

# Prospects, Problems of Marketing Research and Data Mining in Turkey

Sema Kurtuluş, and Kemal Kurtuluş

**Abstract**—The objective of this paper is to review and assess the methodological issues and problems in marketing research, data and knowledge mining in Turkey. As a summary, academic marketing research publications in Turkey have significant problems. The most vital problem seems to be related with modeling. Most of the publications had major weaknesses in modeling. There were also, serious problems regarding measurement and scaling, sampling and analyses. Analyses myopia seems to be the most important problem for young academia in Turkey. Another very important finding is the lack of publications on data and knowledge mining in the academic world.

**Keywords**—Marketing research, data mining, knowledge mining, research modeling, analyses.

## I. INTRODUCTION

THE objective of this paper is to review and assess the methodological issues and problems in marketing research, data and knowledge mining in Turkey.

This is the first research done in Turkey using content analysis on Marketing Research publications in the country. The major academic journals, proceedings of academic congresses and meetings and individual published research in Turkey were studied in this research. As a result, total of 236 publications in last three years were examined. University published journals, Marketing World Journal, Annual Marketing Congress papers were the key sources of this study. All of these publications were evaluated in terms of research methodology used in them. The majorities (%85) of marketing research publications were in Turkish, and the rest were in English.

The following key attributes were used in this evaluation. [1]

Methodological evaluation criteria:

- Research modeling
- Measurement and scaling
- Data collection and sampling
- Data analyzes
- Analyzes findings, limitations and interpretations.

## II. RESEARCH MODELING

The most critical problem was related to modeling. More than 80% of marketing publications lack the specific research models. The small proportion less than 20% claiming to have their research models; did not have detailed theoretical research models. This fundamental weakness has negatively affected the rest of the research. Instead of appropriate statistical analyzes, “popular” fashionable ones have been widely used by Turkish marketing academicians, mostly by young Turkish marketing academicians.

Although specific research models were missing in the majority of publications, more recent studies have also showed that there has been an important improvement in this regard. Research models with forecasting, criteria, and intervening variable sets were also observed. An example of this kind of modeling is presented in Fig. 1. [2]

Another key problem has been the lack of enough interest in doing qualitative and exploratory marketing research. Unfortunately, and ironically Turkish marketing academicians have not interested in doing qualitative research, whereas in businesslife marketing research companies in Turkey have been implementing more and more qualitative research. There are two main reasons for this dilemma. First of all, it seems to be editorial boards of publications have been more in favor of quantitative marketing research. The second reason is related to the acquaintance of Turkish marketing academicians with the qualitative research techniques. With few exceptions, Turkish marketing academicians are not experts in qualitative research. They seem to be more comfortable doing quantitative research.

Qualitative and exploratory research should develop theoretical propositions. These propositions should be transformed into research hypotheses and tested with quantitative research. The first part of this process has been very frequently ignored by the Turkish academia. Another and unfortunate problem in quantitative research existed in more than 90% of marketing research was related to sampling error which has not been calculated and discussed at the end of quantitative research. Discussions on sampling error and non-sampling error was lacking in the interpretation part of the researches. The sampling error in researches using random sampling research requires a

Associated Professor Sema Kurtuluş and Professor Kemal Kurtuluş are with Istanbul University, Faculty of Business Administration, Marketing Department, Turkey (phone:+90212 473 7070; e-mail: kemalk@istanbul.edu.tr, semad@istanbul.edu.tr ).

