions did you observe? What do you think these situations and actions signify? What are the motives or reasons for people acting this way? What do you think happened before this situation?

Firstly, the discussion could start by collecting the learners' observations on a descriptive level: about the place, objects and buildings, and people (categories 1–3 above). The teacher moderates and guides students to stay away from obvious interpretations of the situations in this first phase of the group discussion. Secondly, progressing from this, students collectively try to describe in a few sentences what situations and actions they observed. Again, the teacher's task is to keep this on a mainly descriptive level. Aspects of the videos that have been noticed by only a few students should – by all means – be included here. From this collection, it is desirable that alternative descriptions emerge. Thirdly, students are invited to express their interpretations of the observed situations and actions (via the guiding questions above) and to pose questions about the situations, in order to make discernible what remains unclear. This serves to make students aware of what they interpret and what they do not know about the situation and actions taking place in the video. This step should therefore raise awareness for differing interpretations and diversity as well as missing meaning-making resources (German: *Deutungsressourcen*, cf. Altmayer et al. 2016). All collected observations and interpretations are written down on a board or panel to make them more visible.

Teaser or working on focus topic (optional)	
further excerpts from relevant discourse(s)	What would you like to know about the relevant discourse?

The teacher ends with a teaser about the time and place the video was taken in order to raise the learners' curiosity about the situation prompting them to follow up on their own. Alternatively, learners can enter a conversation on demonstrations or climate movements, in our example.

6. Summary and Outlook

In this paper, we have suggested that 360° media offer specific opportunities for engaging with knowledge in the language classroom. The characteristics of the photorealistic, spatial, and immersive media can be instrumentalized to allow learners to look closely at the information presented to them about a place (Scenario 1) and to become more aware of the knowledge resources needed to understand different discourse positions (Scenario 2).

As with many innovations integrated into (language) classrooms, professional development of teachers in this area is indispensable so that 360° media are not used as ornamental accessories and as a purely motivational means. The goal

must be the reflective use of media in order to pursue and achieve culture-related goals such as fostering discourse literacy – equally important alongside linguistic ones. The former can also be reached by addressing 360° media as a medium itself (cf. Nast / Ketzer-Nöltge 2023, see 3.). Overall, we positioned our scenarios within cultural learning and discourse literacy, building upon suggestions and approaches (cf. Altmayer et al. 2016, Zabel 2022). In this context, it will be interesting to see whether the usage of 360° media as proposed in the scenarios above will also lead to a substantial change in tasks.

Discussions on the use of visual media in the (foreign language) classroom and discourse literacy often include the productive use of visuals by learners themselves, e. g., taking photographs, drawing or painting, or creating their own visual narratives such as cartoons or comics. Technically, this is also possible with 360° media. Again, producing computer-generated VR worlds in the classroom might require unreasonable amounts of computing power and other resources. The production of 360° photographs can, in theory, be achieved with a standard smartphone. However, there are certain restrictions to these possibilities depending on the available software at any given moment (*Google*, for example, has recently discontinued respective apps; alternative software is pricy, e. g., *AR2VR*). But, as stated above, affordable 360° cameras are available and could be part of a broader concept for fostering media literacy via media rooms or *Maker Spaces* of schools or universities.

Overall, in this paper, we have put forward two scenarios for integrating 360° media in the language classroom and respective textbooks with the goal of furthering discourse literacy. While these were based on empirical studies and our own observations, it remains clear that this is an area in need of further empirical and practical exploration. Simultaneously, it became clear that it is an area worthy of attention and investigation.

Furthermore, the integration of 360° media in digital textbooks – or rather interactive teaching and learning platforms (as proposed by Ketzer-Nöltge / Würffel in this volume) – should be easy on a technical level as students and teachers are already navigating the digital realm via smartphones on a daily basis. Also, as stated above, the scenarios proposed here are not necessarily linked to specific units or topics but can be connected to these, depending on the content of the 360° recordings.¹⁶ However, what we suggest here is mainly and foremost based on a change in instructional goals pursued in teaching and

16 The specific content – in our opinion – is interchangeable as long as the desirable properties of the media are fulfilled, as we described above.

learning materials, positioning discourse literacy as one of the overarching goals. Nonetheless, the integration of scenarios as described here would be much easier if textbooks were constructed modularly and did not adhere to a linear structure (e. g., Barkowski et al. 1980: 72; cited in Rösler / Schart 2016).

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Natallia Baliuk

Go social! Why Textbook 4.0 Should Implement Social Networking Sites and What It Has to Offer for Language Teaching and Learning

Abstract: This article outlines the possibilities of social networking sites (SNSs) in language learning. The author explores the use of SNSs for communication in formal and informal learning contexts. She then reflects on how the new generation of textbooks might effectively use SNSs. In the end, she discusses what should be considered when implementing SNSs in new foreign language textbooks.

Keywords: social network, social network sites, foreign language learning, digital textbook, communication

1. Introduction

Social networks have become an important part of our lives: They play a significant role in cultural, political, economic, and of course educational areas. They change the way we communicate with each other and how we learn. In the past, we got our knowledge from teachers and textbooks at school. We could learn from our close peers, neighbors, friends, or mass media such as newspapers or films. Now, not only do we have countless opportunities to directly connect with and learn from people we do not even know personally anywhere and anytime but we can produce and share our knowledge with everybody interested (Dede 2016, Palfrey 2016).

This trend has even created new professions, for example, influencers. While their original purpose was to promote or recommend potential products to buy, their job has evolved and today encompasses a wide range of content creation. Educational influencers combine knowledge transfer with marketing, with some of them being active in the field of foreign language learning (Carpenter et al. 2022). Of course, in this very commercialised context, the underlying marketing and monetization purposes might interfere with knowledge transfer. Still, research from GlobalWebIndex shows that even though keeping in touch with friends and family is still the main reason for the use of social networking sites such as *Facebook*, *Instagram*, *Twitter*, or *TikTok*, sharing photos or videos, finding entertainment, and keeping up to date with news and the world are also important for

users (GWI 2021). While people are using social networks to get in touch with others and have fun, learning something new is also part of their motivation.

Because of their communicative orientation, social networking sites (SNSs) are particularly interesting for communicative and intercultural approaches to foreign language learning (Doff 2020, Reimann 2020). Social networks can enable direct exchange between different actors and by doing so, induce users to take on another perspective. They may also facilitate participation in different discourses in the target country.

Which possibilities SNSs offer in this area, what current developments can be observed, and how social networks can be implemented in Textbook 4.0 will be discussed and critically examined in the following.

2. How Communicative Are Interactive Language Learning Textbooks?

Before discussing social networks as a potential part of Textbook 4.0, it is worth reviewing the current state of the development of digital textbooks for foreign language learning. Over 15 years ago, Dietmar Rösler (2008) tried to describe probable future scenarios in the field of German as a Foreign Language learning with digital media. He based his considerations on the communicative approach whose goal is to give the learners more room for self-directed content determination and communication intentions in contrast to foreign language teaching determined by teachers and lesson plans. In this context, digital media are supposed to offer numerous possibilities for language learning, especially to minimize the problem of the artificiality of communication in the classroom. Concerning the development of textbooks, the optimistic vision here was that the use of digital media would lead to a strong qualitative improvement of textbooks. For example, 'a textbook on demand' would become common practice, i. e., a database-based learning product for specific target groups would replace the uniform textbook. A pessimistic version, on the other hand, was that digital media would be primarily used to make profits and drive down production costs, for example by switching to digital distribution formats that would eliminate the need for printing and transportation.

Since Rösler's considerations, textbooks have evolved in various aspects. Today, it is hard to find a textbook for foreign language learning that does not have at least some digital aspects. Some publishers even go one step further and offer digital textbooks or so-called interactive textbooks (e. g., *Das Leben, Momente*), which are marketed as books with an integrated interactive version.¹

1 <https://www.hueber.de/digitale-lehrwerke/hueber-interaktiv/iv> [10.04.2024]

However, comparing them with their paper counterparts², it becomes obvious that interactive textbooks often are just digitized versions of the corresponding paper textbooks. In many cases, the original tasks are simply transferred to a digital format without fully exploiting the potential of digital media. For example, a picture story from the paper textbook is provided as a video with audio, but it is only a combination of static pictures with very simple sound. The advantages of the audiovisual medium for foreign language learning are not exploited here. With a proper video, learners can get support for listening comprehension through video based on facial expressions, gestures, and movements, which is not possible in a slideshow (Lütge 2020).

Digital learning media of this kind can be categorized under the label of ‘simple digitisation’, where the focus is on the mere use of digital media, and not on their didactic added value. This contradicts the basic principle of media didactics (Kerres 2018: 118). The content is digitized in the simplest possible way, even if this does not result in any didactic advantages.

In terms of promoting different language competencies, the exemplary analysis of interactive textbooks (*Das Leben, Momente, Netzwerk neu*) shows that the use of digital media here focuses primarily on vocabulary and grammar practice as well as listening comprehension. The focus lies on the user-friendly layout and automation of exercises. For example, teachers and learners no longer need to search for a specific audio file on a disc but have it linked directly (e. g., *Netzwerk neu A1.1 – Media Bundle*). Learners no longer need to check the correctness of their answers in the task keys but get an automated evaluation (e. g., *Das Leben B1, Interaktive Übungen als Ergänzung zum Kurs- und Übungsbuch*). A positive aspect of this form of digitization is the availability of explanatory videos, which are used to present vocabulary, important idioms, and grammatical rules, so that learners can always get support when needed (e. g., *Momente A2.1, Kursbuch*). This development makes foreign language teaching more efficient by facilitating and optimizing learning processes.

In contrast, the development of oral and written communication remains rather traditional. Thus, despite the name, interactive textbooks do not enable digitally supported interaction in the sense of communication but exclusively refer to the concept of interactivity. This means that interactive textbooks enable “a reciprocal activity between a learner and a multimedia learning system, in

2 This analysis refers to the information provided by the publishers *Cornelsen, Hueber* and *Klett Sprachen* on their websites and an exemplary analysis of the indicated textbooks: *Das Leben, Momente, Netzwerk neu*.

which the (re)action of the learner is dependent upon the (re)actions of the system and vice versa” (Domagk et al. 2010: 1025). Accordingly, interactive textbooks should be enhanced with technological options for intervention and control as well as system-generated feedback. Users can modify and adapt program sequences and check user-generated inputs (Jones et al. 2016: 20 f.).

In the area of communication, however, the use of digital media in interactive textbooks is limited. According to the provided description of textbooks, communication should still take place in the classroom, e. g., “the tasks on the action pages enable real communication in the classroom and offer action-oriented tasks in the areas of speaking and writing.”³ The advantages of digital media, such as the possibility of communication with target language speakers as well as the participation in the discourse of the target language independent from time and place (e. g., Brocca 2020), are not exploited here. As a result, textbook-based communication in the classroom is considered authentic and the artificiality of foreign language learning remains.

An easy conclusion at this point would be that we are experiencing a pessimistic perspective of digital media use according to Rösler (2008) which uses digitization to rationalize production and distribution and uses the ‘digital’ label for marketing purposes to win over tech-oriented consumers. At the same time, it is important to realize that the described situation presented here is only a snapshot and that digital textbooks are constantly evolving. An optimistic vision at this point would be that new textbooks would be designed digitally from the beginning and benefit from the added value of digital media for efficient language acquisition in the sense of the communicative approach, instead of digitized versions of already existing textbooks.

Currently, in the field of communication in foreign language learning, many new ideas are emerging for the use of new technologies such as AI-assisted offerings (e. g., Hartmann 2021) or Virtual Reality (e. g., Steinbock et al. 2022), which cannot be fully implemented in digital textbooks because they first have to be further developed. However, other digital media have been around for a long time, such as social networking sites or social networks. They effectively enable communication and networking and are used daily by a wide audience. Despite this, they have not received much attention in textbooks and conventional foreign language teaching.

3 <https://www.hueber.de/momente/entdecken> [10.04.2024].

3. Social Network Sites and Social Media

The popularity of social networks (SNSs) has increased dramatically in the last few years. In January 2022, the number of social network users was around 4.62 billion, 10 % more than in the previous year. In the ranking of the world's largest social networks and messengers, Facebook remains in first place with around 2.91 billion monthly active users. Followed closely by YouTube in second place with around 2.56 billion users, while the third place went to the messaging service WhatsApp with two billion users worldwide (Statista 2022).

Despite the popularity of social networks, it is difficult to find a common definition of them in the research literature. Grünewald (2016 : 463) offers a simple definition of SNSs as online communities “in which users who are connected to each other on the internet via certain platforms can interact.” However, such a definition is very reduced because it does not show a strong differentiation from other digital media and does not name any unique and distinctive features of SNSs. Boyd and Ellison (2008) take a step further and summarize the main functions and characteristics of SNSs. According to them, SNSs allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system (Boyd / Ellison 2008: 211). Thus, SNSs mainly serve self-presentation through a personal profile and networking activities such as communication. The nature of these connections can be very different and not always emotionally positive. With the rapid expansion of the networks and the still strong anonymity, SNSs are not only places to experience a sense of belonging to a friendly community but they are also characterized by hate comments and cyberbullying (e. g., Chetty / Alathur 2018).

In public and academic discourse (e. g., Obar / Widman 2017) the term social media is also used as a synonym for SNS, although social media is a generic concept that includes different categories of applications with different functions. The scientific literature has several definitions, but social media “usually refers to any application or technology through which users participate in, create, and share media resources and practices with other users by means of digital networking” (Reinhardt 2019: 3 f.). Thus, social media are characterized by openness, communication, collaboration, and networking as well as the production, reuse, and sharing of digital content.

In this way, social media is a collective term for a wide range of heterogeneous applications including SNSs, although the distinctions between these categories are not easy to define. There have been several attempts to determine the functions and categories of social media accordingly. Conole and Alevizou (2010) provide a very detailed typology and distinguish ten categories: media sharing, media manipulation and mashups, instant messaging, chat and conversational arenas, online games and virtual worlds, social networking, blogging, social bookmarking, recommendation systems, wikis, and collaborative editing tools, and finally, syndication. However, if we analyze the functions of SNSs, they show many overlaps with other categories. For example, *Instagram* can fulfill the function of media sharing (e. g., photos), media manipulation (e. g., through influencers), instant messaging (e. g., comments and direct messages), or recommendation systems (e. g., targeted marketing).

For this reason, a global difference between social media and SNSs should be based on their leading function. Lomicka and Lord (2016: 255) offer such a simple systematisation by distinguishing between social media with a primary focus on creating and transmitting information to others (e. g., wikis, microblogging, forums) and social applications that are usually used for building and maintaining a digital identity which includes personal content sharing, connection with others, engagement, and building of digital communities (e. g., social networks). Considering this discussion the definition according to the main function is used in this article to create a common basis for a didactic discussion of SNSs in this field.

