Budapest University of Technology and Economics
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EXPLORATION MARKET SEGMENTATION OPPORTUNITIES BASED ON IN-STORE CONSUMER BEHAVIOR

DOCTORAL THESIS

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PRELIMINARY INFORMATION ON THE RESEARCH

In the preparation of segmentation methodologies I was motivated by the fact that between May 2009 and February 2011 I participated in an in-store research programme based on pupillometric measurement and further psycho-physiological parameters as a contact person and a member of the project team. I represented the Faculty of Ergonomics and Psychology from the Budapest University of Technology and Economics (BME EPT) as a partner of Forma Display Kft[1]. After establishing the theoretical background, the project constituted of laboratory tests of measurement equipment to be used at in-store conditions and – based on the results of the laboratory tests – in-store research performed under real-life circumstances "based on mobile measurement and evaluation of psycho-physiological parameters".

Soon, already in the systematization phase of theoretic knowledge, it became evident that the application of a so-called „quick segmentation procedure" will be necessary during the in-store measurements in order to allow us to segment and profile the participants of the study on the basis of their purchase-related motivations first during the laboratory measurements and then under real-life circumstances. From the two methodologies introduced in my thesis, the first one presents a procedure intended to solve this problem, with its basis provided by the collaboration in the research group, but its further development and the consistency measurement of the elaborated procedure performed by me alone.

After elaborating the procedure, the concept emerged that besides the mass-applicable „quick segmentation procedure", the segmentation of customers could be refined further, and therefore I constructed a new methodology, firstly to support the first procedure's applicability and secondly in order to obtain more specific information. I deliberately tried to break away from the background theories and literature of the previous procedure and approached the problem from a different direction by analyzing „the shopping experience". For this deep-going test that explores subjective experiences, I chose the Q-methodology, as this procedure combines in itself the characteristics of qualitative research and the strengths of mathematical statistics when it comes to processing data. I formulated this procedure all by myself in complete independence from the previous project group and then united the methods in my thesis in a way that the segments resulting from the first „quick segmentation procedure" were refined further by applying the second procedure.

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[1] KMOP-2008-1.1.1. Title of the tender: *Elaboration of research method for mobile pupilometric eye trackers primarily for in-store application.*

THE ANALYZED HYPOTHESES

Concerning the two elaborated methodologies I formulated the following hypotheses:

Hypothesis 1: **Revealing the consumer-behaviour-centered segmentation possibilities of segmentation practice based on in-store (customer) behaviour can open new dimensions in understanding and influencing consumer behaviour.**

The segmentation of consumers forms the basis of marketing strategy development. In the historical overview of this field's theory, the tendency can be observed that the segmentation methods and techniques are becoming more and more refined, and the way computers, data management and data processing technologies develop, an ever increasing amount of segmentation data and devices can be produced. The same tendency applies to the field of shopper marketing, so instead of previously applied geographic, demographic or psychographic segmentation criteria, nowadays emphasis is placed on actual costumer data (e.g. customer cards or coupons) in this field as well, as the technological possibilities are available to process such information. Today, the role and knowledge of the customer's in-store behavior has increased in value, because that is the point where the customer actually gets in contact with the products and the brands, so the in-store costumer behaviour has become the focal point of elaborate segmentation methodologies.

Hypothesis 2: **The differences in the motivation-related psychological characteristics of customer behaviour describe stable behaviour patterns concerning in-store behaviour.**

When formulating the first procedure, I chose the individual motivations of customer behaviour as a segmentation criterion. The behaviour patterns connected with the segmentation criterion were analyzed in longitudinal test and I also studied their stabilization.

Hypothesis 3: **The elaboration of a measuring device suitable for disclosing differences in in-store shopping experience preferences can be based on Q-methodology.**

One of the purposes of formulating the second methodology was to further refine and explore the motivation segments of customer behaviour. In order to do this, I had to use a methodology that could meet special demands, such as being adaptable to smaller samples and applicable to issues that are difficult to measure, quantify and express in numbers, like the indication of subjective feelings and experiences on a scale, but at the same time had the strong feature of using mathematical statistical methods. With these requirements in mind, I based the development of the measuring tool on the approaches of the Q-methodology.

Hypothesis 4: **With the segmentation method based on the differences of in-store experience preferences, the segments based on motivation groups can be explored more thoroughly, and it is possible to identify:**

a) the common in-store experience preferences based on the different motivation groups

b) the in-store experience preferences that differentiate the segments.

With the segmentation method based on the in-store experience preferences I explored and analyzed each and every motivation segment, then compared the results to each other in order to identify the common in-store shopping experience preferences between the groups and the preferences that differentiate the segments.