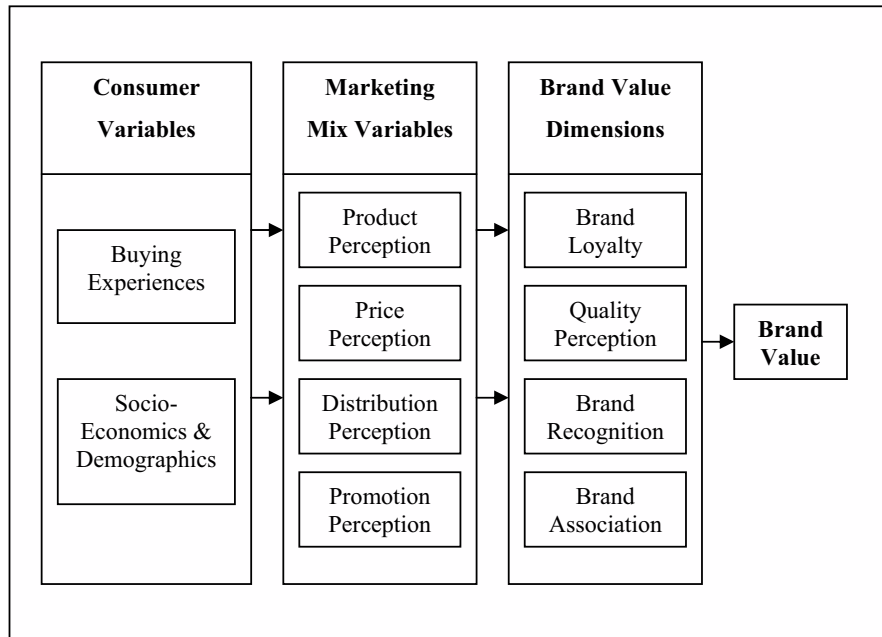


Fig. 1 Research Model of Perception of Brand Value and Marketing Mix Decisions

measurement of standard error as a measure of sampling error. [3]

The most unfortunate finding was that, no publication using data or knowledge mining based on applied research was found. This subject is very new for academic world in Turkey. Although in business practice, not only large multinational companies but also large Turkish companies have been using data or knowledge mining techniques. In this regard, credit card companies, financial service providers, investment and commercial banks, telecommunication companies, large retailers, home construction companies are on the top of the list. Some of the companies are international some are national. Most of these companies have been using data and/or knowledge mining through their customer databases. CRM applications via using call centers seem to be the most common way for benefiting from data or knowledge mining. Government agencies, municipality administrations and local administrations in Turkey have started to utilize data and knowledge mining techniques by using their existing databases. This seems to be one of the new and underlying trends of modern Turkey.

In the majority of the marketing research publications, there are serious problems related to not only sample size and sampling error determination but also in sampling frame, sampling method, sampling unit and the universe determination.

One of the most positive aspects is related to research hypotheses. In more than 90% of the marketing research, researchers have formulated research hypotheses and tested these hypotheses. But some hypotheses were formulated in a wrong way and/or tested at inappropriate significance levels. One of the common problems in formulating research hypothesis was formulating them as null hypotheses but not as alternative hypotheses.

### III. MEASUREMENT AND SCALING

One of the key problems in terms of measurement was related to the metric and non-metric measurements and the special scales. In many publications, metric and non-metric distinction has not been clearly discussed. The unfortunate tendency has been to use and accept non-metric data, like categorical data as metric data.

In treating non-metric variables, researchers have several options. The first option is to use non-metric statistical techniques instead of metric ones. The second alternative is to use appropriate parametric statistical analyses, which allow the use of a certain number of non-metric variables in the analyses. An example might be instead of regression analysis one can use Logistic Regression analysis. [4] The last option is to transform non-metric data into metric data if possible.

In general, scales have either been directly adopted from foreign literature, mostly from USA literature or have been developed in very limited pilot studies. The adoption should be more carefully done. Pilot studies should have larger samples in it. And of course, the reliability test using Cronbach Alpha should be done on the relevant data. Preferably, Alfa values should be greater than 0,8. The minimum level of Alfa values 0,6 or 0,7 levels. [5] One should be also looking at the variance explained measure as well.

The most widely used attitude scale is the Likert Scale. Developing Likert Scale as balanced and non-forced scales is also important. Semantic Differential, Stapel and other alternative scales have not been widely used. The number of scale points used seems to be another significant problem because of wording or Turkish language adaptation problems. In this regard, 7 point Likert scales seem to be inappropriate to

use. The most common research practice has been to use 5 point Likert scales as non forced scales. But in few researches 4 point Likert scales as forced scale have also been used because of practical purposes.

In attitude measurement in addition to central tendency, dispersion measurements should also be taken. In addition to this, instead of averages and standard deviations, respondent or individual scores can also be used for more detailed statistical analyses, such as cluster analysis. [6]

#### IV. DATA COLLECTION AND SAMPLING

The overwhelming majority of the research in marketing has been done on samples. In more than half of the sampling studies, there were problems at different stages of the sampling process. The most frequently used sampling method was simple random sampling. There were problems regarding proportions (p), tolerance levels (e) and confidence intervals or significance levels in sample size calculations. More advanced sampling methods were not preferred by the academicians. In fact, advance sampling techniques such as stratified sampling techniques could be more appropriate for many researches.