Furthermore, an up-to-date determination of other extra functions for every single SNS is not always easy because of the fast pace of the SNS market. First, social media applications are increasingly integrated into SNS interfaces or enhanced with SNS features, and vice versa (Reinhardt 2019: 4). Second, social networks are developing very quickly and continuously include new features, making their description and classification more difficult. In the beginning, almost every popular SNS was unique in its functionality, for example, *Snapchat* was only used to send time-limited posts, *Instagram* to post pictures, and *TikTok* to share short videos. Now all these formerly unique features can also be found on *Instagram*.

Besides, another function of SNSs that has developed over time is finding and learning new information (GWI 2021). As a result of this, language learning on social media outside of educational institutions is also becoming more important (Greenhow / Lewin 2019: 12). Language learners can learn more and more independently of the classroom, textbook, and teacher.

4. (In)formal Language Learning and Social Networks

On all popular social networks, you can find channels that support learning a foreign language, for example through explanatory videos.⁴ Users can also combine entertainment with foreign language learning by watching short, funny, or informative videos about the target country.⁵ This trend shows that more and more people discover “informal language learning that takes place in digital spaces, communities, and networks that are independent of formal instructional contexts” (Sauro / Zourou 2017 : 186). It means that learning takes place in the digital wilds (Sauro / Zourou 2019: 2), in digital contexts that are not constructed for language learning and are not aligned in any way with curriculum guidelines or textbooks. Their primary goal is to support and engage in social activity, such as communication, by offering interesting impulses for intercultural exchange and collective knowledge building. People participate in communication in another language because they want to include their knowledge or experiences in discussion and learn something new. Language learning is not always a primary goal here but a requirement for participation (e. g., Q&A on different topics like travel experience, sport, or nutrition).

Meanwhile, SNSs have become integrated into the everyday life of many language learners, and learning has merged with leisure activities (Kukuska-Hulme et al. 2017). But despite this trend and an intensive scientific discussion, formal language learning institutions and publishing houses hesitate to acknowledge and include SNSs in their teaching process and new textbooks (Dede 2016: 95, Meskill / Quah 2012: 40–41). This could happen because of new challenges,

since classroom pedagogy implies careful planning, while [learning] outside of class exposes language learners to the unexpected: linguistically challenging situations that could not be predicted, chance encounters with online resources and apps, offers of informal connections to target language speakers all over the world. (Kukuska-Hulme et al. 2017: 218–219)

Institutional foreign language teaching is still very much oriented towards the textbook and a learner group who, regardless of their potential heterogeneity, still aim for the same language level, work on the same tasks, and are guided and controlled by the teacher. Informal learning, on the other hand, is usually

4 For examples see: <https://www.youtube.com/@DeinSprachcoach> [10.04.2024] or <https://www.youtube.com/@BenjaminDerDeutschlehrer> [10.04.2024].

5 Examples are: @learn_german_with_videos (Instagram) [10.12.2023]; @goetheinstitut.deutsch (TikTok) [10.04.2024].

not didactically prepared and does not happen according to a curriculum, but spontaneously. Learners are confronted with challenges that they may not yet be able to cope with. For example, if they have a small vocabulary and have not yet developed appropriate learning strategies to compensate for this deficit, it could be difficult and frustrating for them to participate in a discussion on an equal level with others. In summary, language learning in informal contexts such as SNSs is primarily associated with unstructured, and mostly accidental learning while formal learning is perceived as planned and structured (Europäische Kommission 2001: 33).

Würffel (2020: 225) points out the problem with this conception because non-intentional learning can occur in both formal and informal contexts. In general, dichotomies between formal and informal learning are “porous and slippery” due to the complexity of their interrelatedness (Greenhow / Lewin 2019: 9). In addition, Colley et al. (2003) describe this separation as impossible and unhelpful for the modern teaching and learning context. They find it more effective to define attributes of formality and informality for all learning situations. In their framework, every learning situation can be described with a focus on purpose (intentional/unintentional), process (structure, support, etc.), location (including norms and structures in educational institutions), and content (school knowledge to leisure interests). In recent academic debates, many authors also do not problematize the terms formal and informal in relation to learning with SNSs at all. They instead focus on a more holistic understanding of learning and more fluid transitions between both formats (e. g., Greenhow / Lewin 2019, Lai et al. 2013). This understanding theoretically opens up new options for institutional foreign language learning and makes it possible to include traditionally informal learning formats in teaching. In practice, bringing formal and informal learning formats together is complicated by existing didactic traditions, where the outcomes of informal learning are usually not integrated or recognized in the institutional context (Würffel 2020: 227).

The textbook as the leading medium of language teaching can play a crucial role in merging traditionally formal and informal formats. This can happen by including learning activities in a multiplicity of real-world settings like SNSs. Publishers are already using SNSs, but mainly as distributors to introduce new textbooks and explain their concepts to support teachers with different tips.⁶ For learners, as already mentioned, mainly explanatory videos and images are

6 For examples see <https://www.youtube.com/user/CornelsenVerlag> [10.04.2024] or <https://www.instagram.com/hueber.verlag/?hl=de> [10.04.2024].

offered in the area of grammar and vocabulary. This is a very good start but social networks have much more to offer because of their communicative and networking facilities.

5. Open and Special SNSs: Advantages and Disadvantages for Foreign Language Learning

So far, this article has focused on the discussion about open networks (e. g., *Instagram* and *YouTube*), which were not created specifically for language learning. However, nowadays there exist special networks for these purposes and namely special social networking sites for language learning (SNSLL). Theoretically, they are organized like learning communities, where language learners can connect, ask questions, participate in discussions, and share resources (Li 2016: 218). On closer inspection, some actual SNSLL turn out to be learning platforms that connect learners from only one or several of language schools, including language courses, and offer teacher feedback and guidance for extra pay (e. g., *Italki*, *Lingualia*). Others are mainly used as language exchange apps in the sense of e-tandems, where learners are usually paired based on common interests and goals (e. g., *Speaky*, *HiNative*). So, regardless of the name, they often do not fully correspond to the characteristics of a social network, because their primary goal is to offer more or less formal learning environments and not primarily to create open structures for networking and interaction.

Both open SNSs and SNSLL have some advantages and disadvantages for foreign language learning. The wider personal exposure and sharing of personal interests on open SNSs can help improve group dynamics and positively influence cooperation and communication (Brocca 2020: 12). Learners can learn more interest-based and have many opportunities to network with a large number of people. Li (2013) investigates this aspect and concludes that language learners do not hesitate to reveal information about themselves and their identities in SNSs. They showed their real names and faces instead of icons and fake names to hide their identity. On the flip side, written online discussions also allow learners who hesitate to participate in class activities to communicate in a foreign language because of the possible anonymity (Cerdà / Planas 2011). Zheng and Barrot (2022) use SNS for practicing oral presentations and show that the use of SNS increases the speaking performance of students and helps them reflect on their communication skills. Interestingly, students pointed out that the main reason for this improvement was the high visibility of their speaking performances because they were viewed by people beyond their classroom. However, it should be noted that different learners respond differently to the

potential of public writing. This kind of publicity can also be intimidating for some learners who prefer communication in more limited and safe spaces like SNSLL (Würffel 2020: 227).

While the openness of SNSs is one of their strengths, they are also connected to their main concern. Data security, personal privacy, and safety are an issue, especially when minors are concerned. There are many concerns about what information is shared online with whom and where this data is stored. Social science studies show that young people care about their digital identity and reputation, but they do not have enough knowledge and skills to protect their privacy and avoid dangers (e. g., cyberbullying) – even when they spend hours on social media every day (Palfrey 2016: 113–114). This circumstance should be taken seriously when using SNSs for foreign language learning and be considered in the development of new textbooks. It should not be left to the learners themselves.

Despite these security issues, open SNSs can help merge formal and informal language learning and integrate daily social interaction in the learning process and vice versa (Brocca 2020: 14). In this way, foreign language learning can be sustainably implemented in the everyday life of the learners in the context of lifelong learning (European Commission 2018). Greenhow (2011) points out that closed social networks (e. g., SNSLL) are not very effective for establishing long-term relationships between learners due to their relatively small size. In contrast, open SNSs, where communication can be based on a larger community, lead to longer-lasting relationships. Cerdà and Planas (2011) also use the example of *Facebook* to show that SNS can help foreign language learners make the transition from formal and time-limited foreign language learning to informal lifelong learning. Blattner and Fiori (2009) confirm that communication on *Facebook* helps to develop long-lasting relationships with native speakers with similar interests. All of this speaks for using open SNSs for foreign language learning in formal contexts to improve the sustainability of language learning.

6. Didactic Opportunities and Challenges of Using Open SNSs in the Communicative Approach

Speaking of didactic concepts, open SNSs as a communication medium fit very well into the framework of the communicative approach. In foreign language teaching, the development of productive communicative competence with the inclusion of diverse, realistic topics, situations, and text types is a top priority (KMK 2016). Thus, learners should not only gain insights into different areas of the target country, such as society, politics, economy, and culture but also

be confronted with real-life tasks in the sense of action orientation, which they should be able to handle through language. In such cases SNSs “open the classroom to real-world challenges, motivating learners to apply their knowledge to real communicative settings” (Brocca 2020: 16). SNSs offer many authentic materials and opportunities to get in touch with native speakers and actual discourses and culture of the L2 countries. In terms of learner orientation, open SNSs include a wide variety of topics that can be followed according to interest. Open SNSs can also be more motivating than SNSLL because they combine social interaction with information sharing and educate through entertainment (Balkin / Sonnevend 2016: 22). In this way, students can playfully develop their foreign language skills.

At this point, it should be noted that the successfully dealing with real-life task language situations in online communities could also be difficult and problematic for language learners. It can be hard to understand the differences between facts and opinions or recognize fake news because learners have to deal with a foreign language at the same time. Nevertheless, this circumstance could be used for the development of critical literacy, so learners can process content on social media with confidence. They must be able to analyze, compare, and critically evaluate the credibility and reliability of the information on social media (Redecker / Punie 2017: 48). Ruan (2013) shows in the example of *Tencent QQ*, a popular Chinese SNS, that SNSs could be “a conducive learning environment for developing critical literacy and encouraged deep content-based discussions on the subject matter.” (Zheng / Barrot 2022: 3). In this project, learners engaged in discussions about various topics (e. g., politics, education, technology) in interest based QQ groups using self-selected texts and sources. As a result, they considered QQ a good place for interesting discussions and the exchange of ideas in a foreign language. Nonetheless, this can be overwhelming, especially in informal learning formats, where learners cannot get guidance and support from teachers.

Another challenge is that the language used on SNSs is quite different from the standards in foreign language teaching. SNSs enable multimodal conversations: People can write, speak (e. g., voice messages) as well as send and receive images. There is no need to interact in one mode, it is possible to answer a written sentence with a picture, emoji, GIF, or voice message, for example. SNSs also include very specific interactional functions. As an example, users can mention other people in their posts or comments to draw their attention to something by tagging them, often using the ‘@’ symbol. They can use hashtags to categorize posts as part of a larger online discourse to reach a bigger audience or assist in the meaning-making process, e. g., by providing the picture with a hashtag to send a message to the receiver. Hashtags also serve as discourse markers and help

users to be a part of a movement or topic (e. g., Mueller et al. 2021). Using memes (humorous images and videos) for reactions and emotions, users participate in a collective cultural experience and identify themselves with members of some group (e. g., *Star Wars* fans). People react not only with comments but by reposting, too. In this way, they show support for people, agreement with their ideas, or affinity for particular opinions (social reposting). They might also pass along the content to inform others (informational reposting; Gleason 2019: 37–42). People use other visual elements like pictures, videos, stickers, GIFs, or emojis instead of words to react, connect or express their emotions (Dürscheid 2020: 39). However, this type of communication is not accepted in formal language learning and textbooks. Here, learning grammatical structures of the standard language plays an important role, so learners, especially at the beginning of language learning, are instructed to ask questions and answer in full sentences, although this is rather unnatural for normal conversation, especially in online spaces.

For this reason, dealing with the sociolinguistic phenomenon of net-specific communication in the foreign language classroom can be helpful to prepare learners for real online communication (Grünewald 2016: 465). Texts in social media often do not comply with the norms of traditional text quality such as orthographic and grammatical norms, semantic coherence, and pragmatic adequacy (Abel / Glaznieks 2020: 55). Punctuation also takes on new tasks here, not only structuring texts syntactically but also expressing emotions (e. g., points of omission ‘...’ at the end of the sentence as an indication that one is not sure and that the matter is still to be discussed). Punctuation is also dependent on different conventions in different communities of languages, not to mention the individual writing style of the author (Androutsopoulos 2020). Summarized, online communication tends to be more interaction-oriented, which means that the speed of the response and the related building of relationships can play a more important role than linguistic correctness and elaborateness (Abel / Glaznieks 2020: 55). In this way, online communication fits the concept of communicative competence, where understanding and the possibility of communicating with each other is more important than language accuracy. Nonetheless, it must also be noted that such language use is considered inappropriate in many other contexts, about which learners need to be largely made aware, which can be done, for example, by analyzing and reflecting on language use in SNSs. Understanding the information online can be also difficult for new learners because of the specific language used, e. g., slang or everyday language, which can be very different from the language taught in textbooks. In this context, learners need certain language strategies (e. g., asking questions or using the integrated translation function) to manage the complexity of the free use of language.

Compared to the communicative formats in classrooms, language learners can respond and communicate in very different ways on SNSs using words, emojis, or pictures. They do not have to build correct grammatical structures to participate in conversations and be understood by others. This multimodal way of communicating can be very productive and allows even beginners to participate in communication but is usually banned from textbooks and considered incorrect or insufficient. This is inconsistent because according to the communicative approach, learners should be empowered for everyday communication and social media is a big part of it. We communicate by switching from typed words to voice messaging, pictures, and emojis and vice versa. And while SNSs were rather text- and picture-based in the last 20 years, audio and video communication are becoming more popular (Dürscheid 2020: 47). In the standard foreign language class, a textbook that includes mixed forms of communication usually has no place. Learners either write or speak without mixing different formats.

Another special feature of SNSs is that writing and speaking are very similar because while written texts use a written medium, they are conceptually more oral. This means that users usually write as they speak (Beißwenger 2020, Dürscheid 2003). However, compared to real-time speaking, they have more time and possibilities to prepare their answer (Meskill / Quah 2012: 49). That means asynchronous communication on social media can help students to defeat nervousness and gain self-confidence while engaging in discussions. They have more time to consider their comments, look up unknown words or needed information, or use an online translator.

