

Kurt Matzler^a
Sonja Bidmon^a
Rita Faullant^a
Marliese Fladnitzer^a
Martin Waiguny^b

^a Institute for Business Administration and Economics
Department for Marketing and International Management
University of Klagenfurt, Austria
kurt.matzler@uni-klu.ac.at, sonja.bidmon@uni-klu.ac.at, rita.faullant@uni-klu.ac.at,
marliese.fladnitzer@uni-klu.ac.at

^b eBusiness-Institute (biztec)
University of Klagenfurt, Austria
martin.waiguny@biztec.org

Dimensions and consequences of customer e-confusion in online buying behavior

Abstract

As a result information overload from mass media and the variety of supply on online and offline markets the psychological construct “customer confusion” is becoming a highly interesting concept in marketing. Customers are facing a vast variety of products and information while also the complexity of products and services has been increasing continuously. Only a few studies have focused on customer confusion resulting from overload, similarity and unclarity of product-related information at the “offline” supply side, most of them exploring convenience- and shopping goods. The number of internet users is growing worldwide and a lot of them have experiences with online offerings and online buying. Customer confusion may be a construct that influences and explains online purchasing behavior. This paper explores and tests the dimensionality of online customer confusion and its impact on three coping strategies. In the empirical part of the study, the relationship between consumer confusion and different “reduction” strategies is investigated for online purchase decisions of DVD-players with a sample of 128 persons using structural equation modeling.

Keywords: Consumer confusion, online buying behaviour, structural equation modelling

1 The Concept of Consumer Confusion

Within the last decades the variety of offered products in the business-to-consumer market has increased dramatically. However, not only the amount of goods increased but also the way consumers make their buying decisions and how they gain and handle information has changed. One reason for the changed circumstances is the emergence of the internet. For the supply side it isn't only the strategic aspect (the internet can be integrated in the value chain and change it substantially) but also the operational side (e.g. enterprises get access to the consumers worldwide, are able to use a variety of online retailers and portals and do new

forms of communication via the Internet) which leads to new challenges in the effective and efficient use of the Internet.

The Internet has also dramatic implications for the consumers' buying behaviour. Consumers, for instance, use the internet to access and process product-related information, to buy products and services or to express their wishes and ideas in virtual product development projects.

However, the internet also has some negative side effects. First, some consumers are not able to adopt the fast developing technology (Walsh, Mitchell, & Frenze, 2004), second, in many cases the consumers are confronted with too much information that can not be processed effectively. These facts can lead to frustrated and confused consumers. The phenomenon called consumer confusion (e.g. Mitchell & Papavassiliou, 1997; Rudolph & Schweizer, 2003; Turnbull, Leek, & Ying, 2000; Walsh & Hennig-Thurau, 2002) can be observed in most decision making processes where the internet is an important source of information and respectively when products are intended to be bought online. In this study, therefore, we investigate the dimensions and consequences of customer confusion in the online-market of DVD-Players.

1.1 Definition of consumer confusion

In literature there is no generally accepted definition and no generally accepted model of customer confusion (Turnbull et al., 2000) with the exception of Papavassiliou's work (cited by Turnbull et al., 2000), who describes confusion as resulting from information processing errors caused by information overload. He understands confusion as a consequence of stimulus overload, stimulus similarity and misleading, ambiguous or inadequate information.

Although customer confusion can be seen as a relatively new concept in marketing, the idea that e.g. information overload leads to consumer reactions is not absolutely new. Jacoby and Jacoby et al. (Jacoby, 1974; Jacoby, Speller, & Berning, 1974; Jacoby, Speller, & Kohn, 1974) studied the reactions of consumers to information display and information overload. Wiedmann, Walsh and Klee (2001) give an overview of the development of consumer confusion definitions and interpretations in a chronological order dating from 1978 to 2000 (p. 85) showing that each definition focuses at specific aspects of confusion. The term "consumer confusion" is used primarily in consumer markets. Turnbull, Leek and Ying (2000) define consumer confusion as "consumer failure to develop a correct interpretation of various facets of a product/service, during the information processing procedure. As a result,

this creates misunderstanding or misinterpretation of the market” (p. 145). Mitchell, Walsh and Yamin (2004) define “confusion as a conscious state of mind that can occur either in the pre- or the post-purchase situation and has not only a cognitive dimension, but also an affective and behavioral one. We differentiate confusion from ignorance or uncertainty as it is associated with a lack of comprehension or misunderstanding” (p. 3). In contrast to similar constructs, e.g. ignorance or uncertainty, the concept of confusion is associated with a lack of understanding and comprehension (Mitchell et al., 2004).