In terms of data collection, face-to-face interview, mail surveys and internet surveys have been the most widely applied data collection instruments. In most of the studies, the students have conducted questionnaires on the students or on respondents outside the University. In almost all of these studies, face-to-face interviews were used. Another significant problem in data collection was related to training, auditing and supervising the students as surveyors. This situation seems to be a global problem about the academic research. There are both ethical and technical problems involved in this practice.

The high non-response rate has always been a vital problem in data collection. A high non-response rate becomes more critical in mail surveys. When the non-response rate is very high, follow-up surveys are required. And the calculations should integrate follow-up survey results into original data.

Internet surveys should be kept at least one week but preferably two weeks on the related web side or in the interested internet mailing group. This seems to be becoming a more common practice. One of the recent studies as a PhD thesis verified that two weeks seems to be appropriate for generating sufficient number of responses. [7]

#### V. DATA ANALYSES

The most critical problem was related to the "fashion" or "popularity" of the statistical analyses. Thus, one can talk about "analyses myopia" which can be referred as preferring the most popular or fashionable analyses rather than most appropriate ones. Therefore, statistical analyses like discriminant, cluster, regression, manova, conjoint, canonical correlation and structural equation model seem to be the most popular analyses.

Statistical analyses can be classified into different groups by using different classification criteria. In terms of number of

variables, one can classify statistical analyses as one variable, two variable and multivariate statistical analyses. Second criteria is based on measurement, thus analyses can be classified as metric and non-metric. By using these two criteria together the following classifications can be developed. (Fig.2 and Fig. 3)

When one looks at data mining task related analyses used (Fig. 4), significant similarities with the ones in Fig. 2 and Fig. 3 are observed. Although classifications in Fig. 2, Fig. 3 and Fig. 4 are different, most of the statistical analyses used in Marketing Research and Marketing Data Mining are the same. [8]

In almost half of the publications, (48%) some critical assumptions of chosen statistical analyses were violated. Data requirements were the most violated ones. Another problem was about inappropriate interpretations of results of the respective analyses. In some of publications, inappropriate or insufficient statistical analyses were also used by the academia. Within this context there seems to be a problem of software capabilities of respective institutions. A typical example might be LISREL software. [9] This program is not available in almost all of the Turkish Universities, unfortunately.

