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MEANS-END CHAIN THEORY: A CRITICAL REVIEW OF LITERATURE

TEORIA ŚRODKÓW-CELÓW: KRYTYCZNY PRZEGLĄD LITERATURY

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Summary: This study provides the first critical and systematic investigation of the literature on Means-End Chain theory after the ground-breaking book "Understanding Consumer Decision Making: The Means-End Approach to Marketing and Advertising Strategy" by Olson and Reynolds (2001). The sample of 157 articles published in the Science Direct, Emerald, and Wiley databases was investigated. The period covers scientific literature published from 2001 to 2018. The paper shows the main theoretical concepts, methodological approaches, research problems, and findings. The results of the literature review demonstrate that the Means-End Chain theory is an evolving area of research and is gaining importance in academia and management. Some important gaps in the knowledge of theoretical and methodological levels were identified, and the most important directions for further studies were proposed.

Keywords: Means-End Chain theory, qualitative research methods, quantitative research methods, mixed method approaches.

Streszczenie: Celem artykułu jest systematyczny i krytyczny przegląd literatury dotyczący teorii łańcucha środków-celów i wywiadów drabinkowych wykorzystywanych w badaniach konsumenckich. Przegląd jest dokonany na podstawie 157 artykułów opublikowanych w bazach danych Science Direct, Emerald oraz Willey, w których uwzględniono opracowania wydane między rokiem 2001 a 2018. Artykuł przedstawia podstawowe koncepcje teoretyczne podejścia środków-celów, problemy badawcze, metody wykorzystywane w badaniach i główne wnioski z badań. Wyniki przeglądu literatury potwierdzają, że teoria łańcucha środków-celów jest obszarem dynamicznie rozwijającym się pod względem badawczym w świecie naukowym oraz w praktyce zarządzania. Zidentyfikowano luki poznawcze związane z obszarem teorii i metodologii badań i zaproponowano nowe kierunki przyszłych badań.

Słowa kluczowe: teoria łańcucha środków-celów, metody badań jakościowych, metody badań ilościowych, mieszane metody badawcze.

1. Introduction

The Means-End Chain Theory (MEC) is a value-based, cognitive model that facilitates the better understanding of decision-making and consumer behaviour. It connects the tangible attributes of a product (the means) to highly abstract and intangible personal and emotional values (the ends) (Olson and Reynolds, 2001).

Reynolds and Gutman, inspired by Kelly's work (Grunert and Bech-Larsen, 2005; Ferran and Grunert, 2007), introduced the Means-End Approach into the field of marketing and consumer research. The scientists postulated the existence of the hierarchically organized relationship, connecting product attributes (A), consequences (C), and individual values (V) (Chin-Feng, Hsien-Tang, and Chen-Su, 2016). The A-C-V ladder chain provides an understanding of the salient factors and their personal importance to consumers as they make decisions.

The fundamental knowledge about the MEC was generated in the book "Understanding Consumer Decision Making: The Means-End Approach to Marketing and Advertising Strategy" published by Olson and Reynolds (2001). Since then the MEC has been positively verified by empirical studies and implemented in a wide range of academic and managerial fields, yet there has been no accumulated literature review about the MEC since then.

This study paves the way to the status quo of the MEC theory by critically reviewing the scientific publications and articles. This contribution is not purely academic, but has also a practical implementation as MEC is widely applied in numerous fields including advertising, analysis of brand equity, consumer involvement, and consumer behaviour (Borgardt, 2018).

To sum up, this paper presents an aggregated overview of the scientific literature published from 2001 to 2018, and outlines the methodological approaches and research problems occupying the researchers. The paper also sketches the main fields of studies of the research and outlines the outcome of the findings. Lastly, the paper reveals opportunities for future research.

The theoretical framework is based on the systematic literature review of articles and academic papers in the Science Direct, Emerald, and Wiley databases published in English. The set of keywords applied for the search identified 157 articles published during the past 17 years.

The results of the investigation point to opportunities for extending the epistemological status of MEC to motivational view, considering MEC from a dynamic perspective, moving towards the double-sided character of MEC, and enlarging MEC with micro and macro levels, as well as input and output structures. Additionally, mixed method approaches, interest in negative ladders, and symbolic meanings attributed to products/services become increasingly important in the research.

The structure of the paper is as follows: the second section presents the theoretical background and conceptual framework of MEC. Section 3 outlines the methods and

data collection process. The fourth section depicts an overview of the qualitative and quantitative studies, as well as combined/mixed approaches with a parallel appeal to the fields of studies and issues addressed. Section 5 summarizes some unsolved research issues which have been addressed in line with the MEC theory and laddering methods. The last section concludes the paper and comprises suggestions for future research in the MEC area. This part is a short review of the research.