1.2 Dimensions of customer confusion

Past literature concentrated primarily on confusion provoked by brand similarity with important consequences concerning branding and law (e.g. Clancy & Trout, 2002) and confusion provoked by information overload (e.g. Foxmann, Berger, & Cole, 1992). This led to a two-dimensional concept of customer confusion: similarity confusion and overload confusion. In recent publications an additional dimension has been conceptualized, namely unclarity confusion (Mitchell & Papavassiliou, 1999; Mitchell et al., 2004; Walsh, 2002; Wiedmann et al., 2001), so that customer confusion can be understood as a three dimensional construct consisting of:

- similarity confusion,
- overload confusion and
- unclarity confusion.

Similarity confusion can be defined as “a lack of understanding and potential alteration of a consumer’s choice or an incorrect brand evaluation caused by the perceived physical similarity of products or services” (Mitchell et al., 2004). Similarity confusion can be caused by brand similarity (Walsh et al., 2002) when competitors imitate the brand or when quality or product attributes of different alternatives are identical or are perceived to be identical. Similarity may also be derived from advertisement and commercial messages (e.g. Kent & Allen, 1994; Poiesz & Verhallen, 1989).

Nearly all consumer goods markets are characterised by permanently new products, homogenous products and an overly information rich environment (Wiedmann et al., 2001). Customers experience more and more time constraints and at the same time they are members of a multi option society (Rudolph et al., 2003) facing an overwhelming choice of products with rising complexity. Overload confusion may be the result of an information and variety

rich environment. Information overload relates to the fact that the number of alternatives on the one hand and a decision-relevant information on these alternatives on the other hand are growing. The idea of confusion as a reaction to information and supply overload has been explored in many markets like telecommunications (Turnbull et al., 2000), food (West, Larue, Gendron, & Scott, 2002), food labelling (Kangun & Polonsky, 1995) and public services (Ashton, 1993). Sproles and Kendall (1986) were among the first authors to conceptualize customer confusion as a cognitive psychological phenomenon depending on individual information processing capacities. According to the “bounded rationality” (Walsh et al., 2004) of customers they are not able to process all the information of their environment and therefore get confused: “A lack of understanding caused by the consumer being confronted with an overly information rich environment that cannot be processed in the time available to fully understand, and be confident in, the purchase environment” (Walsh et al., 2004). One can speak of an information optimum when all conceivable information necessary for the decision is appropriately processed (Walsh et al., 2004). In the case of confusion the amount of information is too large to get properly processed.

Unclear confusion may occur when customers are “forced to re-evaluate and revise current beliefs or assumptions about product or purchasing environment” (Mitchell et al., 2004). Unclear confusion can emerge when customers receive new or false information that is contradictory or does not coincide with present knowledge. Here, it is the quality dimension of information not the quantity dimension that leads to customer confusion (Wiedmann et al., 2001). Information about the products may be ambiguous, unclear or contradictory (Mitchell et al., 2004; Turnbull et al., 2000).

Sources of consumer confusion can be market-related, company-related and media-related. In the watch market Mitchell and Papavassiliou (1999) found the following market factors that contribute to confusion: the fragmented nature of the market, the newness of the technology, the fashion and lifestyle driving force, too many brands sold in too many shops, the low frequency of the purchase and the purchase of watches as gifts. Walsh and Hennig-Thurau (Walsh et al., 2002) identify situational and personal characteristics as moderators of the S-O-R-chain of customer confusion as response-variable.