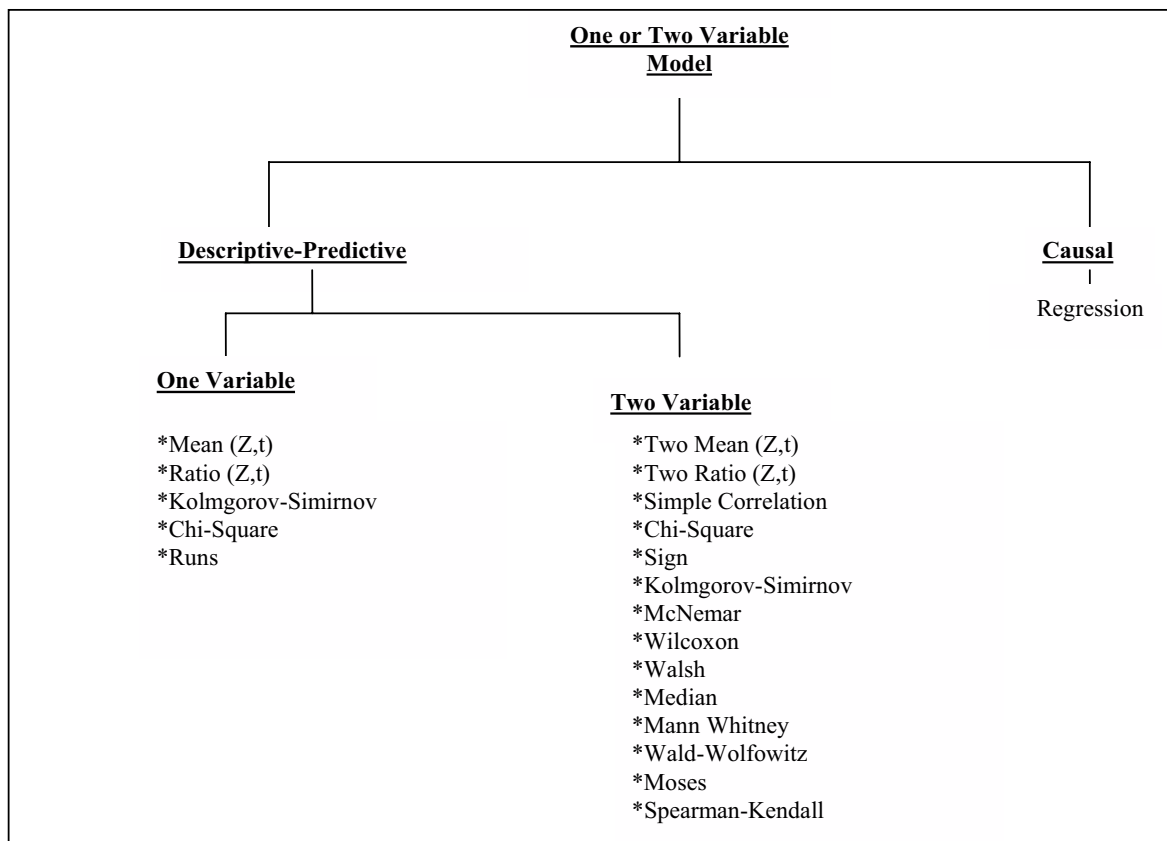


Fig. 2 A Classification of One or Two Variable Statistical Analyses

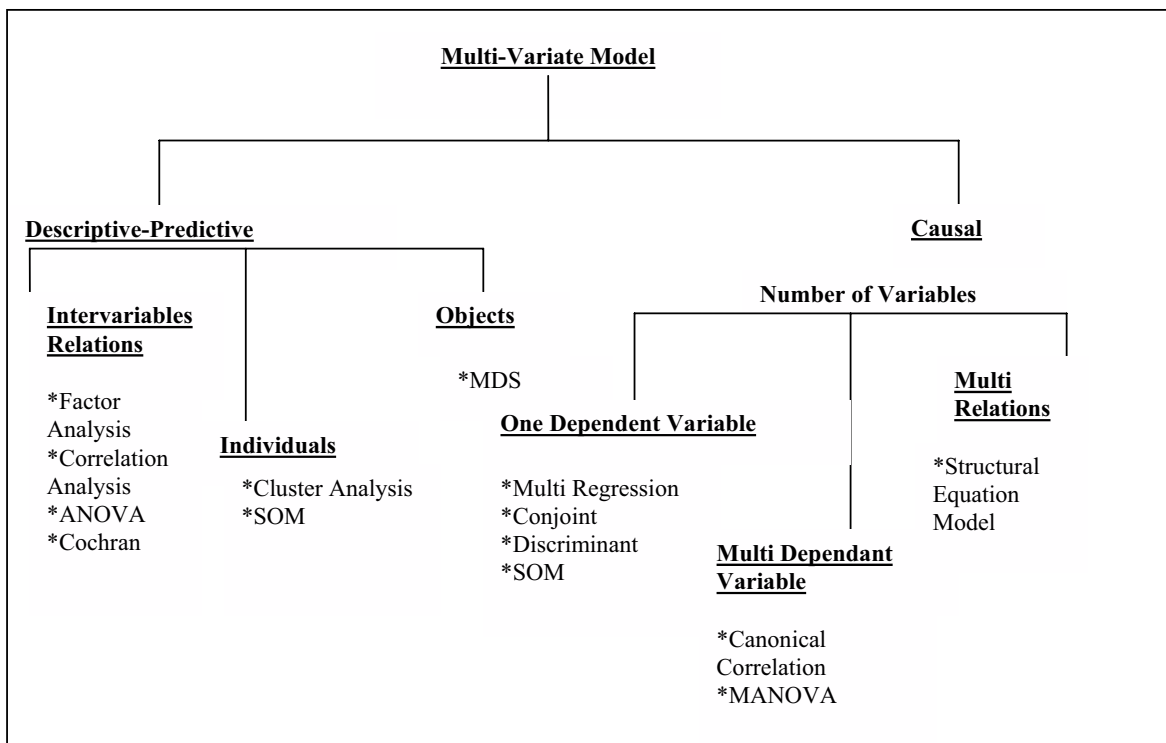


Fig. 3 A Classification of Multi-Variate Statistical Analyses

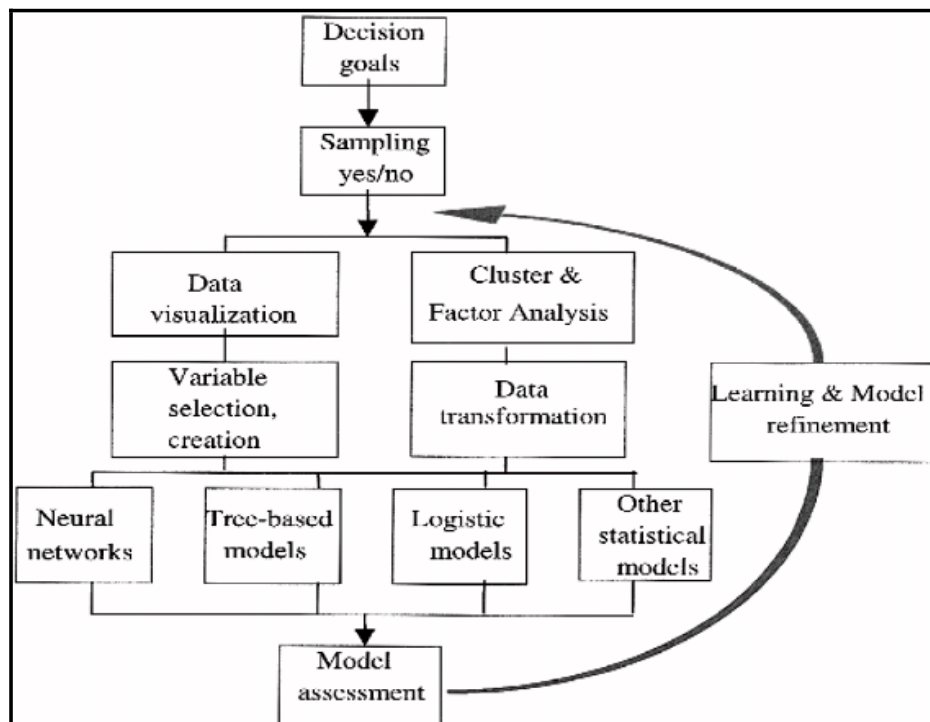


Fig. 4 Knowledge Management Process

## VI. CONCLUSION

Related to conclusions, interpretations and recommendations, most of the research publications in marketing lack in this regard. Most of them do not have proper summaries of the conclusion and not even a very short discussion of the research limitations. Another problem is the ignorance of researchers in developing and suggesting proposals for further and future research.

As a conclusion, academic marketing research publications in Turkey have significant problems. The most vital problem seems to be related with modeling. Most of the publications had major weaknesses in modeling. There were also, serious problems regarding measurement and scaling, sampling and analyses. Analyses myopia seems to be the most important problem for young academia in Turkey.

Another very important finding is the lack of publications on data and knowledge mining in the academic world.