Unfortunately, these changes in communication are often seen as a negative rather than an enrichment of language learning. Authors of textbooks should consider that this transformation is already a reality and leads to a new communication culture, where people can compose thoughtful answers to questions by strangers worldwide (Reshef 2016: 191). There is always somebody to talk to about topics that are interesting and important for language learners. Following the communicative approach, students can find a variety of topics, text types, and real-life tasks on SNSs (Höfler 2017: 147). They do not have to wait for a lesson or speak with an imaginary person from the textbook, but they can do it in their own time and build and maintain real relationships while learning a foreign language with real people (Lomicka / Lord 2016: 256). Gonulal (2019) shows in his research that communication on *Instagram* can be an effortless way to improve overall communication skills because it provides learners with opportunities to interact and socialize with other learners or target language speakers. This way SNSs can also personalize learning. Students can pursue their

interests and engage in a topic together with others, often in interdisciplinary ways (Dede 2016: 109). By using a foreign language to learn new information, language learning can be connected with other hobbies and interests and leads to lifelong learning. Communication on SNSs allows learners to participate in actual discourse and develop their intercultural competence by getting fundamental insights into important topics such as the politics, society, or cultural life of the target country (Höfler 2017: 149, Reinhardt 2019: 7). Nevertheless, it must be noted at this point that not all learners may consider this blend of school learning time, including homework and free time to be positive. Regardless of all the possibilities of SNSs for communication in a foreign language, it remains unclear whether learners are open to this and interested in removing the boundaries between their private and school lives for this very purpose. In any case, this still needs to be researched and tested in practice.

SNSs can also help develop sociopragmatic competence, the ability to use language appropriately in specific social situations by analyzing language use (e. g., salutation types, use of pronouns, or colloquial vocabulary). This analysis can enhance the awareness of important sociopragmatic elements of the target language and help make language use more authentic for different contexts or enables the student to better understand contextual language use (Höfler 2017, Lomika / Lord 2016). SNSs can also encourage multilingualism by offering participation in multilingual and multicultural online practices (Lam / Rosario-Ramos 2009). In her study on translanguaging, Dumrukcić (2020) shows that the use of different languages on SNSs changes the perception of language normativity. Learners find it easier to express themselves if they can use multiple languages in the same interaction. They can switch to another language when they have difficulties and can still be understood. However, little research has been done on how positively such language use influences the acquisition of the target language and how exactly multilingualism should be handled in the foreign language classroom.

In sum, the implementation of open SNSs in language learning or particularly in textbooks exposes significant didactic challenges. Nonetheless, the opportunities can be significant, especially in the context of the communicative approach and the merging of formal and informal learning. Thus, communication on SNSs can provide a meaningful learning experience, help to develop learner autonomy, critical thinking, and their ability to experiment with a new language as well as the learner's digital identity (Lomicka / Lord 2016: 260, Reinhardt 2019: 8). It can be challenging but motivating to understand others and express one's thoughts with a limited language repertoire (Rösler 2020: 609–610).

7. Implications for Textbook 4.0: Communication on SNSs

The review of the research on SNSs about communication shows that implementing SNSs in Textbook 4.0 could open several possibilities for authentic (a)synchronous interaction, participation in actual discourses, learner orientation and promotion of learning strategies, and motivate learners to integrate foreign language learning into their everyday life in the sense of action orientation and lifelong learning. To encourage this process, textbooks, tasks, and activities should be more learner-oriented and flexible. Textbook authors should accept that communication on social media may be inconsistent and produce other results than expected – but this is the same in real life.

Based on the considerations in this article, textbooks can offer different tasks in the area of communication using SNSs. As described above, digital media are already actively used in textbooks to optimize grammar and vocabulary tasks. Thus, typical tasks for oral and written communication can be supplemented or replaced by the use of SNSs where authentic communication and participation in current discourse would be enriching and purposeful. In these cases, SNSs can replace some text types in textbooks that would benefit from the actuality of information (e. g., news) or an orientation towards learners' interests. As an example, content from SNSs (e. g., news channels) can be used as a talking point to activate learners or even as a basis for discussion. In this case, instead of offering one or more selected texts, the textbook guides learners in their information research on SNSs and helps them choose and understand necessary and interesting information. In this case, however, learners should be able to receive differential support in case of language difficulties, if necessary.

Learners can also be challenged by tasks to share and discuss different topics on SNSs, e. g., by learners searching for a specific hashtag, engaging with the discourse, and expressing their opinion online. Learners can communicate multimodally and also participate in the discussion by liking posts or comments they agree with. Learners can experience real-life action situations, for example, by negotiating the purchase of an item on a marketplace on Facebook or asking questions about travel in the Q&A sessions of travel influencers.

Textbook 4.0 can motivate learners to find profiles and channels in the target language on SNSs that match the learners' personal interests and prompt them to communicate through targeted tasks. For example, using news channels on SNSs learners can learn strategies for recognizing fake news, critically perceiving content, taking a position on current developments in the world, and exchanging ideas with others. Another possibility can be the creation of an own channel as a platform for exchange on relevant or personal topics, also interculturally and

multilingually, e. g., by documenting an exchange year in the target country and reflecting on different experiences, teachings, and learning traditions. The inclusion of career-relevant topics is also conceivable. For example, learners can be supported in study preparation in the selection of the target university by being guided on how they can get into contact with alumni or current students on SNSs (also in communities), contact universities or lecturers, and decide based on this exchange.

In this case, learners use the target language not only to practice but to learn and communicate with others. Such tasks can also be used to strengthen learners' multilingualism by allowing them to communicate using different languages, where it seems helpful or appropriate. To ensure that learners are not overwhelmed in the pursuit of individualization and differentiation, Textbook 4.0 can also offer alternative ways to accomplish the task, with or without SNSs.

However, an important requirement for the general implementation of SNSs must be to connect foreign language learning with the development of necessary digital competencies (e. g., critical media literacy and data protection) and language learning strategies. Fundamentally, Textbook 4.0 can help learners to engage safely and consciously in the digital wilds. Currently, SNSs are addressed as content in some textbooks. This can be combined with teaching the necessary cognitive and digital competencies around using SNSs for language learning at the same time. For example, Textbook 4.0 can prepare learners linguistically for the challenges of SNSs (e. g., specific language use) and provide guidance in dealing with cyberbullying. This is also closely related to the development of critical media competence, so learners are empowered to critically evaluate content online. In addition, teaching cognitive language strategies can help learners to participate in communication online without (major) problems. This could include, for example, the use of online dictionaries and translators that are already implemented on some SNSs (e. g., Instagram).

In summary, the use of SNSs in Textbook 4.0 appears useful in learning contexts that involve learner-centered, interest-based communication in real-world L2 discourse, where learners can be themselves, with their own interests and opinions.

8. Conclusion and Outlook

This article focused on the potentials of SNSs for Textbook 4.0, such as observation of and participation in genuine situated language use, collaboration on and co-creation of knowledge with others. Unfortunately, these positive effects do not follow automatically but rely on the carefully designed implementation of

SNSs in new digital textbooks, so students can learn to use them properly and be aware of their possibilities and risks. To achieve this, teaching and learning traditions relying on formal learning in classrooms should be rethought. This could start with the inclusion of tasks that require participating in multimodal and multicultural communication on SNSs and that motivate and empower learners to communicate in digital environments.

However, there are several fundamental questions about the use of SNSs for language learning in more formal contexts. For example, it is unclear whether the described dangers and obstacles of open online communication spaces can be overcome by making SNSs a part of the textbook. An even more important question is whether learners will accept and find this implementation meaningful. Although social media are omnipresent in our everyday lives and learners actively use them privately, this does not mean that they are willing to use them in the classroom at all. Do learners have an open mind about it, and can Textbook 4.0 as the guiding medium bring these two worlds, private online life, and foreign language learning at an institution, together? Numerous channels and communities on SNSs for foreign language learning suggest that foreign language learning on SNSs is possible, but whether these formats can also be used by Textbook 4.0. needs to be examined further.

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Part III: Hands-on Experiences – Developing Progressive Teaching and Learning Materials

Julia Wolbergs / Mihaela Markovic / Lisa Höfler

Mitreden im StudentXChange: OER Teaching Material 4.0 in the Context of German-Chinese School Exchange

Abstract: A study from the Mercator Institute for China Studies states that school subjects such as geography, economics, and history in Germany rarely cover China. The fostering of activities in German schools around China as a topic is stagnating. The study concludes that this is partly due to a shortage of modern teaching material (Stephan et al. 2018: 9). The third-party funded project *Mitreden im StudentXChange* aimed at providing learning material for German and Chinese high school students used in the preparation of the school exchange. The material is a joint collection for German-speaking students from different school types in preparation for a stay in China and Chinese-speaking students also from different school types in preparation for a stay in Germany. The present chapter has an exploratory approach and focuses on the presentation of challenges and solutions that arose during the development and evaluation of the OER digital learning materials for German and Chinese students.

Keywords: Open Educational Resources (OER), Education 4.0, School Exchange, Virtual Exchange (VE)

1. Introduction

The lack of adequate teaching material about Germany in China and vice versa (Stephan et al. 2018: 9) is being countered in many ways, for example, through dedicated teachers of Chinese in Germany who exchange suitable worksheets via various (online) platforms. Likewise, materials on China for German schools are being produced by the China-Schul-Akademie¹ at the University of Heidelberg. The deficit was also the motivator for *Mitreden im StudentXChange*² focusing

1 The project China-Schul-Akademie can be found here: <https://www.china-schul-akademie.de/> [14.04.2024].

2 The German word *mitreden* can be translated to “join a conversation” or “have a say”. In this project it is used to emphasize the aspect of multi-perspective learning and the superordinate learning objective of students engaging with each other over and within the presented Discourses. The material is created by Julia Wolbergs, Christine Magosch, Mihaela Markovic, Lisa Höfler and Penélope Heine in collaboration with Chinese professors and teachers. The Chinese colleagues wish to remain anonymous. Available at: <https://www.goethe.de/ins/cn/de/spr/eng/atp/mitreden.html> [14.04.2024].

on the school exchange between Germany and China. The aim was to develop material that would be available to teachers as Open Educational Resources (OER). Teachers should encounter as few hurdles as possible in obtaining materials, which arise from e. g., distribution in paper form or on data carriers or internet platforms that require registration. Teachers, who often organize school exchanges in their spare time, should be supported by easily accessible, updatable, editable, and developable material. Especially since there is no curriculum to guide and no course-based textbooks for school exchanges. The material presented in this short concept thus had to do justice to a great variety of school partnerships, school types, and language levels.

The project *Mitreden im StudentXChange* was developed between March 2019 and July 2021 in cooperation between the Herder Institute at Leipzig University and the Goethe Institute Beijing, with the support of the *Stiftung Mercator*. The open-source material is only available online. It is aimed at a large and very heterogeneous group of German and Chinese students from different types of schools with and without previous knowledge of the other language. It is based on the principles of cultural learning by LI (2011) and by Altmayer (2016) and therefore is not designed as a language learning material. Initially intended for purely physical exchanges and the respective preparation in the home country, the project changed during the Covid19 pandemic and now also takes remote and hybrid scenarios into account.

This section will first describe the project *Mitreden im StudentXChange* with a focus on the approach and structure of the same named material. In the second part, we will discuss challenges and solutions in the development of the material – as well as new challenges that arose from the solutions. We will look at the didactic method of teaching used, the work in a publisher-independent team of authors, the creation of OER teaching and learning media, and the piloting of a virtual exchange (VE).

2. *Mitreden im StudentXChange*

In the following subsection, the underlying approaches and aims of the learning material *Mitreden im StudentXChange* will be described. The second subsection explains the structure and possibilities of implementation for both in-person and digital settings.

2.1 Concept of the Learning Material

Mitreden im StudentXChange is a learning material designed to prepare Chinese and German students at different school types for a school exchange between

Germany and China. The aim is to support the students in developing their discourse literacy and learner agency, following the integrative approach by LI (2011) and the discursive approach by Altmayer (2016). Both approaches promote students' engagement and participation in order to develop and actively create meaning within selected thematic discourses (Altmayer 2016: 10). This also involves the promotion of openness, tolerance, and empathy (LI 2011: 218). Therefore, the material does not focus on alleged facts about the other country nor on supposedly 'typical' behaviors of the people in both countries and how to deal with them. Critical engagement with current discourses relevant to young people and the possibility to carry out joint projects are the aims of future student exchanges.

The didactical approach of the material is to provide self-directed, student-centered, autonomous, and discovery-based learning. For this reason, the material is designed for use at learning stations. Selected multi-perspective and authentic texts, images, videos, and audio on various topics are provided via QR-Code at either physical locations in the classroom or are implemented in various digital settings, e. g., the school's own Learning Management System (LMS), *Padlet*, or *ConceptBoard*. The students then work independently at their own pace and according to their personal interests. Students may rotate through some or all of the stations during the specified time. The teachers function as learning guides. They ensure the understanding of learning stations and they moderate and support the students in case of questions that might arise.

The material produced is offered in .docx and .pdf data formats. It is published under the license CC BY SA NC. Therefore, the material can be copied, if *Mitreden im StudentXChange* is credited, but for non-commercial purposes only. If others distribute the work, it has to happen under the same license. Overall, this might not fit a strict definition of a Textbook 4.0 as textbooks, in general, since they are usually not used in school exchanges. Nevertheless, we see the *Mitreden im StudentXChange* as a result of Education 4.0, as it is a cohesive supplementary material offered as a digital OER (UNESCO 2019), that uses QR codes as a solution for object identification, bridging the gap between the physical and the virtual world (Toma / Turcu 2022) and also attempts to compensate for the current gap in available devices in schools via Bring Your Own Device (BYOD). We therefore consider it an OER Teaching Material 4.0 in the Context of German-Chinese School Exchange.

2.2 Structure and Use of the Learning Material

The material is divided into four main stations corresponding to four overarching topics: Time, Space, Identity, and Commitment. Each station contains four

subordinate themes. Fridays for Future and Recycling and Sustainability, for example, belong to the overarching topic of Commitment; Gaming and Friendship belong to the topic of Identity. The sub-themes were identified among other through online surveys via the Chinese app *WeChat* on young people's areas of interest (3.2).

Each of the total 16 subordinate themes contains various online available texts, images, videos, and audio (e. g., newspaper articles, blogs, comics, music videos, etc.) in German, Chinese, and possibly English. The selected sources are often contradictory and illuminate the topic from different perspectives. This is to reflect the heterogeneity and complexity of the discourses around the respective topic.

The texts, images, videos, and audio in each folder are presented to the students in an overview that provides information about the type of medium as well as the author and title. This allows for a quick overview of the available sources. All of them can be accessed via QR code and weblink.

Each of the 16 subordinate themes also includes a bilingual worksheet. It always follows the same structure: With the first task, the students are supposed to activate their previous knowledge on the corresponding topic of the folder. The second task is about researching and getting an overview of the available sources as well as independently selecting those sources they would like to process in more depth. The third task is to work through the sources to create awareness of the different, possibly conflicting perspectives. An additional bilingual toolbox with questions is provided for this and the next task, helping the students as they position themselves within the sources received and reflect on their own points of view. The last task is always a creative task where the (new) knowledge gained is applied creatively.

As mentioned above, the material can be used in an in-person classroom setting and for completely remote or hybrid teaching scenarios. For in-person teaching, the teacher can select stations that are distributed in the classroom. Students use (their own or the school's) digital devices to work with the material. Students can collect their creative products, which can then be discussed in a gallery around the classroom and a plenary discussion. For remote or hybrid scenarios, the materials can be provided via a school's LMS (e. g., *Moodle*) or another tool the teacher is familiar with. While the in-person scenario is bound to the classroom and therefore requires separate preparation of the two groups, the remote scenario can – but does not have to – be used jointly by both groups. This way, the exchange could already start before the physical meeting. When the German and Chinese students meet, they can present creative products to

each other, which can help identify common interests among the students. This can also provide a prompt for further projects, e. g., by working in mixed project groups on a new topic of common interest.