1.3 Consequences of customer confusion

Customers cope with confusion, whether consciously or unconsciously by applying several confusion reduction strategies. Customers who are consciously confused are feeling a higher risk within the purchase decision (Turnbull et al., 2000). Confusion reduction strategies as

well as risk reduction strategies are employed (Turnbull et al., 2000; Wiedmann et al., 2001). Mitchell and Papavassiliou (1999) investigated confusion reduction strategies for the watch market in UK and found six categories of confusion reduction strategies: 1) do nothing, 2) postpone/abandon, 3) clarify the buying goal, 4) share/delegate, 5) narrow down the choice set and 6) seek additional information. Drummond (2004) investigated the market of higher education and found eight forms of reduction strategies: 1) do nothing and ignore confusion, 2) abandon the purchase 3) postpone the purchase, 4) clarify the buying goals, 5) seek additional information, 6) narrow down the choice set by important criteria, 7) share the decision, 8) delegate the decision. In the long run, customer confusion influences other determinants of post purchase behavior like loyalty, satisfaction, and trust (Walsh et al., 2002). In the following section we discuss consumer confusion in online buying.

2 Customer confusion in online buying: customer e-confusion

The customer confusion construct is primarily relevant in “highly turbulent industries, which are characterised by rapid, technological change and evolving competition” (Turnbull et al., 2000). It can, however, be assumed that this phenomenon is of high importance also in online buying behavior. While in offline markets consumers may be confused about products, services, and their attributes, about prices and advertisements (Turnbull et al., 2000) on the Internet too much information and too many hits in searching may leave individuals frustrated and confused (Walsh et al., 2004). Therefore, Walsh et al. introduced the term “e-confusion on the Internet” and proposed that the concept of e-confusion on the Internet may also be divided into three types namely similarity e-confusion, unclarity e-confusion and overload e-confusion.

Similarity e-confusion may be caused by look-alike websites, by copycat domain names on the one hand, on the other hand a source of similarity may be similarity in website design (Walsh et al., 2004). Unclarity e-confusion on the web may be caused by the uncertainty if the company is real, if it is a trustworthy company and if sending credit card or bank information may be secure (Walsh et al., 2004). Another source of unclarity e-confusion may be flash technology with texts and pictures moving and disappearing quickly (Walsh et al., 2004). Comparing products offered online and offline, unclarity on the net may also arise from the fact that it is difficult to describe some product or service characteristics on a website (Walsh et al., 2004). If one distinguishes search, experience and trust quality (Weiber & Adler, 1995)

it becomes evident that especially the experience and trust attributes of quality can not be given virtually. Price is another potential source of confusion on the net as the exclusion or inclusion of tax, the costs of delivery may be uncertain.

Companies may cause confusion with their Internet address differing from their company name. Searching for new technical products some customers may be confused when they try to find the right product categorization for the product they need. Walsh, Mitchell and Frenze (2004) searched for DVD and RW disks with the result, that typing “dvd+rw discs” showed that there were no dvd and RW discs, because they had to type “dvd+rw disks” to obtain results.

“Overload e-confusion can be largely attributed to an exponential increase in websites, unsolicited mail, the vast assortments of e-tailers, and excessive online advertisements” (Walsh et al., 2004). Whereas Walsh, Mitchell and Frenze (2004) attribute overload e-confusion to the increase in websites, to the sometimes unreadable results of search engines and an overchoice of e-tailers with amazon.com as example offering more than 350'000 CD titles, another source of confusion may be the design of websites: “Some websites place too much information into limited space deliberately to confuse surfers” (Walsh et al., 2004).

The aim of this study is to replicate previous findings on the dimensionality of customer confusion in online buying behavior. First, it is tested whether the confusion dimensions as suggested in literature can be found in an online setting, i.e. during the purchase of DVD-players. Second, it is tested how the different dimensions are related to the different coping strategies aimed at reducing customer confusion.

In our study, we investigated the impact of consumer confusion in online buying behavior on three important reduction strategies: 1) Do nothing and ignore confusion, 2) share the decision and 3) abandon the purchase in online-shopping of DVD-players.

3 Study and results

To provide empirical evidence for the dimensions of consumer confusion and the related reduction strategies online-purchase behavior for DVD-players has been investigated. Using a convenience sample, the survey was undertaken at an Austrian Airport. 128 travelers have been interviewed in the waiting areas of the airport while passing the transition time for the flight connection. Before the self-administered questionnaires were handed out, interviewees were asked whether they had experience with internet purchases and DVD-Players. Only

those who affirmed both questions were invited to complete the questionnaire. 54 % of all respondents were female and 46 % male, with 92 % of all participants being between 18 and 40 years old and including professions or employees (20 %), students (60 %), skilled workers (7 %) and others (13 %). The average sample showed a slight tendency to a more educated sample with 66 % having a high school degree or more.