## REFERENCES

- [1] Kurtuluş K., Kurtuluş S., Yaraş “*Bilimsel Araştırmaların Değerlendirilmesi Konusunda Bir Öneri*” Pazarlama Dünyası, August 2000, pp. 4-6.
- [2] Yaraş E. “ *Marka Değeri Algılaması ve Pazarlama Karması İlişkisi*” PhD. Thesis, Istanbul University, Istanbul 2004, pp. 7.
- [3] Kurtuluş K. “*Pazarlama Araştırmaları*”, Literatür Yayınları,, Istanbul 2004, pp. 191.
- [4] Kurtuluş K., Kurtuluş S., “*Predicting Retailer or Manufacturer Brand Preference of Consumers*”, 8th International Conference on Marketing & Development–Globalization Transformation and Quality of Life, January 2003 P. 98-106.
- [5] Hair, Anderson, Tatham, Black “*Multivariate Data Analysis*”, Prentice Hall, 1998, pp. 88.
- [6] Malhotra N. K., “*Marketing Research*” Prenson /Printencehall Pub. 2004 P. 584-589.
- [7] Nasir S. “*Kıyaslama Düzeyinin Şikayet Telifisinin Algılanan Adaleti ve Şikayet Sonrası Tüketici Davranışı Üzerindeki Etkisi*”, PhD. Thesis, Istanbul University, Istanbul 2005.
- [8] Shaw M. J., Subramaniam C, Tan G. W., Welge M. E., “*Knowledge Management and Data Mining for Marketing*”, Decision Support Systems 31, 2001, pp. 130.
- [9] Baker J., Parasuraman A., Grewal. D., Voss B., “*The Influence of Multiple Store Environment Cues on Perceived Merchandise Value and Patronage Intentions*”, Journal of Marketing, April 2002, pp. 13.