2. Means-End Chain theory: theoretical background and conceptual framework

The Means-End Chain is a sequential process that can be assessed in three steps: identification of the salient product attributes, the laddering procedure and analysis of the data, and plotting of the Hierarchical Value Map (HVM).

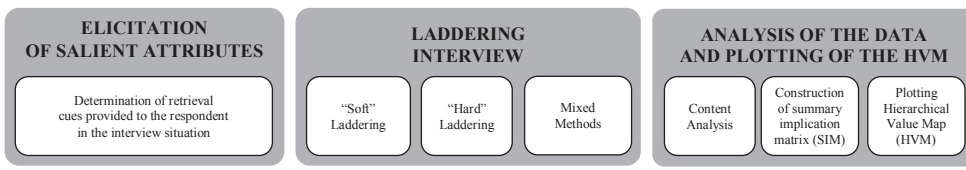

Fig. 1. MEC Framework

Source: adapted from (Olson and Reynolds, 2001).

The salient product attributes that are important for consumers can be identified using techniques based on sorting procedures, elicitation, ranking or scaling tasks. These techniques originate from cultural domain taxonomies and aim to distinguish objects according to their perceived similarities or differences (Olson and Reynolds, 2001; Bernard, 2017).

The laddering interview identifies why particular attributes are important to the consumer in a projected situation, once the most important salient attributes have been determined.

Laddering is typically classified into 'soft' and 'hard' techniques. 'Soft' laddering is applied in research with an exploratory character (Breakwell, 2008) and has a qualitative appeal. The distinctive features of 'soft' laddering are: the natural flow of the consumer's speech, the remote influence of the interviewer on the respondent, exploration of more objects simultaneously and the generation of more MECs of higher abstraction (Costa, Dekker, and Jongen, 2004). However, 'soft' laddering is also time-consuming, complicated to administer, costly to implement, and of limited external validity, which could lead to difficulties in encoding information (Borgardt, 2018).

'Hard' laddering is a more structured, more mechanistic interview model that asks consumers to generate associations (Olson and Reynolds, 2001). It provides less biased and more comprehensive data with high external validity. It can also be

anonymous, is easier to conduct, less costly and can be applied to a larger sample of consumers (Olson and Reynolds, 2001).

In order to synergize the advantages of 'soft' and 'hard' laddering, mixed method approaches (a combination of qualitative and quantitative data collection and analysis), which offer researchers new insights in interpreting market facts (Kaden, Gerald, and Prince, 2012) have recently emerged.

Content analysis is a qualitative categorizing/grouping of the information resulting from in- depth, face-to-face interviews or pencil and paper surveys. In order to assure the reliability of the data, the codification procedures are cross-checked by two or more independent scientists (Baker, 2003; Feixas, Geldschlaeger, and Neimeyer, 2002). The quantitative techniques refining the data (i.e. multivariate methods, regression, Structural Equation Model (SEM), etc.), alter depending on the purpose of the study.

As a result, individuals' ladders are aggregated, hence a summary implication matrix or SIM emerges, which then forms a tree-like graphical HVM diagram (Olson and Reynolds, 2001).

An HVM network diagram consists of nodes and lines (Reynolds and Gutman, 1988; Orsingher, Marzocchi, and Valentini, 2011). The nodes signify As-Cs-Vs concepts, and the lines/relationships represent the frequency of linkages between them (Wilhelms, Henkel, and Falk, 2017; Wittmer and Riegler, 2014; Jung and Pawlowski, 2014; Kim, Kim, and King, 2016). Mecanalyst Plus, Laddermap, and LadderUX are the computer-assisted software frequently used to analyse the output from the interviews and generate the HVMs.

3. Method and data collection

The systematic literature review is a method that provides a systematic, representative, reliable and unbiased depiction of academic output in a given field of study. Apart from that, this method allows for further replication and expansion of the analysis.

Due to the fact that since the publication of "Understanding Consumer Decision Making: The Means-End Approach to Marketing and Advertising Strategy" by Olson and Reynolds in 2001 there has been no accumulated literature review about MEC, this paper contributes to the status quo of the theory and reveals opportunities for future research.

The first step of the method includes a precise formulation of the research criteria for the literature review. In this case, the review of articles and academic papers in English in the Science Direct, Emerald and Wiley databases are included. The time frame is the period from 2001 to 2018 (17 years). The study was carried out in January 2019.