3. Challenges and Solutions

During the development of the material presented above, several problem areas became apparent for which solutions had to be found. This section will reflect on the challenges of using a theoretical approach that although derived from research in Germany and China, did not equally correspond with the didactical approach of the teachers. Additionally, we will address the work within the authors' team, technical challenges, and piloting the material during the Covid19 pandemic. This could serve as a help for other authors of similar material.

3.1 Theoretical Approach and Implementation in the Context of Germany/China

The original idea of the project refers to discourse literacy following Altmayer's (2016) concept which advocates that language learning should be followed by participation in discursive practices in that language and equips learners with the necessary tools. LI's (2011) integrative approach was also included in the design, which, with the overachieving goal of the learner's agency, calls for a mix of different competencies – e. g., autonomous knowledge acquisition. The selection of LI was important not only because of its connection to Altmayer (2016) but also because of its implementation in the official Chinese Educational Standards for German as a school subject. This enables Chinese teachers to link the school exchange to the Educational Standards in general and to German lessons in particular. This creates less pressure for teachers to justify their choice and use of the provided material. Still, the learning objectives of this material do not follow a progression and are not linked to a specific curriculum.

The transfer of Altmayer (2016) and LI (2011) to actual material for the project meant that we think of the students in the exchange as one group, not separating them by their nationality. This meant for example that not only German-language texts for German students and not only Chinese-language texts for Chinese students were chosen. Instead, all students can access all texts and thus the complex problem of the very diverse school types and language levels in the school exchange could be addressed. Thus, a very open pool of material is offered, which contained only a few guiding elements for the learners and avoided any interpretation targets.

In the discussion with Chinese and German school teachers, however, the wish was expressed repeatedly that the texts be more didacticized and that the instructions and tasks be more guided. For example, they would like to see the content of the texts indicated in the text overview. This wish is understandable against the background of learning traditions in Germany and China. However, it was rejected as too strong an intervention in the texts and thus in the plurality of interpretation. However, the positive results of the pilot (3.4) were able to win over the teachers to use this approach. Both German and Chinese teachers repeatedly insisted on an intercultural perspective; commonalities and differences should become visible. The material did not follow this principle because of the simplification it entails and the underlying understanding of culture. A multiplier training in such a project is recommended with regard to the instructional context and its underlying theory.

3.2 Collaborative Work Within the Authors' Team

As mentioned above, *Mitreden im StudentXChange* is a collaborative project between various partners. The project involved a working group at the Herder Institute which was responsible for the content of the material and its didactical approach, and the organization of the Chinese colleagues' stay in Germany. The Goethe Institute Beijing had the role of identifying suitable partners among Chinese professors and school teachers and organizing the meetings in China. The Chinese professors and teachers were the counterpart of the team at the Herder Institute and developed the material together with them. The funding agency *Stiftung Mercator* was also involved in the project. As the school exchange in Germany is organized by the *Pädagogischer Austauschdienst* – the sole public organization to promote international exchange in the school sector – they were also involved in the project. This was a complex mixed situation with various stakeholders. Although it would be exciting to take a look at inter-institutional relations, the focus here will be on the collaborative work in the author's team, consisting of staff at the Herder Institute and Chinese professors and school teachers.

In the development of the material, the Covid19 pandemic was a decisive factor in the change of work processes. Instead of planned meetings in China and Germany for joint work on the material, the meetings had to take place online. Instead of larger work meetings lasting several days, the units for discussing the proposed texts and tasks were reduced in size and worked through in monthly half-day meetings. While the shift to digital work meetings was initially an adjustment for our project, the pandemic surely has helped to rethink our international collaborative project and to weigh up the added value of traveling abroad more.

On the content level, the selection of topics was challenging for the German-Chinese authors' team. The topics selected had to (1) appeal to young people, (2) be dealt with in German-language discourses as well as Chinese-language discourses, and – and this was the greatest challenge – be (3) usable for the Chinese teachers without personal consequences and pass the so-called Great Firewall³. The authors' team approached the three aspects in four ways. Firstly, during the only in-person workshop in China before the Covid19 pandemic, Chinese teachers and students were asked to fill out a survey through *WeChat* groups on topics they would use in preparation for the school exchange. This was done to ensure, that the topics met the interests of young Chinese people, but also appealed to Chinese teachers. In parallel, topics were extracted from German youth magazines. Only topics that appealed to all students were selected and for which, moreover, both multi-perspective Chinese-language and German-language texts could be found. Secondly, it was made clear both within the working group and in the handout for the teachers that these are materials for an exchange. The focus is therefore on students meeting each other and creating opportunities for discussion on topics relevant to all involved students. Thirdly, the chosen topics are not reduced to a concept of intercultural binary but emphasize the discursive character of topics. The superordinate learning objective of participation in discourse is developed with concrete texts and tasks but is not limited to the proposed topics. In this sense, it is quite possible to open up other, more critical topics with the strategies learned. Fourthly, all texts included in the material were tested on passing the firewall. Nevertheless, this is no guarantee that these texts will pass in the future. The Chinese teachers were also very precise in their review of all suggested websites and noted, for example, when a reader's comment on a selected newspaper article referred to Taiwan.

3.3 Production of OER Teaching Material 4.0

In preparation for the project, all those involved, the team of the Herder Institute as the thematic lead, the Goethe Institute Beijing as the intermediary to Chinese professors and teachers, and the *Stiftung Mercator* as the sponsor, agreed that the materials to be created should be available digitally and free of charge. In this situation, the team decided to publish the materials as OER teaching material 4.0. However, there were uncertainties about the (1) type of publishing platform

3 The People's Republic of China operates the so-called *Great Firewall* as a domestic internet filtering system. It combines legislation and technology to among other things block access to selected foreign websites.

until the end of the project and (2) it was necessary to deal with conflicting specifications at the German and Chinese schools.

(1) During the development of the material, there were continuous discussions with the stakeholder on how to make the final material available. As a result, new ideas for the editing of the material constantly emerged. Although this led to a variety of options, it also tied up resources. Within the project, there was a wish to have the material available as digital copyable learning spaces within an LMS, but it failed due to the funding of such a technical solution. In the end, the materials were published on the website of the Goethe Institute Beijing and thus have a higher visibility in the Chinese school context compared to, for example, a publication on the website of Leipzig University. In addition, the Goethe Institute has the network to promote such materials on different channels, such as *WeChat* chat groups of teachers.

The material on the Goethe Institute website can be used by the students via a digital device in an in-person lesson or an LMS. However, the material remains at the level of a textbook whose chapters are listed separately on a website. Here, it would make more sense for the future if open-source textbooks/material platforms would facilitate group annotations and communication between students, to enable peer-based learning and enhance discussions.

(2) From the very beginning, the project was based on the Bring Your Own Device strategy (or if possible, devices provided by the school). During the course of the project, however, this was repeatedly called into question. The Chinese side cited the increasing short-sightedness of children and young people as well as the sometimes very restrictive limitations of devices at school. Although it is unclear whether rising myopia in China comes from media use or students' intensive learning, the concern remains that the increased use of digital devices could be a contributing factor.

In this context, German teachers pointed out that WiFi is not always available in school buildings. At the same time, however, it was important to the students interviewed in the project that the material is sustainable. Especially as the material consists exclusively of web pages, a printout would have led the project ad absurdum. We can definitely share the positive attitude of students towards our OER teaching material 4.0. Although the students were less concerned about the open source itself, they clearly emphasized that new material should always be created sustainably – especially by saving the resource of paper – and therefore supported the digital idea behind it. The teachers with whom we worked and who were able to test the materials in advance also emphasized its free access. Especially because worksheets are usually distributed by teachers in exchange for other materials.

3.4 Piloting with a Virtual Exchange Approach

The discussion on how to ensure that OER is of high value is necessary. However, it is important to prevent obstacles from arising that stand in the way of the production of OER. Those who take the trouble to digitally prepare their teaching ideas and materials to such an extent that they can be used by others free of charge should not be labeled as being of questionable quality. In the context of funded university projects like this one, however, other standards must be applied and accountability and transparency must be achieved through, e. g., piloting and contributions like this one.

Therefore, at the end of the project development phase, the primary plan was to test the materials in a school exchange between two partner schools from Germany and China. The goal was to evaluate the material based on the student's feedback. Unfortunately, due to the Covid19 pandemic, all school exchanges were canceled. Our solution for this challenge was to find a digital scenario that would promote a discursive and communicative exchange, test the concept and solutions (described in 3.1), and would allow us to identify various students' challenges with the materials. The findings should contribute to the final revision of the materials.

The following section illustrates the digital student workshop and concept, where Chinese and German students virtually met to test the material in May 2021. The digital workshop scenario was conceptualized upon a VE approach. VE enables students/peers from different geographic locations to communicate and collaborate with the use of digital technology authentically (Dooly / Vinagre 2022).

The VE study by Masterson (2020) suggests that an inquiry-based and student-centered VE between peers gives many opportunities to foster active, social collaboration, co-construction, and (critically) sharing (cultural) knowledge and the development of digital skills. In the VE conception and implementation, it is important to foster student-centered, participatory learning and a diverse perception of culture and cultural understanding (Bozdağ 2018). These VE concept principles and recommendations bear many similarities to the learning objectives of our materials. Therefore, we decided to test our materials in a VE didactic learning scenario, focusing on student-centered activities and collaborative learning. It allowed both groups of students to directly get in touch and communicate with the target language speakers (German and Chinese).

The student VE started on 10th May 2021 with an asynchronous phase on a *ConceptBoard* we provided. The goal was to get to know each other by writing short profiles with avatars and photos, but also to familiarize the students with

the four themes and the associated sources. In particular, the students could choose from the following subordinate themes: China and Germany, Gaming, Friendship, and Recycling and Sustainability. The selected materials, made available on the website of the Goethe Institute Beijing, were modified to fit the short time frame of the testing scenario. The synchronous workshop took place on 13th May 2021 via a *Zoom* video conference and lasted 120 minutes. In total, seventeen students, eleven from China and six from Germany, participated in the virtual exchange during the week and in the live session. The exchange was mainly in German, but a multilingual exchange was promoted through the possibility of also speaking and writing in English and Chinese (Mandarin). The synchronous workshop was led by the Herder Institute team and two persons from the Goethe Institute Beijing. The workshop was divided into four parts. Firstly, two short icebreaker games were played. Secondly, the aims and goals of the project were presented. The main phase (90 minutes) included an active exchange in four breakout rooms. Each breakout room represented one of the four folders and the students chose the room by their thematic preferences.

The students were allowed to switch rooms during the session, but most of the students, except for two students, stayed in their first chosen room. The assignment in each breakout room was to collaboratively solve the tasks from the worksheet, e. g., designing a mind map and finding and marking the most relevant words from the sources. The last task was a creative one, which the students posted on the *ConceptBoard* or shared with a *PowerPoint* presentation. Most of the students were very actively involved in the exchange and didn't need help. In the last part of the workshop, the four groups presented their creative products in a plenary session and gave short feedback.

After the workshop, the students filled out the evaluation survey in *LimeSurvey* in German or Chinese. The questionnaire included closed and open questions about the workshop and learning material. Overall, 15 students, aged between 15 and 18 years, took part in the survey. This section is anecdotal and the data collected was used for the final round of editing and is not suitable for an empirical evaluation.

However, in the survey, most of the students mentioned that they enjoyed the collaborative exchange and discussing the topics with each other. For example, one student from Germany wrote that he, in particular, liked the group work and the exchange: "Ich fand es toll, dass man die Möglichkeit hatte, sich in Kleingruppen auszutauschen und so einige Teilnehmer*innen besser

kennenlernen konnte.”⁴ They also liked the chosen topics and that the group was actively talking without an uncomfortable silence: “Außerdem hatte man Themen, über die man sprechen konnte und es ist nie unangenehme Stille aufgekomen.”⁵ Another student from China wrote, that they liked the themes chosen for discussion, the relevant materials, and the creative activities: “工作坊选择的讨论主题 创意活动内容 准备的相关资料.”⁶ Some of the students had problems using the *ConceptBoard* tools and most of them wished that the workshop would last longer or that an additional meeting (e. g., in real life) would follow. Most of the students had read and analyzed German and Chinese texts, and the other ones used only German texts. The group work took place in pairs (Gaming and Friendship) or larger groups (China and Germany and Recycling and Sustainability). All students rated the task and instructions from the workshop and the worksheet as very clear and the sources as interesting.

In addition to the survey, a short sequence of joint collaborative work in the group China and Germany was recorded. From the video, we noticed that the German and Chinese student groups communicated verbally or via textual comments on *ConceptBoard*. After the presentations, the students highlighted written comments with symbols.

To sum up, the disadvantage of the workshop was its tight scope and short duration, which unfortunately also did not match the intended scope of the originally planned digital implementation scenario for the materials. Nonetheless, the workshop in VE format was a good alternative opportunity to pilot the materials and get feedback from the target group of students. In conclusion, we noticed learners were able to work independently and collaboratively, and the tasks and instructions were clear and understandable. For the final revision of the materials, more tooltips and implementation recommendations (e. g., icebreaker activities and communication formats) were incorporated into the handout for the teachers. From the piloting, we conclude that the communication forms of the VE were very multimodal. Both German and Chinese teachers were concerned about the nature of the interaction, especially when it was non-verbal but rather written. Mostly one student talked and the others were writing their comments or answers. In this exchange students simultaneously used different

4 “I thought it was great to have the opportunity to exchange ideas in small groups and to get to know some of the participants better” (transl. authors).

5 “Also, you had topics to talk about and there was never an uncomfortable silence” (transl. authors).

6 “I liked the topics chosen for discussion at the workshop, the creative activities, and the relevant materials” (transl. authors).

modes to communicate with each other and to produce a joint, creative product. It would be beneficial to analyze the interaction and forms of communication during collaborative work more precisely and systematically.

4. Conclusion

The article outlines material that we understand as OER Teaching Material 4.0 in the Context of German-Chinese School Exchange and describes the challenges encountered and solutions found. The material is up-to-date and at the same time updatable, and due to its digital nature, more sustainable than paper-based solutions. It is intended to support the work of teachers in extracurricular school exchanges. It enables students to engage in student-centered, discovery-based learning and discursive exchange on current and relatable topics. This contribution aimed to present *Mitreden im StudentXChange* to an interested audience and to be equally open about the problems encountered during the development process. The solutions taken by the authors were presented and suggestions for other possible solutions were given. This paper is intended as a contribution to a culture of error. Although rather anecdotal, the following two aspects should be highlighted in conclusion: (1) We as authors have no influence on the implementation of the school exchange. Through various contacts with German and Chinese teachers, we have tried to win multipliers. However, targeted training of multipliers would be useful. Training should include an introduction to the content level on the one hand, but also the didactical implementation on the other hand, especially regarding the digital possibilities. (2) The development of materials within a constellation of diverse stakeholders is challenging. Clear communication is required to serve all interests. Working in a team of authors during the Covid19 pandemic was a challenge in itself. Short and detailed work packages with concrete agreements made the process easier. Knowledge of project management tools is an advantage.

