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Objectives. We identify core product quality components from the consumers' perspective and construct a psychometrically sound instrument for their assessment within different purchasing contexts.
Methods. Study 1 ($N = 34$) used a qualitative approach to reveal core components of perceived product quality in the context of apparel evaluations. Study 2 ($N = 305$) was designed to construct and quantitatively validate the quality scale in a retail store setting. In Study 3 ($N = 180$) using a second purchasing context the scale's dimensionality was cross-validated in a mail-order context.
Results. Six components of product quality emerged (material, workmanship, design, care, color, fit) and explained approximately 75% of the variance in consumers' product evaluations. Their dimensional structure was validated using confirmatory factor analysis. Differences concerning the quality dimensions' relative importance were found for the two purchasing situations.
Conclusion. The quality scale proved to be reliable and valid in two important purchasing contexts.

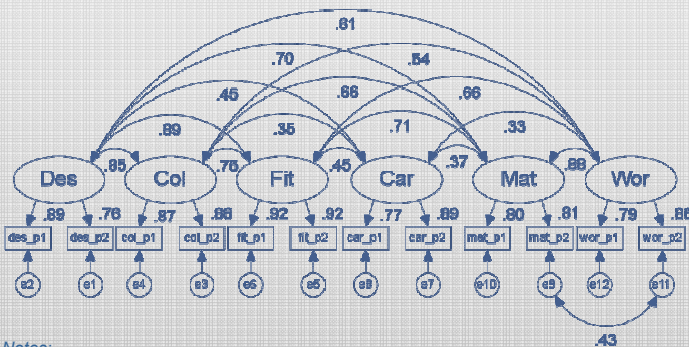
1. Introduction

The concept of product quality has been scrutinized from various angles in different disciplines (Garvin, 1984). Although a large body of research indicates that product quality is a multidimensional concept many consumer researchers treat it as a unidimensional construct (cf. Menon & Chowdhury, 1995) without assessing what product quality actually means from the consumers' perspective. Previous research on perceived quality in apparel products identified several relevant attributes (cf. Spörrle, Quenzer, Ziebula & Brändli, 2007) which subsequently could be classified into different categories. However, these categories and attributes differ from study to study and until now there is no systematic unifying framework of relevant apparel attributes and their categorization. The so far identified attributes were merely descriptively classified into proposed dimensions (e.g., Eckman et al., 1990) or just categorized using exploratory factor analysis (e.g., Forsythe et al., 1996) but without actually testing or cross-validating the postulated multidimensional structure using techniques like structural equation modeling. The present study aims at filling this research gap. A psychometrically sound quality perception scale is developed in a first study and subsequently cross-validated in a new sample drawn from the same population.

2. Method

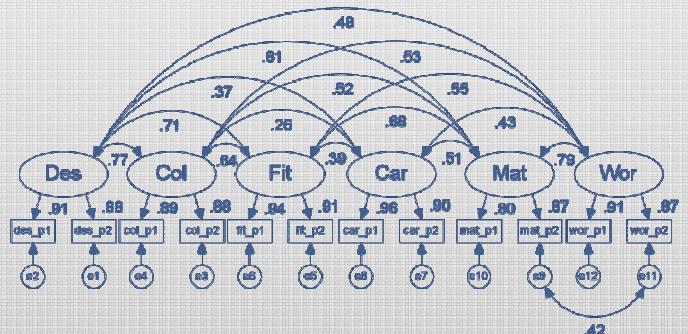
Study 1: Participants were $N = 34$ females (aged 22-87 years; $M = 47.41$; $SD = 21.20$). Applying a semi-structured interview, participants were presented three apparel products (one skirt, one blouse, one pair of trousers) and asked to list all attributes they would use to judge product quality. Subsequently, participants were asked to rank all attributes they had previously named according to an attribute's relative importance for their quality judgment. Subsequently, the importance of each category was computed by adding up all attribute mentions in this category and weighing them by the mean rank assigned to these attributes across all participants. Overall, participants named 69 different attributes which were grouped into 16 categories by three judges. Based on these results and a comprehensive literature review 14 dimensions were chosen for further investigation. Subsequently, items were generated to cover each of the dimensions resulting in a pool of 66 items which were psychometrically tested in Study 2.
Study 2: The sample of this study consisted of $N = 305$ predominantly mature, female participants that were recruited from various institutions for older people (e.g., leisure circles). Participants' age ranged from 40 to 94 years ($M = 61.87$, $SD = 12.98$). Participants were each given one of three apparel products used in Study 1 and were asked to evaluate this product using the 66 items obtained from the results of Study 1. All items were to be rated on 5-point rating scales.
Selection of dimensions and items and construction of the final quality scale: First, five dimensions with low reliabilities ($\alpha < .80$) were excluded from further analysis. Second, the remaining nine dimensions were entered as independent variables into a regression analysis predicting perceived overall product quality ($\alpha = .94$). Only the six dimensions with the highest predictive validity were selected for the final quality scale. For each dimension the best four items according to corrected item-total correlation were selected.
Study 3: Participants were $N = 180$ mature females that were recruited from various institutions for older people (e.g., leisure circles). It was ensured that none of the participants had previously taken part neither in Study 1 nor in Study 2. Participants' age ranged from 50 to 82 years ($M = 63.31$, $SD = 7.40$). Participants were shown a picture of one of the three apparel products used in Study 1 and asked to evaluate this product using the final quality scale developed in Study 2.