For the literature search in the mentioned databases, the author applied the following set of key words: Means-End Chain Theory, 'soft' laddering, 'hard' laddering, qualitative approach, quantitative approach, and mixed method approach. The most common criterion for omission was the relevance of articles for consumer

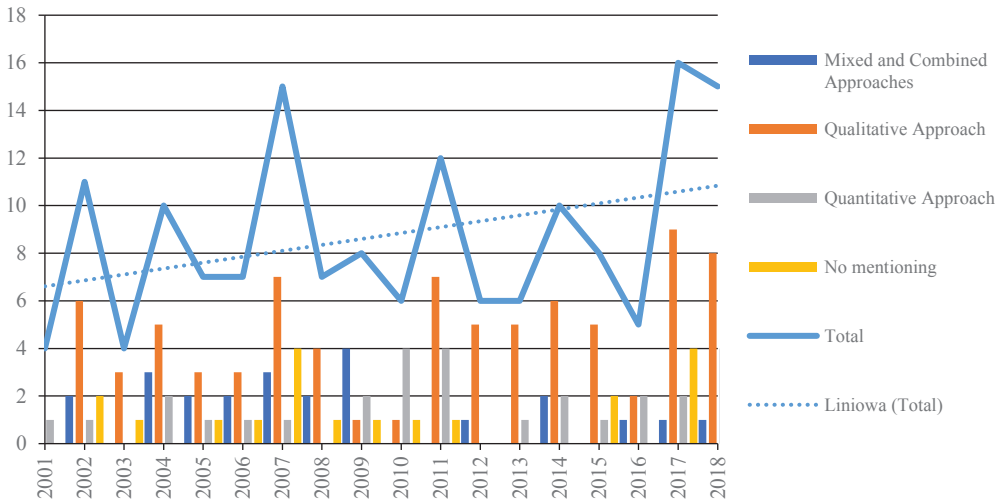

Fig. 2. Number of publications mentioning MEC

Source: compiled by the author.

research and the language of the text. Thus, the number of papers amounted to 157 publications. The overall number of publications about MEC over the defined period of time demonstrates the increasing interest of the researchers in the theory.

4. Identification of the prevailing laddering approaches

It is worth mentioning that MEC originally emerged as an approach of qualitative nature to explore the hierarchical nature of consumer motivations, therefore the prevalence of qualitative-based studies during the analysed period is anticipated. Based on the elaborated literature, qualitative-oriented publications amount to approximately 52%, quantitative-based 19%, whereas the combination of 'soft' and 'hard' laddering methods comes to 16%. MEC with no explicit mentioning of laddering approach equals 13%.

Since combining different sets of data leads to a more comprehensive understanding of the phenomenon under study (Murchison, 2010), one of the potential directions for the development of MEC is seen in the expansion of mixed method approaches.

a. Qualitative studies: soft laddering techniques

Fast Moving Consumer Goods (FMCG) engaged the scientists most of all during the recent years to understand how consumers link attributes (A), consequences (C) and personal values (V). The focus of study were: fruits (Jaeger and MacFie, 2001), vegetables (Lagerkvist, Ngigi, Okello, and Karanja, 2012; Kirchhoff, Smyth,

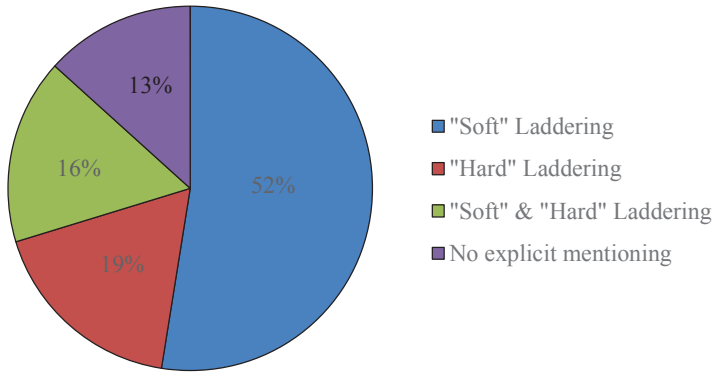

Fig. 3. Overview Laddering Approaches in MEC

Source: compiled by the author.

Sanderson, Sultanbawa, and Gething, 2011), non-alcoholic beverages (Wang and Yu, 2016; Kitsawad and Guinard, 2014; Woodside, 2004), alcoholic beverages (Fotopoulos, Krystallis, and Ness, 2003; Fabbrizzi, Marinelli, Menghini, and Casini, 2017), different kinds of meat and fish (Roininen, Arvola, and Lähteenmäki, 2006; Flight, Russell, Blossfeld, and Cox, 2003; Lind, 2007; Skytte and Bove, 2004), dairy products with a distinction between genetically-modified (GM) and non-genetically modified yogurts (Boecker, Hartl, and Nocella, 2008), edible insects as a source of protein (Pambo, Okello, Mbeche, and Kinyuru, 2017; Pambo, Okello, Mbeche, and Kinyuru, 2018), and extra virgin olive oil (Santosa and Guinard, 2011), etc.

A number of studies investigated the consumer motives regarding the purchase, consumption, and cooking of food. Thus, Arsil, Bruwer and Lyons (2014) explored consumer motivations towards fresh food decision purchase; Cerjak, Haas, Brunner and Tomić (2014) pursued interest in traditional food consumption behaviour, while consumer dining values were the focus for work by Ha and Jang (2013).