OBJECTIVES AND RESEARCH METHODS

> **The purpose of developing the segmentation methodologies presented in my thesis was to create measurements tools for the practical use that are suitable for application on their own or as an addition to other researches.**

In my thesis I developed two segmentation procedures. When creating the first test, the „quick segmentation methodology" based on the Limbic Type® system that performs segmentation according to the motivations of purchase decisions, on of the important aspects was to have an easy-to-use tool that is filled in automatically. The easiness of application was a significant issue, because it was not intended to be used as a „main" measurement tool in the first place; I wanted to establish a methodology suitable for basic segmentation that could function as an additional element used in practice with other test based on the measurement of more complex, for instance physiological parameters, or at in-store examinations. Accordingly, one of the main ideas in creating the scales was to make the time required for filling it in as short as possible, thus the measurement tool had to be formulated with a relatively low number of items. In the beginning I defined the maximum test length in 25 items. From a stylistic point of view it was crucial for the statements to be easily understandable, as during the practical application, for instance at an in-store examination, they had to be clear for the entire shoppers of the given supermarket chain. Concerning the people surveyed, the tool to be prepared had to provide quickness and require only a low level of mental concentration, while on the other hand, for the researcher performing the analysis the simple way and short time of evaluation was of interest. The targets and the related research phases are presented in the flow-sheet below (fig. Figure *1*).

During the development of the methodology, I used paper-based questionnaire for the pilot testing and asked the participants for verbal feedback on the content of the documents on the spot. Based on the observations made during the pilot testing and the performed statistic calculations the extended scale construction was prepared, and I tested it in form of online questionnaires. The amount of experience gained here was put into the development of the final scale construction. The consistency of the final scale construction was tested by longitudinal examination, by paper-based data collection process, and I concluded the concurrent validity examination of the final scale by the 7-item Sensation Seeking Scale measurement tool (SSS-7-HU) valid in Hungary.
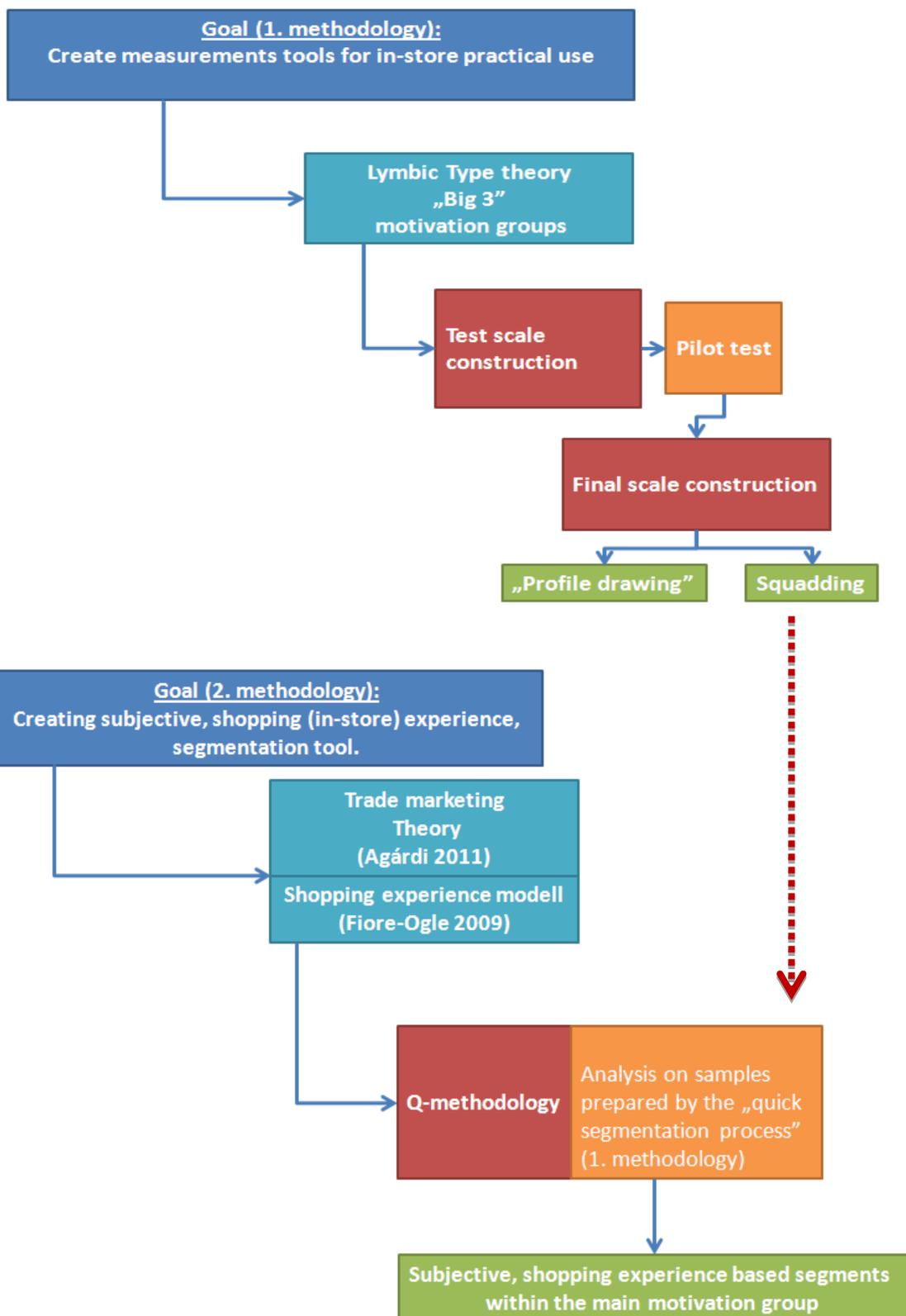
Goal (1. methodology):
Create measurements tools for in-store practical use