The material had to be created based on the under-researched digital open-source textbooks, which is especially true for the school context. It is, therefore, to be hoped that with volumes like this one, digital textbooks and especially digital open-source textbooks will be given the status they deserve in research and practice.

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David Fujisawa

Grammar with Building Blocks

Abstract: Grammar is not a topic that elicits shouts of joy in the classroom. A new form of grammar visualization could change that: Different colored and shaped building blocks which indicate the function and position of a certain type of word and at the same time enable a high recognition value. To make grammar playful and creative in this way and address learners on a haptic-sensory level, additional teaching and learning material can be acquired and implemented digitally in the form of an app or physically as building blocks. Before the concept of this grammar-building block system is introduced, the current state of grammar teaching and learning theory will be outlined. Then the approach will be presented, which is not a replacement for established and proven methods, but rather a complement to what has existed so far in the context of digitalization.

Keywords: German as a Foreign Language (GFL), German grammar, grammar teaching and learning, digitization, grammar learning app, gamification

1. The Value of Grammar

Grammar teaching has undergone a major change: Away from the pure teaching of rules and the memorization of tables (deductive grammar teaching) to a task- and action-oriented teaching of grammar through implicit derivation of rules (inductive grammar teaching). In deductive grammar teaching, the rules of language are presented explicitly and learners perform exercises to help internalize the rules. The aim is to give learners a clear understanding of what is correct and what is not. Clear and direct explanations of grammar rules provide important support. However, the way the grammar is taught is often less engaging and does not encourage discovery learning. It can therefore be assumed that the deductive method leads to memorization rather than the internalization of the rules (Nascimento 2014: 164).

Inductive grammar teaching focuses on identifying examples and patterns in the language and deriving the rules from these examples by the learners themselves. The cognitive mechanisms refer to mediating forms of attentional control and automation. From the perspective of the foreign language learning context, didactically prepared materials or authentic texts should always be used (Rösler 2012: 39).

The criticism of the principled rejection of awareness-raising measures in grammar teaching is quite understandable. And even if a deductive way of

grammar teaching no longer seems to be central to the teaching of grammar, it nevertheless remains relevant for transferring grammatical knowledge into practical application. After all, the explicit teaching of grammar, supported by exercises, is to be regarded as relevant and should not be completely ignored especially for language learners who have just started learning a language (Raabe 2007: 24), although this is always strongly dependent on the learning style. According to Grotjahn (1998), learners who are analytical learning types prefer explicit knowledge transfer to consciously deal with the language and want to understand it in detail. Global learning types, on the other hand, aim to learn foreign languages naturally in their entirety. Therefore, implicit teaching seems to be more appropriate here (ibid.: 12 f.).

Grammar is and remains a system consisting of forms. Developing an interim language always means recognizing the systematic structure and understanding the functions in the form. These connections must be worked out in detail to develop the whole picture (Hoffmann 2021: 16).

In addition to textbooks that teach grammar only, there are now also textbooks that follow the trend of the cognitive turn and teach grammar in a topic-integrative way. In accordance with Nation's and Newton's four learning fields, in lessons "producing meaningful output, working with meaningful content and training fluency should be equated with grammar and thus with working with linguistic forms" (Funk / Kuhn 2014: 24). In this way, certain action-related expressions from everyday life, for example, shopping in the supermarket or ordering in a restaurant, are combined with corresponding grammatical phenomena. Through repetitive use of these phrases, grammatical rules are thus implicitly developed before they are explicitly made conscious (Nascimento 2014: 173).

Grammatical visualizations can play a decisive role here. So far, these have mostly been limited to bold print, highlighting, symbols, tables, and images. Despite recent suggestions from academia, videos and animations have, with a few exceptions, not yet reached the full breadth of course textbooks, not even as digital supplementary material (Rausch 2017: 97).

Visualizations represent an essential element in ensuring comprehension. These include, for example, *Sinneserfahrungen, Wahrnehmungsorganisation und räumliche Orientierung*¹ (Scheller 2008). Thus, physical interactions with the environment or recurrent sensory patterns, such as physical movement, manipulation of objects, perception of pressure and external forces, which are stored

1 Sensory experiences, perceptual organization, and spatial orientation (transl. DF).

in the form of so-called image schemata, also provide support (cf. Johnson 2005, Roche / Suñer 2017).

A certain change is brought about by grammar representations originating from cognitive language didactics. Animated pictorial metaphors, which follow cognitive linguistic insights, are intended to contribute to increasing the efficiency of language acquisition (Roche / EL-Bouz 2018: 31). The aim is to show that every grammatical phenomenon is meaningful because it is based on a certain linguistic image sequence (mental animation). As an example, a language-contrast analysis of a prepositional phrase will illustrate how this new approach to grammar could have a greater effect on language learners in this way. In German, it means *im Regen (stehen)*. In Spanish, French and Russian, it is *unter dem Regen (bajo la lluvia, sous la pluie, под дождём)*. Unreflective memorization of this phrase carries the risk of being forgotten more quickly. Since, according to cognitive linguistics, every grammatical phenomenon is also always anchored with a linguistic image, this weather phenomenon in German represents a 'space', whereas in the other languages mentioned it represents a kind of 'roof' that is above us, and thus the image schema 'above-below' exists. Because of this strong pictorial impression, reverting to the pictorial schemata should lead to better internalization (ibid.: 32).

Nevertheless, the discussion about animated grammar as a learning aid remains vague. It remains open to which phenomena this methodological approach is suitable since its use so far has been limited mostly to the level of syntax. Especially since the question arises as to which genuine grammatical problems should rather be placed in focus. Methodological development seems to be stagnating here as well. It remains to be said that the potential of grammar teaching in general and of visualized grammar has not yet been exhausted. This concerns both theoretical elaboration and practical experience.

2. The Visualization of Grammar

In this section, concrete examples will be given to show how visualizing grammar can be used and what limitations still exist. Visualizations are found in the form of useful color markers of gender (masculine = blue, neutral = green, feminine = red) including the plural (yellow), and have become established in many textbooks but are limited to a solely typographical level. The monotonous memorization of tables is thus to be circumvented, whereby a precise systemic understanding can be built up from within. Even at this point, there are always steps of explicit grammar teaching, which then in turn lead to application-based exercises. Examples include *Menschen* (Specht et al. 2012), *Das Leben* (Funk

et al. 2022), and *DaF leicht* (Jentges et al. 2015). The latter of these, in addition to the accompanying textbook, contains a grammar supplement in the form of video clips and corresponding copy templates for cutting out grammar paper snippets to make grammar touchable and spatially tangible. So-called classical approaches that fixate on grammar alone have not excelled in grammar teaching. Nevertheless, works such as *Klipp und Klar* (Fandrych / Tallowitz 2021) or *Grammatik aktiv* (Jin / Voß 2023) should be mentioned here.

Furthermore, the animated, pictorial metaphors described above show, after initial applications in practice, that the connection between meaning and form can be made transparent through grammar animations, and thus sustainably useful foundations can be established for the development of language awareness in learners. In addition, the method can be expected to provide impulses in terms of linguistic creativity and meaningful transfer to other languages (cf. Roche / EL-Bouz 2018: 40, Roche / Suñer Muñoz 2014: 133 ff.).

It has now been made clear that visualization could be an essential element in teaching grammar to ensure comprehension. This is already used to some extent. However, physical interactions, sensory patterns, or even the movement of objects have, with a few exceptions, so far been mostly left out.

3. Grammar as a Set of Elements

In the following, the potential that still lies dormant in the teaching of grammar will be shown, i. e., how the grammar of a language can be broken down into its individual components and what decisive role the visualization of grammar plays in this.

Linguistic transparency must always be ensured in the teaching of grammar. The presentation of grammar should therefore be done with the help of mnemonics, regardless of the level. The creation of digitally animated grammar, which challenges not only visually but also other senses that were previously disregarded, thus does not serve the sole purpose of entertainment. Based on cognitive-psychological theories of multimedia learning, it also produces sustainable learning effects and the formation of mental models (cf. Suñer Muñoz 2013: 15).

The creative use of language in language games shows that the fun of language learning can be enhanced. This should not only contribute to increasing the motivation to learn a language but also to creating a more positive learning experience on an emotional level (cf. Scheller 2008: 5). Knowledge of the forms of a language and their functional use is equally reflected in language production. Grammar should not be perceived by learners as a purely abstract system.

Rather, grammar should be dealt with consciously to make sense of the way it is used. Basic knowledge of grammar can therefore play a central role in the language learning process to recognize and internalize structures and also to be able to specifically classify and correct deviations in linguistic action. Since, with few exceptions, these are limited for learners to a rigid, fixed form of written language with which they cannot interact independently in any way, the possibility arises as to why language should not be transferred into real forms that can be interacted with in an animated dynamic form.

Based on the author's teaching and classroom experiences, I have often thought about how German grammar could be transformed from a seemingly monotonous and boring topic, somewhat reminiscent of Mark Twain's *The Awful German Language* (2010), into an exciting and experiential subject. Recognizing the logical, almost mathematical connections of German grammar is not only fun but can then also be applied in a much more targeted way. Grammar does not have to be so 'terrible'. It can also be presented as a jigsaw puzzle that just needs to be put together correctly.

Grammatica developed by the German Institute in Florence is a step in this direction and comes very close to this idea (Deutsches Institut Florenz 2023). There, a wide range of grammatical phenomena is visualized with videos or dynamic image sequences. The illustrations work with colors and shapes to make structures vivid. This introduces the topic of subordinate clauses with a simple sentence: *Sie arbeitet am Morgen im Büro*² (Fig. 1A).

The sentence is divided into four elements: the square subject element *Sie* is grey, the cylindrical verb element is red, the rectangular temporal complement is blue and the rectangular locative complement is green. By clicking further in the image sequence, the orange, circular conjunction *weil* appears. At the same moment, the verb element moves from picture to picture towards the end of the sentence. Similar examples of the same phenomenon can be found when using modal verbs or separable verbs (Fig. 1B). However, there is no consistent use of the color-form concept, which leads to a certain inconsistency (Fig. 1C).

2 She works in the office in the morning (transl. DF).



Figure 1: A. Example of a simple sentence on the topic of subordinate clauses (Deutsches Institut Florenz 2023), B. Example of the subordinate clause with conjunction *weil* (ibid.), C. Example of inconsistency in the use of color (ibid.).

Furthermore, the teaching of grammar in *Grammatica* is also rather deductive and strongly follows the concept of form orientation (cf. Rausch 2017: 101 f). The grammar presentation itself remains static and does not allow visitors of the website to interact with it. A certain regularity could emerge if word types could be assigned at a glance through a clear assignment of colors and shapes. Language cannot still not be touched and the playful, creative use of it remains absent.

Another interesting attempt concerns the didactic concept of Interactive Animated Grammar, which was developed in the form of an app (Zeyer et al. 2015). In the sense of digitalization, the step towards the obvious choice of a digital medium such as an app is particularly noteworthy. The concept itself is based on grammatical building blocks, which, however, always come in the orthographic form and thus correspond more to the grammar snippets described above. Animations are also used to make pragmatic consequences clear (ibid. 2015: 79). These are supplemented by the possibility of highlighting words in color. When it seems didactically appropriate from the authors' point of view, visual metaphors such as a scissors graphic or an eraser graphic are also used to

describe certain grammatical phenomena such as the formation of noun compounds or imperatives. This is intended to facilitate understanding and increase motivation. Mental animations are also used, which result in a visualized consequence by entering the corresponding solution. In this way, the learners are supposed to be creators of a personal experience, which should additionally motivate them. The team of authors places a particularly high value on didactic interactivity, which is not solely characterized by control interaction, but instead relates to motivating, informing, understanding, retaining, and applying, and is intended to organize the learning process. Despite supporting graphics and animations, the possibilities for use within the app remain prescribed for the learners here as well. To what extent interaction through independent movement and formation of individual grammatical building blocks differs from or excludes the didactic functions mentioned remains open. A playful character was not pursued in the design of the app.

As has been shown, there are many positive examples of efforts to provide learners with an alternative approach to grammar by visualizing it in different ways and offering as wide a variety of methods as possible. Nevertheless, the visualizations remain predominantly limited to the sentence or phrase level. It would therefore be interesting to break grammar down to its smallest elements and to develop a concept that also relies on a creative approach to grammar and tries to convey it in a playful way.

The implementation of such a concept began in 2020 with animated presentations and finally resulted in the development of a grammar app that relies on playful elements. This teaching tool, which is based on differently colored and shaped building blocks, should be modular in use and quick and easy to understand. It should also be able to be combined with any form of existing language teaching material. Another important aim was that different languages could be contrasted.

4. How to ‘Play’ Grammar with an App

Two examples will briefly illustrate the concept of grammar with building blocks.

The separable and inseparable verbs in German pose a major challenge for many learners, not least because of interference from the source language or the first foreign language, English. Despite the difficulties associated with this topic, it offers a very good opportunity to present the concept of grammar building blocks in a simple way.

Different colored and shaped bracket blocks are combined to represent grammatical phenomena. Each color and shape are assigned a specific function. For

instance, verbs are always red. A small plus or minus at the end of the verb stem indicates regular or irregular verbs respectively (Fig. 2A). Following a typical grammar progression in textbooks, the separable verbs are discussed relatively at the beginning (A1 level). The color and shape of the separable prefixes are chosen deliberately. On the one hand, color marks the affiliation to the verb and on the other hand, the color distinguishes the verb from the prepositions. The shape itself visualizes the loose connection to the verb stem as well as the correct position of the prefix. The prefix stone points like an arrow to the right towards the end of the sentence (Fig. 2B).

The prefix stone of an inseparable verb sits in front of the stem of the verb. That is why it points to the left (Fig. 2C). In terms of shape, both stones fit perfectly together. The fixed, inseparable connection can be marked by a flat stone with a pictogram of a lock. Within a sentence, both verbs behave as shown in Fig. 2D.

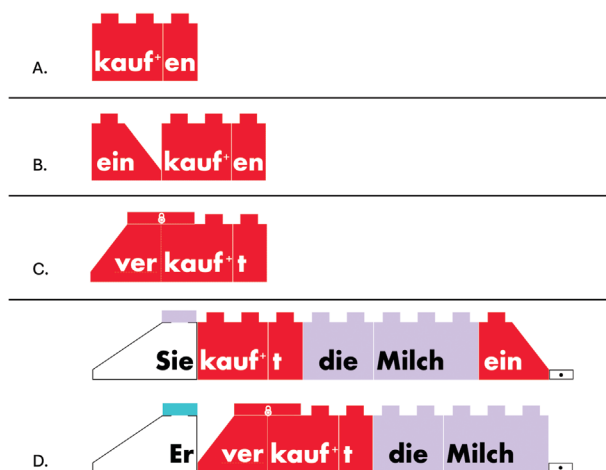


Figure 2: A. The regular verb *kaufen* (English: to buy) in the infinitive form with verb stem stone *kauf+* and conjugation stone *en*, B. the separable verb *einkaufen* (English: to buy, to shop), C. the inseparable verb *verkaufen* (English: to sell) with lock-stone on top, D. the separable verb *einkaufen* (to buy, to shop) and the inseparable verb *verkaufen* (to sell) within a sentence (she buys the milk; he sells the milk).