Cosmetics (Yang and Chang, 2012), oral nutritional supplements (ONS) (den Uijl et al., 2016), product development strategies (NPD) (Sorenson and Henchion, 2011; Søndergaard, 2005) in FMCG also attracted the attention of the scientific world.

Another area of interest with a representative number of articles is travelling and tourism. There is a notable tendency in moving from pure travel-related topics, such as the search for/evaluation of travel destinations (Klenosky, 2002; Naoi, Airey, Iijima, and Niininen, 2006; Pike, 2012; Watkins and Gnoth, 2011) and car-sharing (Wilhelms, Henkel, and Falk, 2017; Schaefers, 2013) to health and medication related issues (Boga and Weiermair, 2011; Menvielle, Menvielle, and Tournois, 2014).

The 'soft' laddering approach has also delivered valuable solutions for managerial decisions in the areas of complaint management (Gruber, Reppel, Szmigin, and Vass,

2008), customer service experience (Jüttner, Schaffner, Windler, and Maklan, 2013), human resource management (HRM) (Foote and Lamb, 2002), and in marketing in promotion of the goods/services (Bech-Larsen, 2001), understanding the brand's equity (Wansink, 2003) or brand value (Fan, 2009).

The Internet has enabled enlarging the perspectives and strengthened the involvement of scientists in the research field. Thus, the issues which are gaining importance in academia are: use of the Internet and participation in social networking communities (Pai and Arnott, 2013; Wu, Yan, and Shu, 2017), e-commerce prospects (Kuisma, Laukkanen, and Hiltunen, 2007; Lai, Chong, Ismail, and Tong, 2014; Lu, Tina, and Pai, 2018), on-line buying behaviour (Hsiao, Yen, and Li, 2012; Xiao, Guo, and D'Ambra, 2017; Xiao, 2018), web-based document management system (Glavas, Pike, and Mathews, 2014), and virtual reality leisure activities (Lin, Jeng, and Yeh, 2018).

Intensified usage of portable devices (i.e. smart phone, tablet, smart watch, smart glass, etc.) is also becoming important and reflected in the literature (Gengler and Mulvey, 2017; Ho, Liao, and Sun, 2012; Adapa, Nah, Hall, Siau, and Smith, 2018; Heinze, Thomann, and Fischer, 2017).

There are also a few publications with scant representation in terms of MEC theory. For example, the article by Price (2002) on nurse education aimed to provide insights on how to better understand the private world of respondents, the paper about successful campaign message development in politics during elections (Phillips, Reynolds, and Reynolds, 2010), and the assessment of immigrants' remittance behaviours in the field of economics (Bolzani, 2018).

Summing up, MEC publications with a focus on purely 'soft' laddering cover research problems in the field of food/FMCG, tourism/travelling, marketing and management. The research in the areas of mobile commerce and mobile devices are obviously lagging behind, therefore it is recommended to intensify the knowledge in these spheres supported by the 'soft' laddering approaches.

b. Quantitative studies: hard laddering techniques

The ratio of scientific papers engaging with a purely 'hard' laddering approach is marginal (only19%) compared to qualitative studies. Consequently, the outlook of MEC publications with a focus on 'hard' laddering combined with other theoretical approaches will be elaborated further in the "Mixed Methods Approach".

Likewise 'soft' laddering, the publications utilizing 'hard' laddering approach are focusing in the majority on food and FMCG industries. In the explored publications, the researchers are interested in underlying purchase and consumption motives of meat product (Le Page, Cox, Georgie Russell, and Leppard, 2005; Barrena and Sánchez, 2009; Barrena and Sánchez, 2010; Kirsten, Vermeulen, van Zyl, du Rand, du Plessis, and Weissnar, 2017); organic food (Zanoli and Naspetti, 2002; Chen, Lee, and Huang, 2015); functional food and ingredients (Barrena and Sánchez, 2010; Bitzios, Fraser, and Haddock-Fraser, 2011); oral care hygiene products, e.g. mouthwash (Chin-Feng, Hsien-Tang, and Chen-Su, 2006) and cigarettes (Kaciak, Cullen, and Sagan, 2010).

The other areas of interest are management, marketing and tourism/traveling.

Thus, during investigation of the choice of an employer in management realm, van Rekom and Wierenga (2007) have addressed the symmetry and hierarchy issues of MEC. Orsingher, Marzocchi, and Valentini (2011) examined the role of service attributes and customer goals play in forming the satisfaction judgment resorting to conventional paper-and-pencil method in their pilot study; Henneberg, Gruber, Reppel, Ashrai and Naudé (2009), explored complaint management expectations in business-to-business settings and networks by means of online version of paper-and-pencil survey.

