

**CORRELATION OF GENDER & SOCIAL INFLUENCE WITH MBTI® TYPE
AND ITS ROLE IN TECHNOLOGY ACCEPTANCE AND USAGE BEHAVIOR**

Overview

Venkatesh and Morris's work, titled "Why don't men ever stop to ask for directions?" raises a number of questions about preferences towards technological usability amongst different groups. Their research has found a number of correlations in the way that men and women from various backgrounds will approach new technologies. Some of the distributions uncovered by their analysis bear a strong resemblance to natural distributions of MBTI® types amongst the same groups. Williams noticed such a similarity as well and described some of his findings in a paper titled "The Cognitive Styles of Satisfied Decision Support System Users". This paper aims to review the aforementioned literature and propose questions and methods for further research.

Experimental Design & Analysis

Venkatesh et al selected 445 individuals from five organizations, to test their theory of gender influences on the Technology Acceptance Model (TAM). In each organization, some new information system was being implemented, each with comparable technological characteristics and usage processes. Pooling was used in statistical calculations to account for differences between the different organizations. A 77% response rate was achieved, leaving 342 usable responses including 156 women and 186 men, measured at three points over the course of the system's implementation. Based on a pre-study questionnaire, none of the participants had any prior knowledge about the system being introduced.

Participants in each organization participated in a one-day training program on the system; then received two hours of lecture, followed by two hours of lecture and hands-on use, followed by two hours of independent interaction with the system (with trainers being available for help). Participants were then asked for a reaction at three points in the study: immediately after training, one month after training, and after three months of experience. A variety of metrics were used to assess actual usage behavior, frequency of use, perceived usefulness, perceived ease of use, subjective norm, and behavioral intention. Their results were analyzed against the hypothesis that gender and social influences could explain variations in the aforementioned dependent variables.

In summary, they found that there were statistically significant variances in perceived ease-of-use between men and women. Additionally, they found that perceived ease-of-use will influence behavioral intention to use a system more strongly than it will influence women (they interpret this to mean that systems that are easier to use may actually then be more useful). Further, they found that subjective norms (behaviors perceived to be important to the participant) influenced behavioral intention to use a system more strongly for women than for men. Finally, they that with increasing direct experience with the technology, perceived usefulness will influence behavioral intention to use a system more strongly for men than it will for women.

Williams' paper investigated the link between cognitive style (using MBTI® type) and similar satisfaction metrics. Williams studied 113 participants, first administering an MBTI® inventory. All of the participants in this particular study were elementary school teachers. The teachers were then provided with a decision support system (DSS). The system was designed to allow primary school teachers to select

material for presentation in class. The teachers were then asked, after a set amount of time, to evaluate their satisfaction with the results generated by the software.

Williams found that with a p value of .05, there was a statistically significant positive correlation between an introverted (I) cognitive style and overall satisfaction with the results from the DSS. It is assumed herein that the reader is familiar with at least the basic premise of an MBTI® inventory. More specifically, with a p value of .01, there was a positive correlation between and introverted-perceiving (IP) preference and overall satisfaction with the results. The author tested this against the hypothesis that the most highly satisfied users of a DSS would be those with an IP cognitive style. The author then attributes the results of the study to indicate that these results are as expected because the tasks germane to a DSS are also within the typical domain of those described by the IP preference in MBTI.

Research Review

It is this author's opinion that both papers are relevant, insightful and accurate; unfortunately they certainly do not address each others hypotheses or conclusions. Follow up research would ideally provide for similar experimental design but would include additional pooling analysis to account for differences in cognitive style. There are, however, a number of reasons why the aforementioned authors findings are explained which could be attributable to causes not measured in their respective experiments.

For example, Venkatesh et al make a number of statements in their paper that seem to indicate a number of inherently biased beliefs about gender roles and subjective

norms amongst the members of both genders (citing decades old research in more than once instance). A number of arguable (and obviously heuristic) assumptions are made about differences between genders, such as, “women are more attentive to social cues in the environment while men attend to other stimuli such as objects and/or visual patterns”.