Lymbic Type theory
„Big 3"
motivation groups

Test scale construction

Pilot test

Final scale construction

„Profile drawing"

Squadding

Goal (2. methodology):
Creating subjective, shopping (in-store) experience, segmentation tool.

Trade marketing
Theory
(Agárdi 2011)

Shopping experience modell
(Fiore-Ogle 2009)

Q-methodology

Analysis on samples prepared by the „quick segmentation process" (1. methodology)

Subjective, shopping experience based segments within the main motivation group

For the elaboration of the second methodology, my objective was to formulate a tool of a more thorough and exploratory kind. Purchasing goods is **subjective and situation-dependent experience for every individual**, therefore the ideal methodology to be applied for the examination of shopping experience was one that maintained as much of this subjectivity as possible. Unlike traditional questionnaire surveys or quantitative and qualitative research methods based on representative samples, the Q methodology is based on a small sample, but enables quantitative examinations with keeping the individual subjectivity.
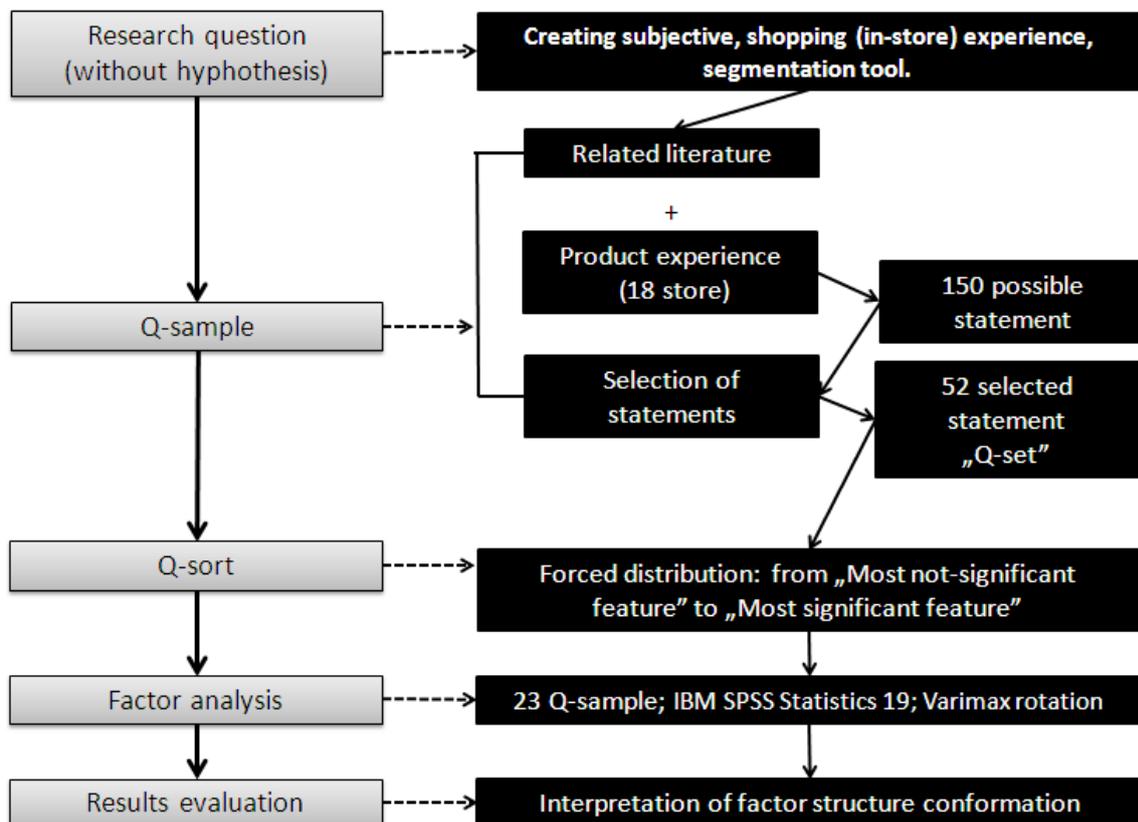