Marketing-oriented articles about New Product Development (NPD) (Chen and Ko, 2010), market segmentation (Myrda, 2016) and online advertising (Lin and Fu, 2018); as well as tourism and travel-related articles dealing with public transport to explain heuristic and/or rational type of choice behind final purchase decision (Wittmer and Riegler, 2014); and mental representations of activity-travel tasks (Horeni, Arentze, Delbert, and Timmermans, 2014) used standardized semi-structured interviews.

There are also articles touching on the subject of automobiles (Allen, 2001), landscape (López-Mosquera and Sánchez, 2011), household food waste (Richter and Bokelmann, 2018), etc., mentioning and applying 'hard' laddering in the case studies.

Summing up, it could be noted that the publications implementing 'hard' laddering are on the increase. The reason is cost and methodological advantages (Olson and Reynolds, 2001). However, due to the complexity of MEC research, using a combination of qualitative and quantitative research methods is advisable (Olson and Reynolds, 2001).

c. Combined and mixed approaches

As was previously mentioned, mixed and combined method approaches emerged to synergize the advantages of 'soft' and 'hard' laddering (Kaden, Gerald, and Prince, 2012). However, due to the overall complexity of such constructs, the trend in the amount of publications is decreasing.

Coming to 'soft' laddering combined with other theoretical approaches, it is clear that MEC is an attempt to be shown not only from the purely cognitive viewpoint (prevailing in the science today), but from a motivational research approach that deals with situational and impetus constructed meanings (Borgardt, 2017; Borgardt, 2018).

Thus, in the analysed literature there are attempts to merge MEC with value instruments Rokeach Value Survey (RVS) (Rokeach, 1973; Glavas, Pike, and Mathews, 2014) and List of Values (LOV) (Kahle, Sharon, and Homer, 1986; Brunsø, Scholderer, and Grunert, 2004; Lu, Tina, and Pai, 2018; Chen and Wei, 2012); lifestyle approaches, such as Food-Related Lifestyle instrument (FRL) and Food-Related Behaviour List (FR-BEH) (Brunsø, Scholderer, and Grunert, 2004); the dual process model, the Elaboration Likelihood Model (ELM) (Petty and Cacioppo, 1986; Bech-Larsen, 2001; Jaeger and MacFie, 2001); the Theory of Planned Behaviour (Ajzen and Fishbein, 1980; Xiao, Guo, and D'Ambra, 2017); and the Zaltman Metaphor Elicitation Technique, ZMET® (Ho, Liao, and Sun, 2012).

Qualitative, 'soft' method approaches are also blended with computer-based, 'hard' laddering (see Figure 3). The proof of this is a high number of studies conducted with these methods: for the food and FMCG industries (Costa, Dekker, and Jongen, 2004; de Ferran and Grunert, 2007; Grunert and Bech-Larsen, 2005; Mort and Rose, 2004; Ares, Giménez, and Gámbaro, 2008), tourism (McDonald, Thyne, and McMorland, 2008), human-computer interaction/gaming (Vanden Abeele and Zaman, 2009), etc. The basic 'hard' laddering elements added to 'soft' laddering are utilization of association pattern technique (APT) (Langbroek and De Beuckelaer, 2007; Leppard, Russell, and Cox, 2004), elements of online surveys (den Uijl, Jager, de Graaf, and Kremer, 2016) and the paper-and-pencil formats (Jung, 2014).

As previously mentioned, the Internet nowadays is gaining in importance, therefore it is not surprising that some researches resort to the help of modern chat methods. Thus, Aschmoneit and Heitmann (2002) conducted their research on instant messenger application via the moderated waiting rooms to carry out 'soft' laddering interviews. The scientists appreciate that this method is cost efficient, affords questioning of a large number of people, with little influence of the interviewer on the respondent, and the possibility to document and analyse results after the interview.

Jung and Pawlowski (2014) went one step ahead and carried out online 'soft' laddering interviews with personal avatars in the Second Life virtual world to investigate the underlying drivers of virtual consumption. The study illustrates that such kind of 'soft' laddering approach in Social Virtual Worlds (SVWs) with role-play elements provide users with hedonistic consumption of virtual goods, the ability to personalize their virtual appearance and experiences, and better express their identity through a 'second skin' status. Based on their findings, the authors proposed a virtual liminoid theory, hypothesising the existence of transitions between users' real-world and virtual identities.

Regarding 'hard' laddering in combination with other approaches, in the elaborated literature there are identified cases of using 'hard' laddering, as a core technique supported by 'soft' elements from marketing. Thus, the value-based elements are used to pre-identify the basic values for the quantitative surveys.

For example, Rokeach's Value Attitude Systems (RVS) (1973) are used to understand the direct and indirect influences of human values on consumer decisions about cars (Allen, 2001); Kahle's List Of Values (LOV) (1986) is utilized in the study of high-frequency beef consumers (Barrena and Sánchez, 2010), pilgrim travellers' value orientations (Kim, Kim, and King, 2016) and the exploration of the factors affecting consumer decisions to purchase organic food (Chen, Lee, and Huang, 2015); the Food-Related Lifestyle instrument (FRL) is mentioned by Grunert (2018) to investigate segmentation in the food domain.