3.1 Measurements

Apart from the demographical data and the internet-use frequency the questions were borrowed from the original questionnaire of Walsh (2004), phrased to measure the perceived confusion in Internet with DVD-Players and its reduction strategies using 5-point Likert-scales anchored with “strongly agree” to “strongly disagree”.

3.2 Analysis and Results

We first conducted an explorative factor analysis for both the confusion dimensions, which supposed to be e-similarity, e-overload and e-unclarity, and the reduction strategies of which Walsh (2004) proposed six and Drummond (2004) eight different strategies, from which items to measure the three reduction strategies 1) do nothing and ignore confusion, 2) share the decision and 3) abandon the purchase in online-shopping of DVD-players were taken. After purifying the scales from items which did not load strong enough on one factor (<0.4) we entered the remaining items into the confirmatory factor analysis and computed the analysis applying the AMOS 5.0 software for structural equation modelling. The first important insight from the exploratory factor analysis was that the three confusion dimensions did not mirror the same contents as Walsh proposed: we clearly extracted three factors too, but in respect of content these three factors had to be interpreted differently and were therefore re-named into “overload”, “optical similarity” and “content similarity”, all three dimension being highly correlated. This corroborates our assumption that the confusion construct in online shopping might be conceptualised differently in comparison to confusion in offline markets. The high intercorrelations between overload, visual similarity and optical similarity admit to conclude that one confusion type leads to another and that perceived visual and optical similarity might precede and enhance overload confusion. Therefore, the consequences of e-confusion of each confusion dimension were assessed separately in three different models.

Model fit

First, the overall fit of the observed data to the models was tested. The first test yielded chi-square values of 64.318 ($p = .10$; $\chi^2/d.f. = 1.261$) for the model overload confusion; 58.309 ($p = .03$; $\chi^2/d.f. = 1.422$) for the model content similarity; and 61.191 ($p = .22$; $\chi^2/d.f. = 1.493$) for the model visual similarity. The RMSEA (root mean square error of approximation) evaluates approximate rather than exact fit of the model and it attempts to correct for the tendency of the Chi-square statistic to reject any model with a large sample size. Recently the RMSEA has been recognized as one of the most informative criteria in covariance structure (Byrne, 2001) with values less than .08 being acceptable. In our model, the values between of .045 and .062 therefore clearly indicate a good model fit and in two cases even meet stricter recommendations, whereby the RMSEA should be $<.05$ (Hu & Bentler, 1999). The goodness-of-fit index (GFI) with values above .925 indicates that our models comply with the required values of > 0.9 . Our measurement models showing a CFI value all above of .920 well exceed the lower bound of .90 and therefore can be considered as an indicator for good model fit. Also the Tucker-Lewis index (TLI), which is less susceptible to non-normality of data (West, Finch, & Curran, 1995) and sample size (Marsh & Balla, 1988), yields corroborating values for good model fit each being close to or above of .90. The adjusted goodness-of-fit-index was between .879 and .889. Summarizing, the hypothesized model can be regarded as to satisfactorily fit the sample data.

Reliability

In the next step, reliability of the measures were tested calculating the composite reliability (CR) of the constructs and the average variance extracted (AVE) (Fornell & Larcker, 1981) The results of this test are reported in table 1. Overall, the results are satisfying.

Regression Paths

Figure 1, 2 and 3 display the results of the analyses. In the first model, there is significant path between content similarity and “ignore the confusion” ($R^2 = .01$; $\beta = .23$, $p = .05$), “share the decision” ($R^2 = .08$; $\beta = .36$, $p = .05$) and “abandon the purchase” ($R^2 = .27$; $\beta = .52$, $p = .000$). Overload” ($R^2 = .07$; $\beta = .26$, $p = .05$) and “share the decision” ($R^2 = .05$; $\beta = .23$, $p = .05$) and a strong impact on “abandon the purchase” ($R^2 = .30$; $\beta = .55$, $p = .000$). Finally, similar effects were observed for visual similarity: A weak but significant impact on “ignore the confusion” ($R^2 = .01$; $\beta = .04$, $p = .01$) and “share the decision” ($R^2 = .08$; $\beta = .28$, $p = .000$) and a strong impact on “abandon the purchase” ($R^2 = .38$; $\beta = .61$, $p = .000$).

