

Gender Differences in Information Technology Acceptance

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INTRODUCTION

Gender differences in computer use has been always a topic of research interest. The understanding of the patterns among gender, including beliefs, intention and use behavior of IT/IS would provide us a better picture to the process of design and implementation, which gives support to IT/IS success. However, published works explaining why and how beliefs and attitudes varied between different genders are still scarce, yet the topic was of widespread relevance.

We direct our empirical work on user's beliefs, intention and usage behavior. Gender differences in beliefs would likely make a corresponding impact on the intention to use or not to use computer in the future, and hence, the actual usage pattern. Assumed to be behavioral manifestations of users' gender differences, we infer these gender differences in the beliefs of computer use from their self-reported intention and usage behavior. Therefore, we aim to explore the factors affecting the intention and usage behavior; and their corresponding strengths in affecting the intention and usage behavior; in order to suggest effective implementation strategies accordingly.

The research questions of this empirical study are:

1. What are the emergent constructs that drive the intention and usage behavior of computer use?
2. Do users' beliefs regarding IT/IS usage differ among genders?
3. To what extent do these effects differ?

To address these research questions, we applied technology acceptance model (TAM) to a group of

pre-service teachers, and measured their beliefs in using computer to explain the gender differences in their beliefs, intention, and usage of computer. The rest of the article proceeds as follows. The next section starts with a review on gender and technology. The third section explains the model framework TAM. The fourth section describes the instrument construction and validation. The fifth section reports the model testing results. The final section discusses the thrusts of the study and future trends.

BACKGROUND

There have been findings showing that gender differences in computer acceptance are prevailing. Young (2000) found significant gender differences in computer attitudes of 462 middle and high school students. The male domain scale showed that boys were more likely to have claimed computers as a male area. Thus, higher levels of confidence and, for males, the absence of negative teacher attitudes were associated with greater computer skills. Using TAM as the theoretical framework, Venkatesh & Morris (2000) found that, compared to women, men placed a greater emphasis on perceived usefulness in determining behavioral intention. On the other hand, women weighted perceived ease of use more strongly in determining behavioral intention than men did at earlier time frame. A few more empirical studies showed that gender differences in information technology do exist: Yuen and Ma (2002) found significant gender differences in beliefs while applying the technology acceptance model to a group of pre-service teachers; Houtz and Gupta (2001) found that males generally are more interested in information technology; Gattiker and Nelligan (1988) suggested that there is an association between gender

and attitudes of information technology. On the other hand, interestingly, in their study of *Australian Women in IT*, Hellens and Nielsen (2001) indicated gender and IT were socially constructed as they suggested that cultural differences might be more important than gender alone, “Women of Asian background significantly outnumber all other ethnic female students in Australian IT degree studies” (p. 48). However, whether this applied to teachers is still in doubt and further empirical investigation was in need. Thus, the aim of this article was to explore gender differences in teacher computer acceptance in contrast to the studies in other workplaces. To prepare this article for the “Encyclopedia of Gender and Information Technology”, part of the findings were extracted from a previous article of the authors (Yuen & Ma, 2002).

METHOD

Subjects

The study targeted pre-service teachers who were mostly fresh degree holders, joining the one-year full-time teacher education program (Postgraduate Certificate in Education) at a local university in Hong Kong. According to past experience, majority of these graduates would become teachers and

work locally. It was believed that a study to these subjects would provide a good understanding of the pre-service teachers, but also shed light to understand the future computer use of in-service teachers. A summary of the 186 respondents who had successfully completed the survey instrument was listed as seen in Table 1.

Technology Acceptance Model (TAM) and Its Measurement Items

In prior studies, there have been extensive investigations on developing computer attitude scale. Attitude was viewed in a hierarchical manner, including firstly the *affective responses to attitude*, then the *cognitive responses to attitude*, and the highest level of *conative responses to attitude* (Ajzen, 1988). Applying this attitudinal process to computer use, it might explain as: (1) firstly an user heard about computers and tried to evaluate them; (2) then, the user got chance to have hands-on experience with computers and formed perceptions about computers; and (3) finally, the user reflected his or her attitude on computers through behavioral intention and actual usage behavior. How to measure perceptions would become an important process to predict and explain computer use.

TAM was one of the widely validated and applicable model frameworks to measure perceptions on technology use. It was firstly suggested by Davis, Bagozzi, and Warshaw (1989). TAM suggested that perceived usefulness and perceived ease of use as two fundamental determinants to intention and technology usage. Other empirical tests of the TAM (e.g., Adams, Nelson, and Todd, 1992; Hu, Chau, Liu Sheng, & Tam, 1999) had for the most part, been supportive of the model for the last 20 years. Legris, Ingham, & Collette (2003) conducted a critical review of the technology acceptance model and confirmed the wide applicability of the model towards a wide range of technologies, organizational contexts, and subject domains.

The use of TAM to investigate student-teachers’ computer acceptance was advantageous because of its well-researched and validated measurement instrument. Specifically, the questionnaire was designed to include five items of perceived usefulness (PU1 to PU5), five items of perceived ease of use (PEOU1 to PEOU5), two items of intention to use

Table 1. A summary of respondents details

| Particulars | Composition |
|--------------------------------------|--|
| <i>Gender</i> | Male (24.9%) Female (75.1%) |
| <i>Age</i> | Less than 22 (9.8%) 22-24 (68.5%) 25-27 (12.5%) 28-30 (2.7%) Over 30 (6.5%) |
| <i>Full-time teaching experience</i> | No teaching experience (87.5%) Less than 1 year (7.6%) 1-2 year (3.8%) 3-5 year (1.1%) |
| <i>Major teaching areas</i> | Art subjects (42.4%) Science subjects (35.5%) Social science subjects (22.1%) |
| <i>Access to computers at home</i> | Yes (98.4%) No (1.6%) |
| <i>Formal computer training</i> | Not at all (46.3%) 1-8 hours (17.9%) 9-16 hours (13.6%) 17-24 hours (6.0%) 25-32 hours (6.5%) 33 or above (21.7%) |

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