Figure 1: Structural equation model of the apparel quality scale (Study 2)



Notes:
 Des = Design, Col = Color, Fit = Fit, Car = Care, Mat = Material, Wor = Workmanship
 The model is significant at the .05 level ($\chi^2(N = 305, 38) = 75.29$, *Bollen-Stine-Bootstrap* $p = .01$). CFI = .99; RMSEA = .06; SRMR = .02.

Figure 2: Structural equation model of the apparel quality scale (Study 3)



Notes:
 Des = Design, Col = Color, Fit = Fit, Car = Care, Mat = Material, Wor = Workmanship
 The model is significant at the .05 level ($\chi^2(N = 180, 38) = 73.16$, *Bollen-Stine-Bootstrap* $p = .02$). CFI = .98; RMSEA = .07; SRMR = .03.

3. Results

Considering only the six dimensions with the highest predictive validity identified in Study 2, a structural equation model approach was used to set up and test the measurement model. The developed apparel quality scale is proposed to consist of six inter-correlated latent dimensions of intrinsic quality cues (material, design, workmanship, color, fit, and care) with four manifest indicators (i.e., items) per dimension. Reliabilities of the six dimensions were good to very good ($.83 < \alpha < .93$). To estimate model parameters and test model fit, the four items of each dimension were parceled. The resulting structural equation model, parameter estimates and fit indices obtained in Study 2 are shown in Figure 1. Overall, indices estimated by this measurement model suggest acceptable fit (Hu & Bentler, 1999). Hence, the apparel quality scale's proposed structure is accepted and can be regarded fitting the data well. In Study 3 the same structural equation model as proposed in Study 2 was replicated with responses from a new sample. Reliabilities of the six dimensions were good to very good ($.83 < \alpha < .91$). The model and its fit indices obtained in Study 3 are shown in Figure 2. Examination of fit indices indicates that the model can be considered fitting the empirical data. Moreover, the identified six quality dimensions explained 75% of the variance in perceived overall product quality in Study 2 ($R^2_{adj} = .75$, $F(8, 296) = 127.12$, $p < .0001$) and 64% of the variance in perceived overall product quality in Study 3 ($R^2_{adj} = .70$, $F(8, 171) = 57.92$, $p < .0001$), respectively.

4. Conclusion

A multi-dimensional apparel quality scale was developed based on a qualitative approach and refined through quantitative procedures. The final 24-items measure parsimoniously assesses perceived apparel quality by means of six associated but separable dimensions (design, color, fit, material, care, and workmanship) covered by four items each. The proposed dimensionality of the measurement instrument was shown valid using structural equation modeling and could subsequently be cross-validated in an independent sample. Market researchers may apply the quality scale for product tests (e.g., in the context of focus groups) where consumers are presented new apparel products for evaluation. In such contexts the quality scale provides a valid and reliable instrument for the assessment of perceived quality in the stage of product development allowing direct comparisons of different products on core intrinsic quality dimensions. Limitations of this study primarily concern the fact that the apparel quality scale was developed using a mature female sample only. Further studies are needed to validate this instrument for other populations.

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