Fig. 1. Content similarity

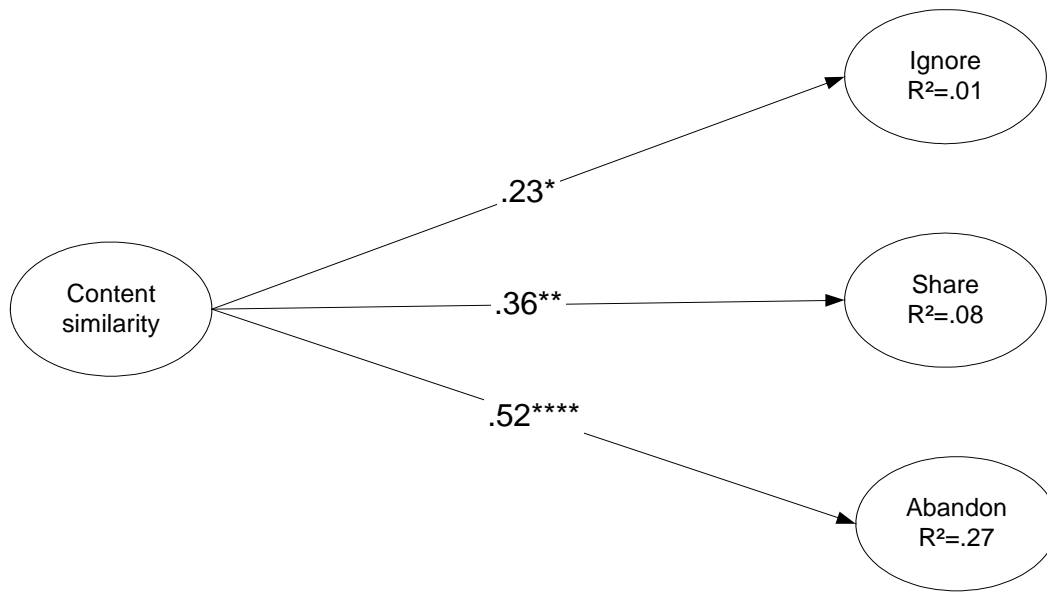


Fig. 2. Overload confusion

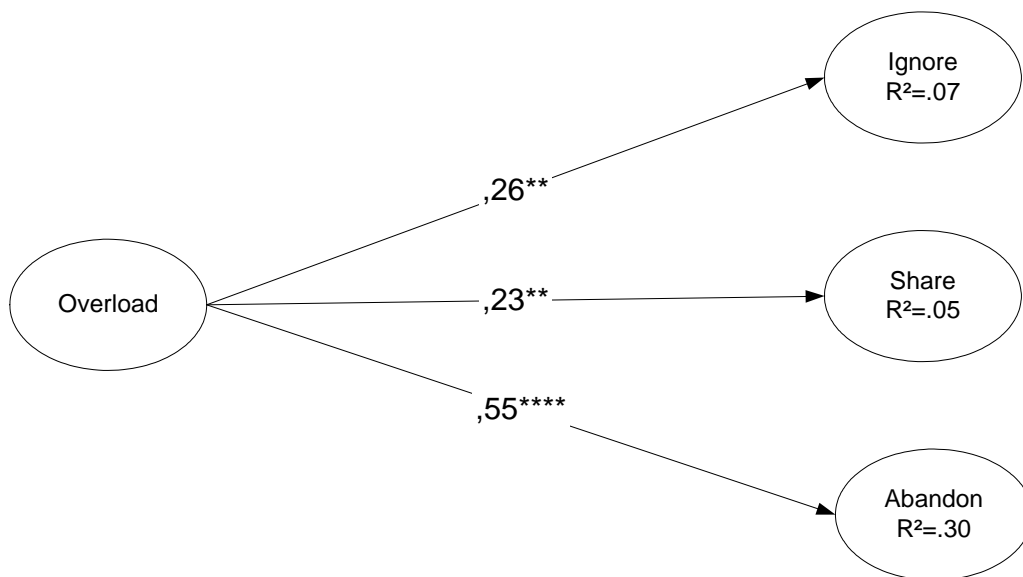


Fig. 3. Visual similarity

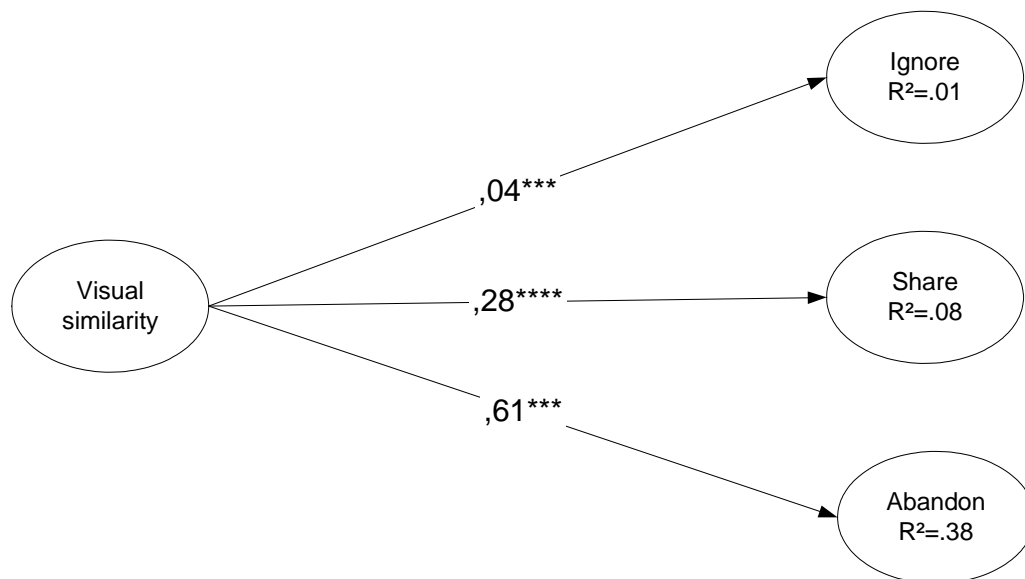


Table 1. Fit indices and reliability measures

Model	CMIN/DF	P	GFI	AGFI	IFI	CFI	TLI	RMSEA
Overload	1.261	.10	.927	.889	.966	.965	.954	.045
Content Similarity	1.422	.03	.925	.879	.947	.945	.926	.058
Visual Similarity	1.493	.22	.928	.884	.924	.920	.893	.062

Model	Confusion dimension		Ignore		Share		Abandon	
	CR	AVE	CR	AVE	CR	AVE	CR	AVE
Overload	.79	.45	.77	.53	.67	.41	.72	.60
Content Similarity	.74	.50	.77	.53	.67	.41	.65	.49
Visual Similarity	.57	.31	.77	.53	.67	.41	.67	.53

4 Discussion and Conclusion

In our study we found that consumer confusion is also relevant in online purchase settings and that each dimension of consumer confusion influences strongly the decision to abandon the purchase. The other two reduction strategies are also applied, however, the relationship is relatively weak. These results suggest that online retailers should pay particular attention to

this phenomenon as it can potentially harm their business. One concept which did not get much theoretical attention of handling confusion is trust. The connection has only been seen in one direction. Confusion influences post purchase behaviour such as loyalty, satisfaction and trust (Walsh et al., 2002). However, trust could either influence the extent of consumer confusion as consumers will be less susceptible for confusing elements like similarity and information overload when they have a high level of trust. Luhmann (Luhmann, 1989, 2002) states that trust is a personal mechanism to reduce complexity. Information overload is a typical sign of uncontrollable complexity. First, the individual is not able to get all potentially relevant information for a good, especially when there is such a huge variety of offers and sources of information, second, it is not possible to process all the information in an objective rational way, which leads to overload, similarity and unclarity confusion.

The relationship between trust as a strategy of confusion reduction with other strategies is not clear and should be examined in future studies. Other reduction strategies that need to be explored are relying on familiar brands and the role of price as a reduction strategy.