A more complex model is represented by a combination of 'hard' laddering interview with the Theory of Planned Behaviour (TPB) (Le Page et al., 2005) The scientists hypothesize that including MEC in the TPB could lead to the formation of a more complete cognitive theory, which would consist in both the output leading to

behaviour and input leading to the salience of certain beliefs (Xiao, Guo, and D'Ambra, 2017).

Horeni et al. (2014) compare 'hard' laddering with Causal Network Elicitation Technique (CNET) in order to assert that shifts in the mental representation concerning the centrality of attributes, are better measured by CNET than by 'hard' laddering, which is unable to depict this effect.

It is also noticeable the increasing interest in combining 'hard' laddering with fuzzy logic, i.e. fuzzy linear programming (Chen and Ko, 2010) and Genetic Fuzzy Association Mining Rules (GFAMR) (Chen, Lee, and Huang, 2015). The overall position of the scientists is that fuzzy logic helps to overcome imprecise thinking and human subjectivity (Chen and Ko, 2010).

In conclusion, the majority of publications have a conceptual character, followed by the investigation of the Food/FMCG industry, the Internet-enabled perspectives, mobile devices and travelling issues. The literature utilizing mixed/combined method approaches has attempted to enlarge the epistemological status of MEC from the purely cognitive view to a more motivational research, to connect current MEC theory with input and output character, and merge MEC with fuzzy logic rules to overcome imprecise thinking and human subjectivity.

5. Unsolved research issues

Although the MEC covers numerous theoretical and methodological problems, there are still some unresolved research issues, which are worth addressing in line with the MEC theory and laddering methods. The summary of research problems explicitly touched upon the literature is presented in Table 1, divided into five clusters related to MEC theory, data collection, coding, data analysis and validation of results.

MEC Theory

Firstly, the articles demonstrate that the **epistemological status** of MEC has attracted intensified interest compared to the publication by Olson and Reynolds (2001). The consumer marketing scientists involved with MEC differentiate two points of view on the epistemological perspective of the theory: the neo-positivist nomological perspective and the interpretivist phenomenological view.

Some adopt the neo-positivist nomological approach. This perspective is also called cognitive structure or post-hoc view, and deals with historical, past consumer purchase behaviour (Mostovicz and Kakabadse, 2009), measuring only connotations dependent on the stimuli prompting to recall consumption situations during the interview (de Ferran and Grunert, 2007; Jaeger and MacFie, 2001; Fotopoulos, Krystallis, and Ness, 2003).

Others adopt the interpretivist phenomenological view, also called motivational or future-facing perspective. It addresses MEC from situational and impetus constructed meanings and stresses the driving force of personality behind the

decision-making process (DMP) (Fan, Lee, and Hsiao, 2008; Mostovicz and Kakabadse, 2009; Fan, 2009; Lagerkvist et al., 2012; Wu, Yan, and Shu, 2017).

It also remains disputable whether MEC has a **stagnating or dynamic nature**. Since MEC explains behavioural intention, once the relevant excerpts from cognitive structure and motivation are known, it could be considered as an output tool only (Olson and Reynolds, 2001). However, there are attempts in the scientific world to extend the latitude of MEC and enhance the model with micro and macro levels (Borgardt, 2018; Borgardt, 2019), include affective and emotional elements (Huber, Beckmann, and Herrmann, 2004), combine MEC with theories possessing input and output character (i.e. the Theory of Planned Behaviour (Le Page et al., 2005) and the Behavioural Perspective Model (Borgardt, 2018; Borgardt, 2019)).

Interestingly, some scientists only elaborate one-sided character of MEC (Fotopoulos, Krystallis, and Ness, 2003; Costa, Dekker, and Jongen, 2004; de Ferran and Grunert, 2007; Kuisma, Laukkanen, and Hiltunen, 2007; Lind, 2007). A few others hypothesize the **double-sided character of MEC**, where a means can be an end, and an end can also be a means (Zachariah and Jusan, 2011; Meesters, 2005).

Data Collection

Data collection block deals with such topics as identification and implementation of appropriate **laddering techniques**. The results of the literature review demonstrate that qualitative-oriented publications with the application of 'soft' laddering techniques prevail (Figure 3), whereas articles with utilising 'hard' laddering methods comprise only one fifth of all publications. Noticeably, mixed method approaches also occur in the literature, yet this method is not widely used, even though it offers researcher new insights in interpreting market facts (Kaden, Gerald, and Prince, 2012).