Since the building block concept is modular, it can be used depending on the textbook and its grammar progression in individual modules that contain a

respective grammar phenomenon (e. g., conjugation, separable verbs, inseparable verbs, modal verbs, accusative, etc.). Each textbook with its very own grammar progression dictates when, for example, the accusative is introduced. Regardless of which textbook is used in class, the corresponding grammar module *Akkusativ* can now be presented and used with the necessary set of building blocks for the grammatical topic.

If a certain advanced level is reached, more complex sentences such as two-case prepositions can also be taught explicitly on a sensory level after an introduction with the grammar building blocks is provided by the textbook or the teacher (Fig. 3).

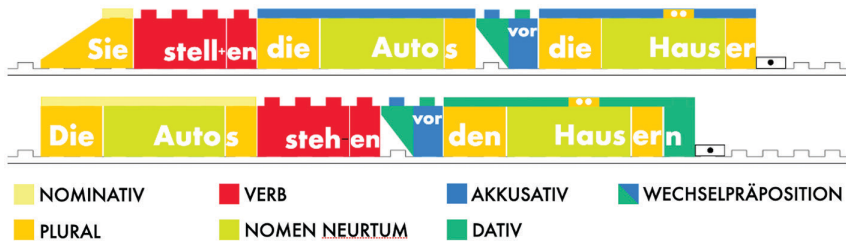


Figure 3: Two complex sentences to visualize the two-case prepositions (they put the cars in front of the houses; the cars are parked in front of the houses).

From level A2 onwards, most course books introduce two-case prepositions. After the accusative and dative were already introduced in A1, the nine two-case prepositions are now presented. When using two-case prepositions, the learners have to pay attention to whether it is an object that is placed (*legen, stellen, hängen, stecken*) in a certain place (accusative object) or whether the subject is already placed (*liegen, stehen, hängen, stecken*) in a certain place (dative object). After introducing the topic and doing some exercises from the textbook, the teacher can now show the two-case prepositions module with the nine two-colored two-case preposition building blocks. The learners can now create their own sentences as they wish.

When assembling the sentences using the building blocks, learners need to keep the following in mind: The two color two-case preposition brick (*vor*), which is pointing to the left from the corresponding two-case preposition module. The direction shown stands for the position in front of the noun (accusative/dative object). The two colors blue and green stand for the possible cases that this noun can have. Blue stands for accusative and green for dative.

Since the modules of the grammar building blocks follow the progression of the textbook used in class, it is possible to use the already introduced grammar topic modules and their building block sets (personal pronouns, verb conjugation, regular and irregular verb articles, genus, plural, nominative, accusative, dative). This step-by-step approach is intended to prevent information overload and any resulting overstraining of the learners, but also to lead to a better understanding of the individual grammatical phenomena, by gradually memorizing the colors and their functions through constant repetition.

The concept of grammar building blocks can also be transferred to other languages in an equally modular manner. The aim of that is to follow the approach of multilingualism and the concept of German as a Foreign Language after English (DaF/nE) by including the source language as well as other reference languages such as the first foreign language English in the learning process. If the concept is already used in L1, it is easier to recognize similarities or differences between the languages at a glance in L2 (Fig. 4). This linguistic comparison pursues the goal of making the learning of grammar, but also the learning of languages, easier and more efficient.

Thus, when comparing German and Spanish, it becomes clear that in Spanish there also seems to be a genus for feminine (lilac) and masculine (turquoise). The negation (magenta) comes before the modal verb (transparent pink). The verb (red), on the other hand, is not in the final position as it is in German but follows directly after the modal verb. The adjective (grass-green) seems to be placed after the noun, to compare a language with German for example. All this can be inferred without knowing any Spanish.

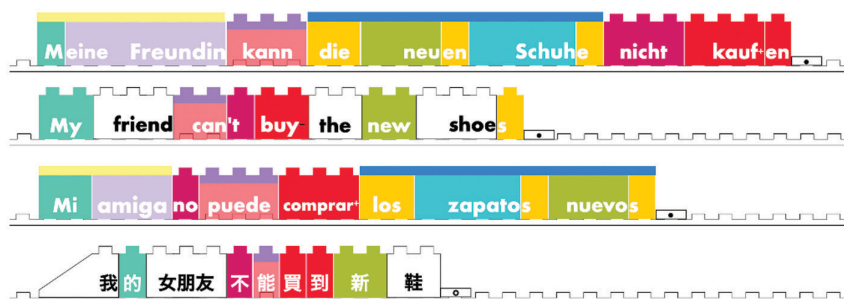


Figure 4: Illustration of the transferability of the concept to other languages (in order of their appearance: German, English, Spanish, Chinese).

Grammar teaching oriented towards Focus on Form should always also strive for a communicative and text-type-based orientation in its application (cf. Di Meola

2017: 17, Fandrych / Thurmair 2021: 13 f). Therefore, there is no longer any disagreement that language teaching in general and grammar teaching in particular should always be learner-addressed and action-oriented, drawing on concrete authentic linguistic acts. For this very reason, a digital or haptic implementation of the entire concept should ideally come with clear, authentic linguistic means of speech that can be internalized in repetitive, automated exercises. This includes, for example, the creation of a shopping list with ingredients that are needed for a dish and that must always be supplemented by an ingredient together with a definite or indefinite article in the accusative in a corresponding exercise (Fig. 5).

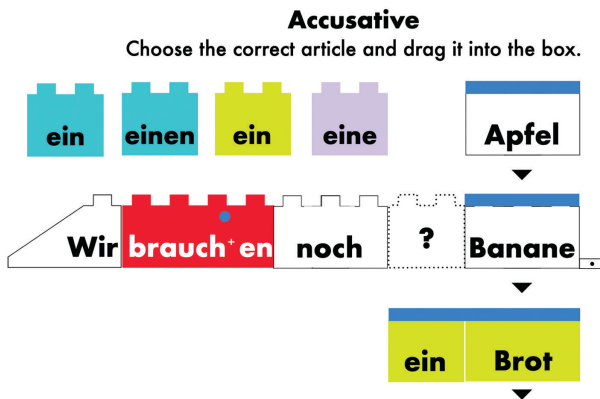


Figure 5: Illustration of an exercise to practice the definite article in the accusative (we still need a loaf of bread – a banana – an apple).

The small blue circle above the verb indicates that the verb requires an accusative object. A so-called accusative plate is put on the noun to indicate that the object is now in the accusative. Only the stones at the center of the exercise are highlighted in color. All other stones remain in a neutral white. The nouns appearing from above are initially also kept white to train the genus. As soon as the appropriate indefinite article has been dragged into the gap provided for it, the noun is also colored in the corresponding gender color. The wrong irritation stone *ein* of the masculine indefinite article in the nominative on the left side serves to clearly distinguish it from the accusative. At the same time, the article stones of the neutral and feminine make it clear that there is no change from the nominative here. At a later point in this exercise, the plural could also be added.

Comparable exercises were prepared for each grammar module of levels A1-A2 (genus, plural, prepositions, perfect, passive, etc.).

5. Sample Evaluation

As the concept of grammar building blocks has been introduced in the previous section using various examples, a brief overview of the testing and evaluation of the concept in the form of an explorative preliminary study will be presented here. A more detailed insight into the process of Design-Based-Research will be shed light on in a further publication to be published on the concept of grammar building blocks.

After a year of the development process of a digital concept prototype created in the form of animated presentations, the digital teaching tool was used in online lessons of German as a Foreign Language. Whereas at the beginning of the development, the grammar building blocks were presented by screen sharing only, the learners were later allowed to move and assemble the grammar building blocks themselves, using the remote function of the videoconference software. At a later stage, per the multilingualism and DaFnE concepts, Japanese and English were added as contrasting languages to show grammatical similarities and differences.

A longer application phase of one semester ended with a first survey of 81 German language learners aged 18–22 in Japan. The survey aimed to get a basic overview of the general assessment of the learners' willingness to use the grammar building blocks and of a possible effect on their grammar comprehension. Therefore, the learners were asked whether, according to their assessment, they were able to understand the grammar better with the modular building block system. Almost 99 % of learners felt that they could understand the grammar rules better with the grammar building blocks. The question of whether learners would like to continue using the concept in class was answered in the affirmative by 96 %. However, the survey also showed that 17 % of learners voted for implementing the concept prototype presented to them through a haptic version, while 83 % voted for implementing it in an app.

6. Outlook

After outlining how grammar has evolved and the importance that visualizations have gained, as well as the presentation of how language can be taught by breaking it down into its components with the help of grammar building blocks, this article concludes with a brief outlook.

Of course, the visualization of grammar with the help of building blocks also has its limits. It is by no means possible to implement all grammatical phenomena with the building block system. However, it may be possible to achieve a far more conscious, playful approach to grammar to learn a language more effectively and efficiently. As a supplement to established grammar teaching in the classroom, the grammar building blocks show a creative way that brings variety and is thus intended to maintain motivation in language learning. The implementation of the grammar building block concept within an app follows the trend of digitalization and would have the advantage of addressing the monotonous and thus boring memorization of almost completely rule-free grammar phenomena such as the genus of nouns, the formation of the plural and the conjugation of irregular verbs excitingly and entertainingly. The gamification via building blocks can give an otherwise abstract topic such as grammar a new look with the help of innovative game mechanics, the setting of high scores, and the transparent presentation of one's grammar progress via individual statistics.

The survey conducted and the results presented here represent only a sample of daily practice and are therefore not representative due to the target group-dependent importance and the size of the scope. However, there is a positive response to the grammar building block concept among the respondents. The actual benefit of using the concept remains to be seen with further accompanying research in the future. In doing so, it is important to do justice to the scientific claim with clear measurements of the effect and to take variables such as age, language level, teaching and learning tradition, learner type, teaching context, or institution into account as well. The concept of grammar building blocks aims at a digitalized learning design and supports learners in their learning progress. This could make it a useful addition to any form of teaching material.

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Antje R ger

Authenticity vs. plannable progression? Insights into a textbook-independent Spanish course for adults

Abstract: This article examines the Spanish Distance Learning course offered by Leipzig University for adult learners at levels A1-B1. The course is designed to be as flexible as possible for learners, with materials and activities available entirely digitally on a learning platform. It was developed without a course-guiding, commercial textbook, but provides learners with mostly authentic media and a set of scaffolding activities to support them in mastering the target tasks. Based on the sample course material, the article describes the main conceptual principles such as the learner-centred and task-based approaches. Learners throughout the courses are asked to reflect on their learning experiences and to become aware of their preferences and strategies. The article reports some of these evaluative comments and concludes with a brief reflection on which perspectives of the previously described Spanish course can also be relevant for the digital Textbook 4.0.

Keywords: learner-centred, Task-Based Language Learning (TBLL), distance learning, authenticity, textbook-independence, scaffolding activities, target tasks

1. Introduction

For years, digital materials and media have been ascribed a special potential for self-directed learning (cf., e. g., W rffel 2016: 386). This involves, for example, the individually meaningful application of what has been learned and the design of the learning processes themselves. Learner-centred instruction, the promotion of learner autonomy, learner engagement, and task-based learning, as well as a closely related emphasis on content and interaction are considered to be purposeful methodological principles, although the universal applicability of such principles is also critically discussed (cf. Kniffka / Riemer 2022: 139). With regard to foreign language learning, and taking into account that learners now have a wide range of digital possibilities for real communication, the relationship between the focus on content and the focus on form approaches is being discussed again (cf. R sler 2019: 112). In this context, this article examines a textbook-independent Spanish course at levels A1-B1 for adult learners, which has been offered at Leipzig University since 2010.

The paper starts with an overview of the organizational aspects and conceptual principles of this distance-learning Spanish course at Leipzig University (Sections 1. and 2.). Section 3. explains in more detail the prototypical procedure for implementing these principles and illustrates it with examples from the course materials. Section 4. presents some evaluative comments from course participants regarding the materials and learning methodology. Finally, a short conclusion focuses on the question of which perspectives of the previously described Spanish course can also be relevant for the digital Textbook 4.0.

2. Context

Since 2010, language course materials for levels A1 to B1 of the Common European Framework of References for Languages (CEFR) have been developed, supplemented, and updated for the Spanish Distance Learning Programme at Leipzig University. The participants are adult learners with a wide range of interests and needs. Professionals, for example, need appropriate language skills for business trips to Spanish-speaking countries. High-school graduates want to prepare for a degree programme that requires knowledge of Spanish, possibly as part of a gap year. Pensioners want to stay intellectually active and learn Spanish for their travels. Many students have a general interest in (foreign) languages and want to broaden their horizons by studying Spanish. Some students wish to take official language tests. These are not offered as part of the distance learning programme, but for this reason (and of course for marketing purposes) the courses are based on the CEFR levels. The Spanish Distance Learning Programme was and continues to be particularly attractive for learners who, e. g., have little access to regular face-to-face language courses due to their living and working situations. For these reasons, the courses are designed to allow as much freedom as possible.

The materials and learning activities of the Spanish Distance Learning Programme are available entirely digitally on a learning platform. Learning is asynchronous. There are usually two one-day face-to-face meetings per semester so that participants have the opportunity to get to know each other in person and have a direct verbal exchange. From 2020 to 2022, these meetings took place in a synchronous virtual format. Some of the course participants also use synchronous options for self-organized exchanges in pairs or small groups (the video conferencing system integrated into the learning platform, chat applications, or telephone). This is not compulsory, but it is very welcomed by the course management and encouraged in some tasks. The materials and activities are intended to be a ‘help yourself’ offer, which the participants can combine and

supplement as they wish, given the flexibility of time. The scope of the distance learning programme is based on a workload of approximately 5 hours per week or approximately 100 hours per module/semester. Level B1 is therefore reached after 8 semesters (Table 1). However, the duration of the course can be extended or shortened. Previous knowledge is not required but will be taken into account for placement at higher levels.

Table 1: Prototypical sequence of the distance learning Spanish course at Leipzig University.