Literature:

- Ashton, C. 1993. A focus on information overload. *Management Service Quality*(July): 33-36.
- Byrne, B. M. 2001. *Structural equation modelling with AMOS*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Clancy, K. J., & Trout, J. 2002. Brand confusion. *Harvard Business Review*, 80(3): 22.
- Drummond, G. 2004. Consumer confusion: Reduction strategies in higher education. *The International Journal of Educational Management*, 18(5): 317-323.
- Fornell, C., & Larcker, D. F. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(February): 39-50.
- Foxmann, E. R., Berger, P. W., & Cole, J. A. 1992. Consumer brand confusion: A conceptual framework. *Psychology and Marketing*, 9(March/April): 123-141.
- Hu, L.-T., & Bentler, P. M. 1999. Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling: A Multidisciplinary Journal*, 6(1): 1-55.
- Jacoby, J. 1974. Consumer reaction to information displays. In S. F. Divita (Ed.), *Advertising in the public interest*: 101-118. Chicago: American Marketing Association.
- Jacoby, J., Speller, D. E., & Berning, C. A. 1974. Brand choice behavior as a function of information load: Replication and Extension. *Journal of Consumer Research*, 1(February): 33-42.
- Jacoby, J., Speller, D. E., & Kohn, C. A. 1974. Brand choice behavior as a function of information load. *Journal of Marketing Research*, 11(February): 63-69.
- Kangun, N., & Polonsky. 1995. Regulation of environmental marketing claims: A comparative perspective. *International Journal of Advertising*, 13(4): 1-24.
- Kent, R. J., & Allen, C. T. 1994. Competitive interference effects in consumer memory for advertising: The role of brand familiarity. *Journal of Marketing*, 58(July): 97-105.

- Luhmann, N. 1989. *Vertrauen. Ein Mechanismus der Reduktion sozialer Komplexität*. Stuttgart: Enke.
- Luhmann, N. 2002. *Familiarity, Confidence, Trust: Problems and Alternatives*. Oxford: University of Oxford.
- Marsh, H. W., & Balla, J. R. 1988. Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. *Psychological Bulletin*, 103(3): 391-410.
- Mitchell, V.-W., & Papavassiliou, V. 1997. Exploring consumer confusion in the watch market. *Marketing Intelligence and Planning*, 14(4): 164-172.
- Mitchell, V.-W., & Papavassiliou, V. 1999. Marketing causes and implications of consumer confusion. *Journal of Product and Brand Management*, 8(4): 319-339.
- Mitchell, V.-W., Walsh, G., & Yamin, M. 2004. *Reviewing and redefining the concept of consumer confusion*. Manchester: Manuscript Manchester School of Management.
- Poiesz, T. B. C., & Verhallen, T. M. M. 1989. Brand confusion in advertising. *International Journal of Advertising*, 8(3): 231-244.
- Rudolph, T., & Schweizer, M. 2003. Kunden wieder zu Käufern machen. *Harvard Business Manager*(Februar): 23-33.
- Sproles, G. B., & Kendall, E. 1986. A methodology for profiling consumers' decision-making styles. *Journal of Consumer Affairs*, 20(2): 267-279.
- Turnbull, P. W., Leek, S., & Ying, G. 2000. Customer confusion: The mobile phone market. *Journal of Marketing Management*, 16: 143-163.
- Walsh, G. 2002. *Konsumentenverwirrtheit als Marketingherausforderung*. Wiesbaden: Gabler Verlag.
- Walsh, G., & Hennig-Thurau, T. 2002. Wenn Konsumenten verwirrt sind. Empirische Analyse der Wirkungen eines vernachlässigten Konstrukts. *Marketing ZFP*, 24(2): 95-109.
- Walsh, G., Mitchell, V.-W., & Frenze, T. 2004. Consumer e-confusion on the Internet. *Thesis*, 21(4): 17-21.
- Weiber, R., & Adler, J. 1995. Informationsökonomisch begründete Typologisierung von Kaufprozessen. *Zeitschrift für betriebswirtschaftliche Forschung*, 47(1): 43-56.
- West, G. E., Larue, B., Gendron, C., & Scott, S. L. 2002. Consumer confusion over significance of meat attributes: The case of veal. *Journal of Consumer Policy*, 25: 65-88.
- West, S. G., Finch, J. F., & Curran, P. J. 1995. Structural equation models with nonnormal variables: Problems and remedies. In R. H. Hoyle (Ed.), *Structural equation modelling. Concepts, issues, and applications*. Thousand Oaks, CA: Sage.
- Wiedmann, K.-P., Walsh, G., & Klee, A. 2001. Konsumentenverwirrtheit: Konstrukt und marketingpolitische Implikationen. *Marketing ZFP*(2): 83-99.