Another topic raised in the analysed publications is that MEC perfectly elucidates the positive values on the HVM, whereas the HVMs based on **negative laddering** are rarely presented (Zanoli and Naspetti, 2002; Woodside, 2004; Jüttner, Schaffner, Windler, and Maklan, 2013; Jung, 2014).

Distinguishing between the respondents who demonstrate **weak and strong cognitive links** is also the focus of a few articles (Zanoli and Naspetti, 2002; Mort and Rose, 2004; Lind, 2007; Mostovicz and Kakabadse, 2009). It is hypothesized that consumers could be divided into low and high-involved, depending on the intrinsic relevance of the product/service to the person (Kirchhoff et al., 2011). Consumers with low involvement are unable to reach higher levels of abstraction and generate simpler HVMs, while consumers highly involved with the product/service provide richer data, achieve higher levels of abstractions and produce more multi-sided HVMs. These topics are in their turn interrelated with discussions about 'feel' (high-involvement) and 'think' (low-involvement) products (Huber, Beckmann, and Herrmann, 2004); and symbolic vs. functional values/meanings (Mort and Rose, 2004; Boztepe, 2007; Lind, 2007; Yang and Chang, 2012; Brito and Formoso, 2014; Lai, Chong, Ismail, and Tong, 2014; Jung and Pawlowski, 2014; Li, 2015; Borgardt, 2018).

Coding of Data

MEC originally emerged as a qualitative in nature approach, therefore the issues in **content analysis and (en)coding information** are often raised in research papers.

After conducting the interviews, the materials have to be analysed in order to identify so called content codes (i.e. attribute, consequence, or value) and categorize data into elements (Lin and Tu, 2012). After coding, the reliability should be tested and verified via Cohen's kappa coefficient, also called the interrater reliability index. Here, some researchers resort to the validation of coding results either by two (Klenosky, 2002; Skytte and Bove, 2004) or even four independent researchers (Lin and Tu, 2012). The interrater reliability index value can also vary from 75% (Klenosky, 2002) through 80% (Skytte and Bove, 2004) up to 87% (Lin and Tu, 2012). As a result, individuals' ladders are aggregated, hence a summary implication matrix or SIM emerges, which further form a tree-like graphical HVM diagram.

Data analysis

In order to produce an easy-to-interpret HVM with most relevant connections and meaningful results, a **cut-off level**, which is defined as the minimum value of the number of associations between two different concepts (Fabbrizzi et al., 2017), to be cautiously defined (López-Mosquera and Sánchez, 2013; Cerjak et al., 2014). A low cut-off level, with lower frequency of linkages results in a complex map, which contains a large amount of information, yet is difficult to interpret. Reducing the complexity of the HVM, while not losing too much information, requires the application of a higher cut-off level to produce a simpler map with fewer connections (Cerjak et al., 2014; Guenzi and Panzeri, 2015). Despite the literature recommendation of applying the cut-off level between 3 and 5 (Wang and Yu, 2016; Arsil, Bruwer, and Lyons, 2014; Tey, Arsil, Brindal, Liew, Teoh, and Terano, 2018; Lin and Fu, 2018), the choice of the appropriate threshold cut- off level, as a compromise between synthesis and detail (Fabbrizzi et al., 2017; Grunert and Grunert, 1995) is often based on heuristic and experiential selection, fitting the purpose of the investigation (Ha and Jang, 2013; Hsiao, Yen, and Li, 2012; Lin and Fu, 2018).

Validation of results

To achieve validity in qualitative research, it is advised to interview a **sample** of 20 to 25 people (Lin and Fu, 2018; van Rekom and Wierenga, 2007; Olson and Reynolds, 2001) in total, but the researcher can resort to a smaller sampling size if information rich participants are interviewed (Pike, 2012) and saturation point is reached earlier than expected. Thus, Glavas, Pike and Mathews (2014) interviewed only seven entrepreneurs to gain insight into international entrepreneurial values and Internet use in the tourism sector. Curran, Rugg and Campbell (2006) collected information from twelve podiatrists to understand clinical reasoning in making

a diagnosis. Schaefers (2013) resorted to a sample of 14 people to investigate the motives of car-sharing in the United States.

As for the quantitative-based MEC approach, there is no unified approach to the sample size in MEC, hence scientists resort to the sampling best fitting the purpose of the investigation. Consequently, there are surveys with a sample size of 1057 participants to investigate avoidance of household food waste (Richter and Bokelmann,

