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The Role of Gender in the Hedonic and Utilitarian Value of Digital Games

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ABSTRACT

Consumers' product evaluation, choice, and use are driven by both hedonic (HED) and utilitarian (UT) considerations. Digital games that are typically considered a homogenous product category are often conceived as masculine information systems the use of which is dominated by the men.

In this research paper, we present results from a survey study where the impact of gender was investigated at the game subcategory level. The results indicate that gender role models are still strongly involved in the perceived value of digital games except that they differ based on the game subcategories.

In conclusion, the greatest differences between genders can be found on masculine games where men emphasize these games' HED/UT value. The differences can be explained by men's higher relevant experience rather than by gameplay elements.

Keywords

Digital games, hedonic value, utilitarian value, product categories, gender.

INTRODUCTION

Since the 1980's, various studies on consumer goods and services Dhar & Wertenbroch (2000), Strahilevitz et al. (1998a), Okada (2005), information systems Davis (1989), Van der Heijden (2004), and digital games Choi et al. (2004), Hsu et al. (2004) have shown that the consumer choice and use of different products and services are driven by both utilitarian (UT) and hedonic (HED) considerations.

Hirschman and Holbrook's (1982, p. 99) early outlook to hedonistic consumer behavior is that "*hedonic consumption designates those facets of consumer behavior that relate to the multisensory, fantasy and emotive aspects of one's experience with products*". In other words, hedonic or pleasure oriented consumption is expected to be motivated by the desire for sensual pleasure, fantasy and fun (Strahilevitz et al. 1998b, p. 436). In contrast, utilitarian or goal oriented consumption is "*more cognitively driven, instrumental, and goal oriented and accomplishes a functional or practical task*" (Dhar et al. 2000).

Earlier research has found major differences between the perceived value of utilitarian and hedonic software applications, also in the context of digital games (Davis 1989; Raessens et al. 2005). Digital games are most often assumed to be high on hedonic value (Chen 2007; Hirschman et al. 1982; Hsu et al. 2005), and the motives for using hedonic systems, such as digital games, are different than those for utilitarian systems, such as office information systems (Van der Heijden 2004).

The differences in use of games can also be depicted from the perspective of women playing games. It could be a tense discussion about a feminist activism where the differences between genders in use of computer technology would need a change towards equal treatment or about the industry perspective which intends to create a significant market for games specifically targeted at women (Cassell et al. 2000).

Digital game production has grown to be a significant software business (ESA 2009b). Even though digital games are often categorized as one product category among other, relative different other consumer products (eg. paper clips, beer, blue jeans) (Batra et al. 1990; Voss et al. 2003), there are a multitude of different types of games, the purpose of which is to provide different outcomes: games can be played, for example, for learning purposes, or mainly just for fun.

We define digital games as examples of social systems which have embedded in them information technology (Land 1992). In practice, they are software applications the purpose of which is to entertain their users (Hsu et al. 2004). Digital games are intangible products although they are often delivered using some sort of physical medium, like a cartridge or a DVD (Koppius 1999). Moreover, in the sphere of intangible products, digital games represent information goods (Shapiro et al. 1999). Information goods have been defined as goods than can be digitized, but are not necessarily digitized, like newspapers in paper format (Varian 1998). They are like any other information technology, which consumers need to learn and which evoke individual's behavioral feelings (Rogers 1976).

There is a variety of different ways to categorize digital games: based on the gameplay, technology platform, delivery channel, age limit, language, graphics, user type, purpose, producer, temporality, price, and character, to name a few (Mäyrä 2008; Raessens et al. 2005; Rutter et al. 2006). In this study, we classify different subcategories of digital games by their proposed gameplay experience, that has been defined as "*a complex dynamics of interaction between the player and a game in which the structure of game including characters, virtual space, rules and story elements are at central focus*" (Ermi et al. 2005). Digital game sub-categories such as sports games, massively multiplayer online role playing games (MMORPGs), racing games, and so on, are commonly identified segments which can be analyzed for competitive analysis and product positioning (Rust et al. 2004). Most importantly, these terms are used often in a common language of consumers as game players.

Accordingly, our main research questions are as follows:

1. How does the *gender* of the player differentiate the perceived level of the hedonic (HED) value of digital games at the product subcategory level?
2. How does the *gender* of the player differentiate the perceived level of the utilitarian (UT) value of digital games at the product subcategory level?