Figure 2: Measures of research based on Q-methodology
(Source: own drawing)

The theoretical elaboration of the second methodology is shown in the flow-sheet above (fig.). After collecting the relevant literature on the subject, I formulated my own methodology related to the experience of shopping and with the help of it I performed the analyses on samples prepared by the „quick segmentation process", thus revealing the subjective experience segments in the groups created by the first procedure. My thesis includes the theoretical background of the Q-methodology and the practical measures taken in my own research. The most sensitive spot in the development and application of the Q-methodology was the construction and selection of the stimulation material. For this, besides studying the related literature, I also performed an individual/special/extraordinary guerilla-kind of ethnographic field study, to be able to perform measurements with the most practical statements later on. As a result of this, I present the outcome of 294 Q-sample. For the calculations I established separate subsamples with the first procedure and then divided them by gender.

NEW SCIENTIFIC RESULTS

Thesis 1: **Revealing the consumer-behaviour-centered segmentation possibilities of segmentation practice based on in-store (customer) behaviour can open new dimensions in understanding and influencing consumer behaviour. (B, L, R, Q)**

In the part of my thesis dealing with the related literature I pointed out that the in-store strategy is a crucially important and yet unexploited area of today's strategies communicated to the customer. *(My publication related to the field of trade marketing: Q and the ones on customer behaviour: B und L)* For the examination of the hypothesis I developed two useful tools the customers can be segmented with. The first tool can be used under in-store circumstances and aims to examine the motivational background of purchase. *(My publication on brand-related motivations: Q)* Moreover, this tool can be applied to survey the actual motivational background of the given feedback area on a great sample, and by making use of the resulting information, the shopper marketing can be established for the most profit-yielding groups. This can be of advantage in hypermarkets, where although each of them has a target group strategy, it is still possible for „everyone" to be present at the purchase point. In such cases the original target group strategy can be complemented by the identification of the motivation groups.

The original intention of creating the first methodology, namely to provide background information for other methodologies based on psycho-physiological measurements, also serves

the purpose of gaining a better understanding of the customers' behaviour during the researches and being able to influence it at the purchase point. Another dimension of that would be purchase points specifically made to suit a determined target group for instance and the segmentation can be refined further by applying the other methodology and creating newer segments. Based on these result, I have accepted the first hypothesis.

> **Thesis 2: The differences in the motivation-related psychological characteristics of customer behaviour describe stable behaviour patterns concerning in-store behaviour.**

The quick segmentation methodology is based on the Limbic Type® system. The Limbic Type® modell based on psychophysiological examinations. *(My publication related to* psychophysiological examinations *the field of marketing*: C, D, H, I) The Limbic Type® modell describes the shoppers motivations. (*My motivation related publication: F, shopping experience related publication: A)* After constructing the scales of the first methodology I compared the resulting points of the subjects on the individual scales with the points reached on the shortened version of the 7-item sensation seeking behaviour scale (SSS-7-HU). The following sub-hypotheses were examined during the comparison:

- **Hypothesis 2.1**: Striving for balance: negative correlation
- **Hypothesis 2.2:** Seeking stimulation: positive correlation
- **Hypothesis 2.3**: Striving for domination: positive correlation
- **Hypothesis 2.4**: Does not result in an outstandingly high correlation value, but it is considered a significant result because the SSS-7-HU also measures extreme behavior and our sample can be seen as "average".

The sub-hypotheses have been confirmed by the statistical calculations in all four cases, so I have accepted them. Consequently, the scales of the first methodology can be concurrently validated by the SSS-7-HU scale. Apart from the concurrent validation, I checked the stability of the responses given to the single scale items by means of longitudinal examination. Considering that the responses chosen on the scales are also influenced by the present mood, state of mind and condition of the surveyed person, I checked whether the opinion of the given person had changed between the two response occasions to a degree where „typical" would become „untypical". For each scale item I obtained a consistency over 70%, and from 24 items 17 cases had a value over 80%, so that the resulting scale was found stable enough.