Table 1. Unresolved Research Issues

Research Area	Research Problem	Authors
Means-End Chain Theory	Extension of the epistemological status of MEC: neo- positivist nomological perspective vs. interpretivist phenomenological view	Grunert, Beckmann & Sørensen 2001; Sørensen & Askegaard 2007; Mostovicz & Kakabadse 2009
	Stagnating or dynamic nature of MEC	Borgardt 2018
	Micro- and macro- levels of MEC	Huber, Beckmann & Herrmann 2004; Le Page et al. 2005; Mostovicz & Kakabadse 2009; Zachariah & Jusan 2011; Borgardt 2018; Bolzani 2018
	Connection of current MEC Theory with output character	Grunert, Beckmann & Sørensen 2001; Borgardt 2018
	Double- sided character of MEC	Zachariah & Jusan 2011
	Overcoming of imprecise thinking and human subjectivity	Chen & Ko 2010; Yang & Chang 2012; Chen, Lee & Huang 2015
Data Collection	Soft laddering vs. hard laddering	Kaciak & Cullen 2009; Lin, Jeng & Yeh 2018
	Combination of laddering approaches	Aschmoneit & Heitmann 2002; Mort & Rose 2004; Grunert & Bech- Larsen 2005; Ares, Giménez & Gámbaro 2008; Jung & Pawlowski 2014
	Positive vs. negative ladders	Zanoli & Naspetti 2002; Woodside 2004; Jüttner et al. 2013; Jung 2014
	Generation of strong vs. weak data based on consumer involvement	Zanoli & Naspetti 2002; Christensen & Olson 2002; Mort & Rose 2004; Lind 2007; Mostovicz & Kakabadse 2009; Kirchhoff et al. 2011; Santosa & Guinard 2011; Pambo et al. 2018
	„Think" vs. „Feel" products	Huber, Beckmann & Herrmann 2004
	Symbolic vs. functional meanings attributed to products / services	Mort & Rose 2004; Boztepe 2007; Lind 2007; Yang & Chang 2012; Brito & Formoso 2014; Lai et al. 2014; Jung & Pawlowski 2014; Borgardt 2018
Coding of data	Number of independent researchers and Cohen's kappa coefficient	Klenosky 2002; Russell et al. 2004; Skytte & Bove 2004; Lin & Tu 2012
Data analysis	Cut- off levels	Hsiao, Yen & Li 2012; Ha & Jang 2013; López- Mosquera & Sánchez 2013; Cerjak et al. 2014; Arsil, Bruwer & Lyons 2014; Guenzi & Panzeri 2015; Wang & Yu 2016; Fabbrizzi et al. 2017; Tey et al. 2018; Lin & Fu 2018
Validation of results	Sample size	Russell et al. 2004; Curran, Rugg & Campbell 2006; van Rekom & Wierenga 2007; Pike 2012; Lin & Fu 2018; Schaefers 2013; Glavas, Pike & Mathews 2014; Chen, Lee & Huang 2015; Kim, Kim & King 2016; Richter & Bokelmann 2018

Source: compiled by the author.

2018), of 300 shoppers to understand their perceptions and choice of organic food (Chen, Lee, and Huang, 2015), of 245 middle-aged women to explain meat product choice, of 104 people to identify pilgrim traveller value orientations (Kim, Kim, and King, 2016), of 54 hotel guests to obtain insight regarding their satisfaction, and of 46 participants to explain the motivation of complex food choices (Russell, Flight, Leppard, and van Lawick Pabst, 2004).

Following the publication of "Understanding Consumer Decision Making: The Means-end Approach to Marketing and Advertising Strategy" by Olson and Reynolds (2001), researches have paid a lot of attention to methodological and theoretical issues connected with MEC. However a major focus is centred on the extension of the epistemological status of MEC from a neo-positivist nomological perspective to an interpretivist phenomenological view, a shift from the static to the dynamic nature of MEC, the movement towards the double-sided character of MEC, and the enlargement of the MEC theory with more complex structures (i.e. micro and macro levels, input and output models, etc.).

Besides, such issues as the combination of laddering approaches, the interest in negative ladders and the difference between symbolic and functional meanings attributed to products/services have gained importance in the research.

Data coding and analysis as well as the validation of results continue to engage scientists as these areas are constantly evolving and need verification with emergence of new approaches in MEC.

This catalogue of addressed, yet not well-investigated issues, opens up new opportunities for making a significant contribution in research of MEC and consumer behaviour as a whole.

6. Conclusions

The focus of this article is to analyse the main theoretical concepts, methodological approaches and research problems by means of a systematic literature review (157 articles) in the Science Direct, Emerald and Wiley databases published in English from 2001 to 2018.

This study contributes to providing an integrated, synthesized overview of the current state of knowledge of the MEC realm, and demonstrates that MEC is an evolving area of research and is gaining importance in academia and management. It also examines the existing frameworks, gaps, and future research directions that are a valuable source of information for all scientists undertaking research in the MEC field.

The investigation points to opportunities for the extension of the epistemological status of MEC to a motivational view, consideration of MEC from a dynamic perspective, movement towards a double-sided character of MEC, and enlargement of MEC with micro and macro levels, input and output structures. Additionally, mixed method approaches, interest in negative ladders and symbolic meanings attributed to products/services are still areas that require further investigation.

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