Semester	1	2	3	4	5	6	7	8
Module	1a	1b	2a	2b	3a	3b	4a	4b
Target Level	A1+		A2		B1.1		B1.2	

3. Concept and Theoretical Foundations

In terms of learning theory, this course is linked to concepts of moderate constructivism. Learners process new information in their own specific way and teachers provide different materials and guidance to make this possible (cf., e. g., Biebighäuser 2021: 236). The basic considerations in designing a learner-centred and textbook-independent learning environment have points of contact with the premises of Dogme (Thornbury 2013). Despite their omnipresence in institutional teaching, academics and researchers in particular characterize textbooks as deeply problematic from reformist pedagogical, learning theory, and socio-critical perspectives (cf. *ibid.*: 217). The Spanish distance learning course was therefore designed without a course-guiding, commercial textbook. Licensing and practical considerations also played a role in this decision. As commercial textbooks are primarily designed for traditional face-to-face courses, adapting them for distance learning would have required not only a significant investment of time but also potentially costly licensing agreements. All the conceptual and learning materials were therefore developed at the Language Centre of Leipzig University. The main objective was to provide materials that could be used flexibly by learners in a digital learning environment and to integrate current authentic media at any time. Learners should also have the opportunity to work with materials of their own choice. In this context, the almost infinite number of available texts, images, film clips, etc. on the internet is seen as a kind of land of milk and honey for foreign language learning (cf. Rösler 2010: 1207), but also as a particular challenge for ensuring noticeable and measurable learning progress, especially for students at beginner level. Taking into account the

language-level-specific possibilities and requirements, the selection of the online materials was to meet the following criteria: To provide varied and real-life access to the Spanish-speaking world as well as to include the thoughts, experiences, and wishes of the course participants (see example in Section 3.). For this reason, some of the didactic materials have a scaffolding function to provide the course participants with examples and a basic linguistic framework for the communicative tasks (cf. Gibbons 2002). This includes, among other things, suggestions for text work that are feasible at the respective language level and give individual learners creative freedom.

On the one hand, the design and didactic preparation of the learning materials followed the approach of discovery-based learning, which is reflected in the course sections, for example, in the three-part basic structure Discover – Practise – Apply. On the other hand, the overall design of the courses is inspired by the task-based learning approach (Ellis 2003, Willis 1996). This approach follows the beliefs of the communicative turn in foreign language teaching: “[I]f the language teacher’s management activities are directed exclusively at involving the learners in solving communication problems in the target language, then language learning will take care of itself” (Allwright 1977: 170). However, scaffolding activities, form-focused exercises, and material suggestions are also intended for task-based learning (cf., e. g., Biebigh user 2021: 246). Decisive here are issues related to the specificity of the target group and methodological issues that depend on it. Less relevant is the use of course-guiding teaching materials. W rffel (2021: 284) notes in this context that Thornbury, in his attempt to develop a theory for Dogme, also concludes with the premises of the task-oriented approach.

In the Spanish Distance Learning Programme, learners have to submit two to three compulsory target tasks per semester, which are developed according to the formal requirements of the target levels and always allow for some personal creativity. For example, at level A1, learners take the perspective of a person of their own choice (fictional or real) who lives in a Spanish-speaking context. First, they briefly introduce this person: Name, place of residence, occupation, and family. In the following tasks, they describe their living situation, their shopping and eating habits, the daily routine on a normal or an unusual day of their new self, etc. They are assessed on whether the target task has been completed appropriately and in the sense of the target language level. To use the image of a climbing scaffold, these complex target tasks are always at the top. The different levels on one side of the scaffold are formed by the provided units. Learners can use these materials on their way ‘up’. However, they can also follow completely

different paths (e. g., working with their own materials or practising in tandem learning partnerships), perhaps crossing the offered path from time to time, i. e., working on the offered exercises, or not. They may find much faster and more direct ways up, they may also swing longer or climb several rounds at one height (e. g., by working on difficult activities several times, practising the required vocabulary for longer, etc.). Or they may pause from time to time and look back, perhaps sometimes climbing down a step before taking a swing and landing a little higher. This is also possible because there are no specific deadlines for the individual learning activities.

There is no strict prescription and monitoring of learning paths. However, the different topics/units provide – if desired – a basis for the completion of the complex target tasks. Each unit concludes with smaller or intermediate target tasks which allow the participants to check, in exchange with each other, whether they have acquired the necessary sub-competences. A typical unit structure is shown in Fig. 1 and explained in more detail in Section 3. Sometimes the materials provided may not be complete enough for individual learners, and often they may go beyond what is essential. For example, if learners are asked to report on a particular experience on an unusual day, they will need specific vocabulary, but probably not the exact words that appear in the sample texts provided for reference. However, learners who need more confidence can follow these examples very closely and be successful.

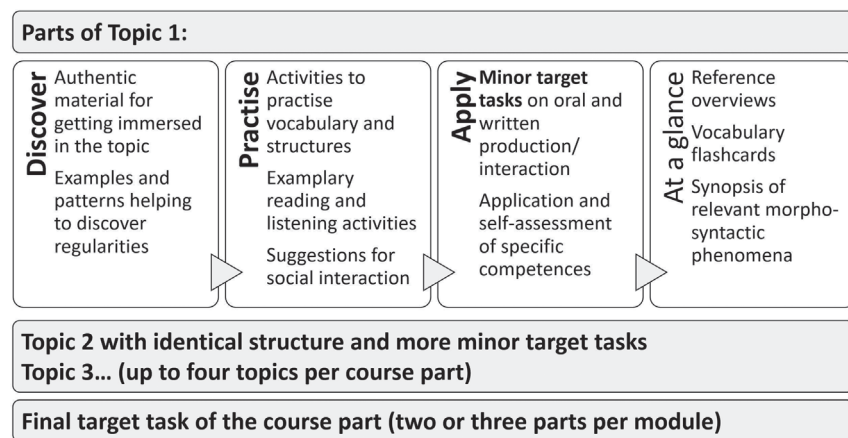


Figure 1: Typical course structure in the Spanish Distance Learning Programme.

4. Learning Materials

In this section, we will first explain the concept behind the structure shown in Fig. 1. Then, an example from level A1.2 is used to illustrate the different components of the course structure (3.1). At the beginning of each topic, learners will find a short description of the communicative objectives they should achieve in this topic with the following material or in any way they choose (Fig. 2). The complex target task after every two to four topics/units is visible from the beginning. It can be used as a reference at any time. In order to provide clarity and security, but also to allow flexible use of the material, each topic/unit consists of three blocks: *Discover - Practice - Apply*. Below we explain the steps, how these parts of the course were created.

The first block is designed to encourage the *discovery* of new content. It mainly contains material for familiarization with the new topic, but also sample texts which, following a focus on form approach, illustrate linguistic features that may be necessary to master the target task. Focus on form is based on the following premise: “Central to all kinds of focus on form instruction, however, is some kind of meaning-focused task that provides the context for focus on form. Thus, focus on form is integral to task-based language teaching” (Ellis 2016: 422). Some of the materials used in this block are provided as PDF files. On the first page, learners are given short observation tasks. On the second page, they will find suggested solutions and, where necessary, additional hints. Many of these worksheets involve multimedia (short video sequences or authentic texts presented in their original context and linked in the course) or the solution of small listening/reading tasks (for example, distinguishing sounds or words/phrases). Each of these materials has a specific focus and an appropriate title. The units are quite short so that learners are aware of the ‘buffet’ nature of the material, from which they can choose ‘morsels’.

The second block for *practicing* can and should be used in a particularly flexible way. Participants should choose the material that is effective and motivating for them. For this reason, special emphasis has been placed on the variety and diversity of the material offered. This includes individual exercises for consolidation or automation (such as repetition or oral answer exercises, closed or semi-open writing exercises), links to other authentic resources (such as images to encourage free speech, songs or reports, sometimes with methodological suggestions), and semi-open and open exercises to encourage collaboration or interaction with others (such as question-answer chains, collaborative sample collections). In this section, course participants can also find content-related

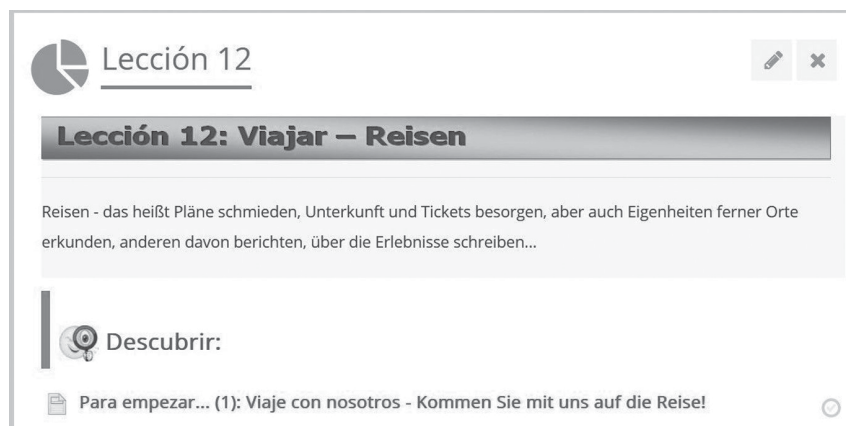
exercises from external websites. This will give them ideas of where to look for more material on their own.

The third part of each topic or unit encourages *application*. It contains smaller intermediate tasks that mark important steps towards the complex and binding final task after about three units. There is usually one activity for written and one for oral production or interaction. The writing tasks are often done in discussion forums. Students are expected not only to post their contributions but also to receive and respond to the contributions of other students. Due to the asynchronous setting of the courses, the oral production is mostly done in a monological way as an audio portfolio or ‘course podcast’ with a commentary function. The audio recordings can also be used as learning material and examples as they are accessible to all participants. They are stored on the learning platform in a ‘database’ which, in addition to the standard chronological display of all previous contributions, can be easily filtered by level, task, and/or person. For example, learners can listen to all contributions on a specific topic first to get suggestions, or they can choose to listen only to the contributions they have made throughout the course, e. g., to see their personal learning progress. At the end of each topic, participants are asked to complete a short self-assessment: They reflect on their learning development by doing small exercises on different skills.

An ‘At a Glance’ vocabulary and grammar summary is provided at the end of each unit for reference and revision purposes. Selected sample vocabulary is also available as flashcards (quizlet.com), which can be used for repetition and more practice.

4.1 The Course Structure by Example: Unit 12 of Module 1b (Level A1.2)

The following course segment may serve as an example of this structure. This is the second unit of module 1b (units 11–13), i. e., the last part of level A1. In the target task at the end of these three units, the ‘new me’, that is, the previously developed fictional (or real) person in a Spanish-speaking country, has to report on a recent traveling experience. Therefore, the relevant content includes how to travel in the chosen countries, what activities are possible at the destination, and what preparation is required. The task also involves the choice of appropriate vocabulary and the use of the past tense. Unit 11 focuses on different means of transport, but also on reasons for traveling, such as invitations. Unit 13 deals with simple narratives in the past tense. Unit 12, *Travelling*, is presented in more detail here.



Lección 12

Lección 12: Viajar – Reisen

Reisen - das heit Plne schmieden, Unterkunft und Tickets besorgen, aber auch Eigenheiten ferner Orte erkunden, anderen davon berichten, ber die Erlebnisse schreiben...

Descubrir:

Para empezar... (1): Viaje con nosotros - Kommen Sie mit uns auf die Reise!

Figure 2: Introduction to Unit 12 (Module 1b, Level A1.2) with brief information on objectives and content.¹

The starting point for Discovery is the song *Viaje con nosotros* by the Spanish band Orquesta Mondragn. Students are asked to identify interesting chunks from the lyrics of the song. Other introductory activities deal with vocabulary related to travel destinations and the expression of personal impressions, mainly by means of visual stimuli and their linguistic equivalents, leaving some freedom for interpretation and individual variations. The use of appropriate sentence patterns with adjectives (e. g., *Me parece muy rica.*, *Se ve interesante.*, *Es algo tpico argentino.*, *Est picante?*, *Es (increiblemente) brillante.*, *Qu extrao!*, *Qu invento ms ingenioso!*)² is first illustrated with selected photographs. Then the students articulate their own impressions (Fig. 3).

- 1 Traveling – that means making plans, arranging accommodation and tickets, but also exploring the uniqueness of faraway places, telling others about them, writing about your experiences... (transl. AR).
- 2 I think it’s very tasty., It looks interesting., It’s something typical Argentinean., Is it spicy?, It’s (incredibly) bright., How strange!, What an ingenious invention! (transl. AR).

3. Escriba frases sobre estas imágenes y otros objetos o lugares españoles o latinoamericanos que conoce. - Schreiben Sie Sätze über diese Bilder oder über Dinge/ Orte, die Sie aus Spanien/ LA kennen.

alegre – colorido – extraño – grande – arqueológico – caribeño – famoso – azteca – hermoso



Figure 3: Extract from a picture-based learning activity for exploring and using new words and sentence patterns (Module 1b, Unit 12), photos by the author (originally in color).

In the Practice section, the learners collaborate to create a glossary with relevant words they have found in other exercises and their definitions. In another exercise, the students set each other questions on routes, connections, and prices. They have to answer these questions using the Spanish Railways (RENFE) website (Fig. 4). In one of the listening exercises, they are suggested to complete a summary of a short video about a comedian's completely failed attempt to book a flight in a call centre. Another listening exercise presents common airport and in-flight announcements and the learners have to identify them. Short sample texts about travel experiences allow learners to work on their reading skills (e. g., ordering text sections). The intermediate writing task in this unit is to produce a short message with impressions or descriptions of one's own travel experience and to discuss it with peers. In the oral task, students summarize what to remember when packing for their next trip and why.

This short example should illustrate the following principles for the preparation of course materials:

- The learning materials, including the application tasks (intermediate target tasks), support the learners in working on the target task but are not mandatory. The variety of media and exercise formats emphasises the exemplary nature of the selection. Learners are always encouraged to choose what is relevant to them and to add any further stimulus they need.
- Learners' own experiences, impressions, and explorations should be the main focus of their contributions. Parts of the suggested materials are helpful but may not always be sufficient.
- Interaction between learners is very important. They can always check whether they can express themselves and whether they understand what others are saying.


Viaje de Berln a Vigo
 von [redacted] - Donnerstag, 21. Januar 2021, 12:08

Hola a todos,

Quiero visitar una amiga en Vigo en Asturias. Quiero viajar de Berln a Madrid en avin y de Madrid a Vigo en tren.  Me puedes ayudar?

 Hay un tren directo de Madrid a Vigo?

 Cuanto cuesta un billete para una persona?

 Cuanto tiempo tarda el tren?

Muchas gracias por su ayuda.

Saludos,

[redacted]

[Dauerlink](#)
[Bearbeiten](#)
[Lschen](#)
[Antworten](#)


Re: Viaje de Berln a Vigo
 von [redacted] - Mittwoch, 27. Januar 2021, 18:15

Figure 4: Learner's interaction in the writing exercise on travel connections (extract).

5. The Learners' Perspective

So far, so good. But what do the learners say? How do they deal with the target tasks and the materials offered? Some conclusions on these questions should now be drawn from the learners' statements in the self-assessment questionnaires. Here they can check whether they have accomplished the communicative sub-objectives by completing a set of short tasks (e. g., Finish the following sentences spontaneously., Describe your impressions of the following pictures in at least eight sentences., Listen to the situations and react orally.). In these questionnaires, participants also have the opportunity to reflect on their learning experiences and to become aware of their preferences and strategies. There are no fixed answers here. The (written) self-assessment is done as short open-ended answers.