Statements such as these are of particular interest within the context of MBTI® analysis and grouping methods. Original work by Myers & Briggs-Myers themselves indicates there is a significant difference in the Thinking/Feeling preference between men and women. Therefore, suggestions regarding female attentiveness to social cues and male attentiveness to objects and visual patterns seem to echo earlier accepted findings by the Myers-Briggs team that a primary function typical for a woman would be a feeling function, and the primary function typical of a man is a thinking & logic function. In the first case, the primary function is seen as primary source of cognitive input, and would be related to personal energy in the case of feelings and logic & matter in the case of thinking.

Additional statements worth noting in the Venkatesh paper include “women are more accepting of others’ opinions” and “women tend to rate the importance of pleasing others more highly than men”. In both cases, research is cited to provide a basis for such claims. However, in the context of Myers-Briggs theory as explained earlier, such statements may merely be indicative of prior biases of the author. In fact, it’s likely that if the author was acting on some kind of intuition to lead to such beliefs, they may merely have been recognizing things that were already explained by studies into differences in cognitive style between genders.

Meanwhile, the paper by Williams concludes that those with an IP preference merely share some of their own cognitive preferences with the traits associated with statistical decision making, hence their satisfaction with the design and functionality of the system. What Williams apparently fails to realize is that while he may be correct, a number of the developers designing the software may have also been of the IP preference, since such a preference is also predisposed to computer science and programming. In light of such a possible source of confounding to the study, further research is indicated.

Research Proposal

Further research into topics discussed here should address the correlations between MBTI® distributions between different groups (such as by gender or social influence) to acceptance of DSS and information technologies. Specifically, cognitive style should be considered as an independent variable and dependent variables such as perceived ease-of-use and perceived usefulness. Such a study would provide information on possible links between the studies by Venkatesh et al and Williams.

A reasonable hypothesis for such a study could be that perceived ease-of-use and usefulness of a DSS or IS would be positively correlated to the user's MBTI preference for introversion and perceiving (IP). Additionally, a second hypothesis would suggest that usefulness of a DSS or IS would be correlated positively with a user's thinking preference (that is, those with a thinking preference vs. a feeling preference would find a DSS or IS to be more useful).

A study designed to measure these variables should include at least as many participants as Venkatesh's study. Four hundred or five hundred participants, from four or five different organizations, could be tracked at various points throughout the implementation of new information systems. All employees from any department using such a system should be surveyed, but employees at different organizations should at least be at a similar level in their respective company's hierarchy. Additionally, the designers and coders of the information system should be surveyed, since there was a possible link between the cognitive style of the system designer and the user's perception of usefulness of the system. An MBTI® assessment would be performed at the end of the study, to reduce possible confounding due to a foreknowledge of a participant's cognitive style. Also, for this reason, a survey and post-analysis method would be most appropriate for data collection. If participants are surveyed more than once throughout the course of the experiment, their responses should only be counted as valid if they responded to all of the surveys.

It is likely that such a study, covering many different cognitive styles and their perceived usefulness would uncover at least some statistically significant relation – even if the relationship is simple and explained by the fact that system designers are of the same cognitive style as the system's users.

Conclusions

Research into these areas could have implications on the design of different decision support systems and information systems. Significant findings with such research could encourage software vendors (especially coders of custom applications) to

use more user centered design principles to encourage adoption of their technologies amongst users of different cognitive styles. Also, in the future, intelligently designed software may use learning techniques to discover the user's cognitive style, and adapt the process flow accordingly to make the system more intuitive for the user. Also jokingly, as a friend quipped, it may also allow us to write software that makes the user feel like the computer understands them, and is amorously compatible with the user.

Works Cited

V. Venkatesh & M. G. Morris (March 2000) Why Don't Men Ever Stop to Ask for Directions? Gender, Social Influence, and their Role in Technology Acceptance and Usage Behavior, MIS Quarterly, 115-140.

Williams, R. (1996) The Impact of Cognitive Style on User Satisfaction with an Information System: A Preliminary Study, Proceedings of the 7th Australasian Conference on Information Systems, 789-798.

I. Briggs-Myers & P. B. Myers (1980) Gifts Differing: Understanding Personality Type, Davies-Black Publishing, Palo Alto, CA