Based on these result of the two examinations, I have accepted the second hypothesis.

Thesis 3: **The elaboration of a measuring device suitable for disclosing differences in in-store shopping experience preferences can be based on Q-methodology.**

One of the purposes of formulating the second methodology was to further refine and explore the motivation segments of customer behaviour. In order to do this, I had to use a methodology that could meet special demands, such as being adaptable to smaller samples and applicable to issues that are difficult to measure, quantify and express in numbers, like the indication of subjective feelings and experiences on a scale, but at the same time had the strong feature of using mathematical statistical methods. With these requirements in mind, I based the development of the measuring tool on the approaches of the Q-methodology. *(My own publications related to explore or exam subjective experiences and attitudes, with Q-methodology: the field of product experience: E, everyday used intelligent product experiences: G, the field of transportation: K, and the field of attitudes of safety culture: M)*

In developing the second methodology I covered with the Q-set (statements) to the extent possible range of in-store customer experiences. After six sub-samples created, and each group experience preferences revealed.

Based on these result of the two examinations, I have accepted the third hypothesis.

Thesis 4: **With the segmentation method based on the differences of in-store experience preferences, the segments based on motivation groups can be explored more thoroughly, and it is possible to identify:**

    a) the common in-store experience preferences based on the different motivation groups

    b) the in-store experience preferences that differentiate the segments.

With the segmentation method based on the in-store experience preferences I explored and analyzed each and every motivation segment, then compared the results to each other in order to identify the common in-store shopping experience preferences between the groups and the preferences that differentiate the segments. *(My own publication related to thetheory of the shopping experience modell: O, and related to experiances: P; related to preferences: applied vehicle car: J, intelligent product usability: N)*

1. table: Results with Q-methodology
Forrás: own compilation

	Male		Female	
	The most preferd in-store experience	**The least preferd in-store experience**	**The most preferd in-store experience**	**The least preferd in-store experience**
Balanced	„Demanding and customer oriented"	„Undemanding and frustrating" „Sluggish but correct" „Depressing extraneous" „Unfriendly Scamming"	„Positive group experience" „Reliable" „Multicolored" „Available luxury"	„Unfriendly discount" „Inelegant" „Unpleasant physical evidences"
Stimulatio	„Quality oriented"	„Scamming" „Elegant but depressing" „Too cheap, undemanding"	„Reliable group experience"	„Crovded depressing" „Without positive feelings"
Dominant	„Elegant fashionable"	„RUN!" „Zippy Scamming" „Exclusive but jarring"	„Reliable and kind"	„Bad physical evidences" „Tesco" „Low status" „Unfriendly"

Based on these result of the two examinations, I have accepted the fourth hypothesis.

SCIENTIFIC PUBLICATIONS RELATED TO POINTS OF THE THESIS

A) **Becker Gy, Hámornik B. P., Izsó L., Lógó E.:**_„A marketingháborúk nem az üzletek polcain, hanem a vevők elméjében zajlanak": Marketing és pszichológia._ In: Fojtik János, Veres Zoltán (szerk.) A nagy túlélő: Időutazás a marketingben. Budapest: Akadémiai Kiadó, 2012. pp. 217-250. (ISBN: 978-963-05-9250-5)

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D) **Hámornik B. P., Józsa E., Hlédik E., Lógó E**.:_Different approaches in AOI designation to evaluate Information Search Processes on dairy product packages._3rd International Conference on Eye Tracking, Visual Cognition and Emotion - 25 & 26 October 2012, Lisbon, Portugal (2012)

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J) **Lógó E., Petruska I., Török Á**.: _Passenger Car as Complex Experience._ TRANSPORT AND TELECOMMUNICATION 13:(4) pp. 275-283. (2012) ISSN 14076160

K) **Lógó E., Soós J.**: *A biztonsági kultúra egyéni szintű, szubjektív elemeinek mérése Q módszertannal.* MUNKAVÉDELEM ÉS BIZTONSÁGTECHNIKA 2011:(4) pp. 21-25. (2011) (ISSN 0865 1351)

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P) **Lógó, E.:** *A vásárlás élménye.* In: Izsó Lajos, Becker György (szerk.) Termékélmény. Budapest: Akadémiai Kiadó, 2011. pp. 236-249. (ISBN: 978 963 05 8980 2)

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