Obviously, these comments show very different individual preferences for the type of activities and materials. For example, exercises based on authentic videos were not very helpful for one student, whereas other learners found these

exercises very effective and engaging. The different points of view and learning strategies can probably be attributed to the very heterogeneous prior learning experiences of the participants. These different preferences, which often correlate with the perception of success, are illustrated in quotes³ 1–6⁴:

- (1): Am meisten helfen mir die PDF-Dateien und die interaktiven Übungen. Mit den YouTube Videos kann ich am wenigsten anfangen.
- (2) En esta lección he logrado mejorar mi comprensión auditiva. Los videos fueron muy interesantes. Estoy contenta conmigo.
- (3) Me gustó el ejercicio en el que grabas tus propios textos.
- (4) Me gustan textos con huecos para completar.
- (5) Abwechslungsreich, toll aufgebaut, von allem was dabei. Man merkt schnell, wo man Stärken, wo Schwächen hat.
- (6) Geholfen haben mir [...] die unterhaltsamen Videos sowie die Interaktion mit den Mitstudierenden bei Übungen.

There are not only different perceptions about learning methods and types of materials, but also about the course content itself. For some learners, a rich thematic input is inspiring (quote 7), for others the same material contains too much information (quote 8).

- (7) me alegró mucho la cantidad de los informaciones sobre las fiestas españolas con sus tradiciones. – Gracias! – (sic!)⁵
- (8) Además estoy un poco confundido [...] ¡tantas fiestas y vacaciones! ¡Tantas palabras especiales!⁶

Personal interests and experiences are also likely to be important in judging the level of difficulty. Quotes 9 and 10 give two contrasting opinions on the same unit at the end of level A2.

3 All quotes have been translated by the author.

4 (1) The PDF files and the interactive exercises help me the most. The YouTube videos are the least helpful for me. (2) In this unit I have improved my listening comprehension. The videos were very interesting. I am satisfied with myself. (3) I liked the exercise where you record your own texts. (4) I like texts with gaps to fill in. (5) Variety, structure, a bit of everything. You quickly have an idea of your strengths and weaknesses. (6) Helpful for me [...] were the entertaining videos and the opportunity to interact with other students during the course activities.

5 (7) I was very pleased with the amount of information about Spanish festivals and traditions. Thank you!

6 (8) I'm also a bit confused [...]. So many festivals and holidays! So many special words!

- (9) Die Lektion war recht einfach, weil vom Thema her das, mit was ich mich auch sonst außerhalb des Kurses thematisch beschäftigen würde.⁷
- (10) Es war dieses Mal alles sehr aufwändig. Lange Texte, die für mich schwer zu verstehen waren und viel Zeit brauchten. Nicht anders war es bei den Hörvideos.⁸

How they deal with the concept of self-determination varies widely from student to student. Not all learners seem to perceive the high degree of flexibility and optionality of the learning materials offered as meaningful or even given. Some of them expect teachers to provide reduced content and fixed solutions (quote 11). Others have developed personal strategies, for example, to cope with the challenge of the large vocabulary (quote 12):

- (11) Ich würde mir wünschen, einen Wortschatz zugewiesen zu bekommen, welchen man lernen muss.⁹
- (12) Ich schreibe mir laufend die Vokabeln in meinen persönlichen Quizlet-Ordner und lerne sehr gerne damit.¹⁰

Learners often make demands on themselves, for example, to do more practice and learn more words, which is probably partly a result of their lack of other strategies. Participants' demands are particularly excessive when they claim to understand everything or to complete all the exercises on offer (quotes 13–15):

- (13) Ich bin stolz auf mich, dass ich es schon schaffe Texte auf Spanisch zu verfassen, aber momentan hab ich das Gefühl, in meinem Kopf herrscht eine Reizüberflutung und dass ich das Wissen der bisherigen Lektionen noch nicht spontan abrufen kann.¹¹
- (14) Es sind gute Übungen, jedoch muss ich mir viel nebenbei auf anderen Seiten wie z.B. Youtube erklären lassen und dies auch verarbeiten.¹²

-
- 7 (9) The unit was quite easy because it was the kind of material I would normally deal with outside the course.
 - 8 (10) That one was very complicated. Long texts that were hard for me to understand and took a lot of time. The same goes for the audio-videos.
 - 9 (11) I would like to be given specific vocabulary to learn.
 - 10 (12) I am constantly writing down the new words in my personal Quizlet folder. I really enjoy learning with it.
 - 11 (13) I'm proud that I'm already able to write in Spanish, but I feel that my head is overloaded and that I'm not yet able to spontaneously recall what I've learnt in the previous units.
 - 12 (14) These are good exercises, but I need to get a lot of things explained to me on other sites like Youtube, and I have to process that content as well.

- (15) immer noch habe ich Probleme mit dem echten Sprechtempo. Manches verstehe ich dann nach mehrmaligem Hören – immerhin.¹³

The perception of being overloaded can be problematic, as it can lead to a reduced sense of achievement, which is necessary for learning motivation (quote 16).

- (16) Im Allgemeinen fand ich die Lektion gut und abwechslungsreich. Ich bin bloß langsam frustriert, weil ich sehr wenig verstehe, was in den Videos gesagt wird.¹⁴

In some cases, learners also notice a certain contrast between their expectations and the suggested materials. While some students proactively deal with this and explore new horizons (quote 17), others limit themselves because they perceive or expect to be overloaded. Quote 18 seems to be mainly an expression of astonishment (and a slight reproach to the course designers) and quote 19 is probably not to be taken as a compliment or as a positive surprise about what is possible at such an early stage in the learning process. This learner engaged less than others with the material, rather than being motivated and pushed by the new challenge.

- (17) Das mit den Argentismos fand ich schon sehr spezifisch, aber trotzdem mal gut gehört zu haben.¹⁵
 (18) Erwartet ihr das wirklich schon nach 2 Wochen?!!!!¹⁶
 (19) Teilweise erscheinen mir die Themen ein bisschen anspruchsvoll für Niveau A2. Ich hätte nicht gedacht, dass man im Niveau A2 schon über komplexe Themen, wie Immigration, Globalisierung, Zukunftsthemen wie ‚autonomes Fahren‘, etc. diskutiert.¹⁷

In most cases, the students are highly motivated to complete the target tasks in the best possible way. They are aware of the fact that they sometimes have to prepare more or do something different than just studying the suggested material in detail (quote 20), but this is sometimes formulated as a suggestion for improvement, i. e., not necessarily understood as a normal procedure and as an incentive for individually meaningful learning.

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- 13 (15) I still have problems with the real speaking speed. Some things I understand after listening several times – at least!
 14 (16) In general, I have found the units to be good and varied. But I'm just starting to get frustrated because I understand very little of what is said in the videos.
 15 (17) I found the Argentismos very specific, but it was still good to have heard it.
 16 (18) Do you really expect this after only 2 weeks?!!!!
 17 (19) Some of the topics seem a bit too challenging for A2. I wouldn't have thought that complex issues such as immigration, globalisation, future technologies like autonomous driving, etc. would be discussed at A2 level.

- (20) Noch was zur 3. Einsendeaufgabe: Teil 1 fand ich einfach, bei Teil 2 musste ich super viele Vokabeln erst nachschlagen, das hat dann ziemlich gedauert.¹⁸

Particularly important for motivation are the topics and the overall choice of materials. Practical applicability and interest in the contents are highly important for the participants and this is a strong argument (quotes 21–24) for continuing to offer the widest possible range of materials for free choice:

- (21) El contenido sobre la sostenibilidad me gustó mucho y puede ver que estoy haciendo progreso, escribir, leer y hablar en español deviene más fácil cada día. (sic!)¹⁹
 (22) Mir hat gefallen, dass ich vieles praktisch anwenden konnte.²⁰
 (23) Me gustó mucho más que la lección anterior, porque me interesaba más.²¹
 (24) Gerade war ich – leider nur für eine Woche in Spanien – und konnte Einiges aus der Lektion tatsächlich anwenden.²²

This selection of original testimonies from course participants shows that they are usually very aware and motivated learners, that they generally accept the offered learning opportunity, get involved in the sometimes unfamiliar (asynchronous) learning modality, and develop appropriate strategies on their own. The concept of the target task works well. The learners succeed in expressing themselves individually and according to their interests within the quite open parameters of these tasks. However, the optionality and openness of the materials in general are not always fully understood. On the one hand, due to the learning traditions characterized by standardized learning material in prescribed textbooks, and on the other hand, probably also due to the presentation of the materials in an online course environment structured according to topics, it is not easy to make this openness completely clear. Many learners do, however, appreciate the ‘offering’ character of the course material and thus select what they need (quote 25):

- (25) Hasta ahora todo está bien. Toma lo que necesites de la mesa ;)²³

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- 18 (20) A word on the 3rd assignment: I found the first part easy, but I had to look up a lot of vocabulary in part 2, which took quite a long time.
 19 (21) I really liked the content on sustainability and I can see that I am making progress. Writing, reading and speaking in Spanish becomes easier every day.
 20 (22) I liked the fact that I could apply a lot of things hands-on.
 21 (23) I liked this unit much more than the previous one, because I was more interested in it.
 22 (24) I was just in Spain – unfortunately only for a week – and was able to really apply some of the lessons.
 23 (25) So far so good. Just pick up what you need from the table;).

Based on this review, the final section will consider some general conclusions for the further development of this programme. This involves the question of what positive experiences should be preserved and what can and should be modified in the context of a Textbook 4.0.

6. Conclusion and Outlook: Distance Learning 4.0?

When the Spanish Distance Learning Programme was launched in 2010, the use of learning platforms such as *Moodle* was still relatively new and, compared to today's possibilities, rather limited. So, it was much more difficult to achieve at least a certain level of visual attractiveness than it is today. Despite the technical limitations of the time, the course was awarded the European Language Label in 2012 because of the authenticity of many of the materials and the variety of activity formats, as well as the use of Web 2.0 tools (e. g., the integration of speaking avatars on a text-to-speech basis or the creation of a podcast channel as a learner's audio portfolio). At that time, the Spanish Distance Learning Programme was certainly one of the few language courses that had been designed in this way, without a textbook base and supported by a learning and communication platform.

Since then, the pace of technological development has been breathtaking. The use of learning platforms in itself has been controversial for years. For example, Taraghi et al. (2013) see Learning Management Systems (LMS) such as *Moodle* mainly as a teacher-centred platform for organizational and administrative tasks based on the classic course, class and teaching structures, whereas the potential of a Personal Learning Environment (PLE) lies in self-directed learning and communication. In this sense, many learners in the Spanish Distance Learning Programme quite naturally use other resources in addition to the course materials, such as self-organized exchanges with tandem partners, Spanish language streaming services, or personal dictionaries and vocabulary learning applications. In addition, recent technological developments such as augmented reality (AR), virtual reality (VR), 360° media, social networking, open educational resources (OER), mobile apps and, last but not least, AI-based text tools (for linguistic analysis in the selection of text material as well as for the correction and creation of texts) provide many new opportunities to extend, make more flexible, and update existing distance learning courses.

It is also evident that the authenticity of a flexible online language course is not limited to the mere presentation of different materials from Spanish discourses, as can be seen from the learners' different strategies for setting up their personal learning environments. Authenticity also involves learners' interaction

with these original texts, as well as meaningful interaction between learners and, where appropriate, with other interlocutors. As Riedner (2018: 41) argues, there must and can also be room for playful experimentation and creative interaction with the content or the language itself. This might be accomplished in particular through the use of and productive engagement with AI-supported language work.

The relatively open digital structure of the courses allows new content to be included at any time. Course materials can be adapted more quickly and easily to current content and new technological features than, for example, printed textbooks. Such adaptations have been made continuously in the past. The aim was to find a reasonable balance between open learning opportunities and a helpful structure with target tasks, i. e., to provide learners with a scaffold of clearly identifiable paths but also options for alternative paths. On the one hand, experience in the Spanish Distance Learning courses shows that this concept and the way of material development works for the learners. Both learners who demand a clear structure and do exactly what they are asked to do and learners who use the course as a stimulus have achieved good results. On the other hand, of course, the question arises as to which new technological advances can be integrated in a relatively resource-saving way, and which relationship between authentic material and scaffolding or didactic inspiration would be even more effective in encouraging learners who have tended to perceive the material as a compulsory programme to experience more freedom and open up to new discoveries.

From the reflections and self-assessment questionnaires, it became clear that many participants are used to highly guided learning paths that focus on completeness. In some cases, there are explicit hints in the activities, for example by pointing out that it is not necessary to understand everything, but that only a certain amount of self-selected information should be extracted. Some units deal specifically with the online learning process and provide appropriate activities. For example, units on 'learning paths' introduce levels A2 and B1. In the respective intermediate target tasks, learners discuss their learning experiences and formulate recommendations (for online learning). In level B1, every second unit also contains a section *Con estrategia / With strategy* providing practical suggestions for becoming aware of and practising learning strategies. It might be useful, for example in the self-assessment questionnaires at the end of each unit, to encourage more introspection about the possible gap between one's expectations or learning routines and the course design.

Regardless of the selection and technical preparation of the materials, the focus in terms of task-based learning will continue to be on the further design of open

tasks rather than closed exercises. Such methodological proposals for working with new materials can be adapted much more easily and time-efficiently than closed exercise formats focused on specific lexical or grammatical phenomena if the authentic input materials (openly accessible online sources such as videos, texts, images, more complex web portals or even materials prepared with the support of AR, VR, and AI, etc.) are no longer publicly available or lose their topicality. Open-ended tasks are therefore preferable for the continuous updating of materials, e. g.:

- In this text (or in a text of your choice on this subject), find and mark five examples of...
- Choose a quotation from this text and formulate...
- What do you see? What do you notice?
- Formulate a question about this video and answer one of your peers' questions.
- Recommend a video/text/exercise on the subject of... to your coursemates.
- Collect/create together...
- Talk to... about... and then tell the others what you have learned.

As a result, it is possible to get closer to the principles of task-based learning mentioned above, by creating specific learning content not based on predefined paths, but in the process of working on the task itself. When selecting text material, AI-based text analysis tools (e. g., <https://voyant-tools.org/> [11.04.2024]) can of course open up new possibilities. They can be used to determine the linguistic complexity and keywords, but also the mood of texts. In particular, learners can use them to select and share appropriate materials purposefully. Providing and critically using appropriate tools can thus support interest-driven, self-directed learning. This does not contradict Rösler's statement about a "very beautiful paradox", namely that there is once again a serving function of grammar teaching which self-confidently focuses on form because it takes place in the very centre of communicative practice (cf. Rösler 2019: 121).

However, the further design of the courses remains primarily a question of didactic flexibility rather than technological update. Beyond complex testing procedures, learning analytics, or elaborate AR/VR applications, experiences with the Spanish Distance Learning programme may provide chances for open and flexible Textbooks 4.0 in terms of consistently student-centred materials and courses.

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Herausgegeben von
Michael Schart, Lars Schmelter, Karin Vogt und Nicola Würffel

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