Analysis of the relation between Multi-Criteria Decision-Making methods and human decision strategies

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Introdução
People use multiple decision strategies in different situations, including several simplification methods or heuristic choices, that is, an adaptive response to the limited capacity of information processing to the requirements of complex decision tasks (PAYNE; BETTMAN; JOHNSON, 1993). Another way of looking at decision problems has been gaining the attention of researchers and professionals. This other approach explicitly considers the pros and cons of a plurality of viewpoints, that is, the domain of the Multiple Criteria Decision Analysis (MCDA) (FIGUEIRA; GRECO; EHRGOTT, 2005).

Problema de Pesquisa e Objetivo
Problem: What is the relationship between the multi-criteria decision support methods and the decision strategies used by the individual in the choice process in a specific context? Objective : To investigate the relation between MCDM methods and the decision strategies used by the individual in the process of choosing in a specific context.

Fundamentação Teórica
There are a great number of MCDM methods in the decision-making field.The MACBETH proposed byBana eCosta and Vansnick is an interactive approach that uses semantic judgments about differences in attractiveness of various stimuli to help the decision-maker quantify each relative attractiveness (BANA E COSTA; VANSNICK, 1999).The PROMETHEE consists in building a ranking of values relation (BRANS; VINCKE; MARESCHAL, 1986)and the AHP aims to reproduce the human reasoning regarding the comparison of elements of a set using an importance scale to confront the elements in pairs(CARVALHO; MINGOTI,2005)

Metodologia
We conducted an experiment in an automobile-selling shop with 61 individuals performing the task of choosing a used vehicle independently: with and without the use of a DSS, also using the Think Aloud verbal protocol. Three hypotheses was tested in the experiment, amongst them:H1Given that a DSS facilitates the process of human decision, the decision strategies used by the individual are similar to the MCDM method subjacent to this system (TODD; BENBASAT, 1991). H2:There exists a given decision-support system that facilitates more the decision-making process with multiple criteria (LI, 2007).

Análise dos Resultados
We proved the relation between two of the four analyzed decision-making strategies: Additive Difference and Elimination by Aspect. There was a significant difference for the Elimination by Aspect strategy using the DSS TransparentChoice, as well as for the Additive Difference using DSSs M-MACBETH and TransparentChoice. For the individuals who received only the aid of the DSS Visual PROMETHEE, there were similarities in the decision strategies with those of the MCDM methods subjacent to this system, i.e. PROMETHEE and was the DSS which facilitated the most the choice process for consumer goods.

Conclusão
We noticed that the DSS, in the studied case, served to confirm the attribute evaluations previously performed by the cognitive system of the decision-maker. We determined that the individual, when

solving a complex decision task,makes a series of connections that are not extensive to the systems. These findings were perceptible using tactics that emerged during the verbalization process, that is, indeterminations consonant to other attributes that were not being considered in the task at hand, compensations, and tradeoffs that each experimental subject made and are not allowed by the systems.

Referências Bibliográficas

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