The great differences in the appeal and use of games in practice leads us to doubt that instead of generalizing digital games under one category, the subcategories should be investigated. Hence, we investigate and aim at finding evidence on how the

HED and UT values of digital games differ at product subcategory level rather than at general product category level of digital games presented by Voss et al. (2003) and Batra & Ahtola (1990).

The structure of this paper is as follows: In section 2, we introduce the theoretical background. In Section 3, we set our hypotheses and briefly describe the empirical data collection method. Then we present the results of the analyses in Section 4. Summary and conclusion, as well as directions for future research, are discussed in Section 5.

THEORETICAL BACKGROUND

Motivation of Game Playing

One of the objectives of game developers is to optimize game experience by designing elements of gameplay that motivate the player to continue playing without too much anxiety or boredom (Chen 2007). Specifically, in digital games production, this concept of *flow experience* (Csikszentmihalyi 1975) is widely used to provide outcomes such as enjoyment, pleasure, and fun, and to maintain the flow at the desired level. The flow experience is a part of an individual's motivation to play games and has been defined as “*an extremely enjoyable experience, where an individual engages in an on-line game activity with total involvement, enjoyment, control, concentration and intrinsic interest.*” (Hsu et al. 2004).

Therefore, the motivational theory by Deci, (1975) lays the basis for the understanding how digital games are chosen and why they are played. From motivational perspective of consumption, hedonic goods entail intrinsic value, whereas utilitarian entail more extrinsic values. Intrinsic motivation has been defined as “*the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn it is performing an activity for the satisfaction of the activity itself*” (Ryan et al. 2000). Extrinsic motivation, in turn, is expected to lead to the performance of an activity, in order to attain some separable outcome (Ryan et al. 2000).

Different products and services often differ greatly in their proposed outcomes (Hirschman et al. 1982). For instance, many services intend to provide an outcome closer to hedonistic values (eg. movies) rather than utilitarian values provided by packaged goods (eg. shoe laces). Digital games are similar in their delivery format but many times distinct in their proposed outcome. Therefore, investigating subcategories would result in more valid conclusions about the category itself.

Mervis and Rosch (1981) state that a category exists “*when two or more distinguishable objects or events are treated equivalently*”. This equivalent treatment means different ways of labeling distinct objects or events with the same name, or performing the same action on different objects. According to Blackwell et al. (2006, p. 110), consumers rely on a categorizing process and the evaluation of a product depends on the particular category to which it is perceived to belong. Given this, specific brands can be built around these consumer segments (Rust et al. 2004).

Gender and technology

For decades digital games use and development have been targeted at and dominated by men (Haines 2004). However, according to the Entertainment Software Association (2009a), already forty percent of all game players are women and proportion of professionals in the game industry is increasing.

The impact of gender in using computers in general, e-mail, Internet and other office information systems has been studied extensively (Gefen et al. 1997; Igarria 1993; Kraut et al. 1999; Teo et al. 1999; Venkatesh et al. 2000). Gender seems to affect the perceived beliefs more than the use of computers (Igarria 1993; Venkatesh et al. 2000). Furthermore, the results state that men's technology use decisions are more strongly influenced by their perceptions of usefulness and women's by their perceptions of ease of use. Women are also influenced more than men by people important to them (Venkatesh et al. 2000). However, according to more recent study males and females no longer significantly differ in their attitudes and use of computers (Tekinarslan 2008).

According to Royse et al. (2007) the feminist theorists of gender and technology propose that these two concepts are socially constructed in specific historical, political and cultural contexts. Hence, females prefer different games than males. In addition, women and men have different play frequencies and most popular genres (Hartman et al. 2006; Royse et al. 2007). However, for experienced female gamers technology and gender appear to be the most integrated; these women play more frequently and tend to play multiple genres (Royse et al. 2007).

Hartmann and Klimmt (2006) list four factors for the gender gap in digital game playing. Three of them relate to the content of games; outdated gender role interpretations, violence, and lack of social interaction. And finally, if there are interactive tasks in games, they are competitive. Females and males, are born similar regarding the ability to use technology (eg. Calvert et al. 2005), but our community, school etc. would seem to have an effect on our later gaming behavior.

EMPIRICAL STUDY

According to Voss et al. (2003) the hedonistic and utilitarian concepts of the consumer attitude towards product categories can be reliably observed by using five variables in both latent constructs. In this study, we assume that different digital games vary in their perceived hedonic (HED) and utilitarian (UT) value. We base our hypotheses to a claim that computer games are seen as technology that is expressive of masculinity (Schrott et al. 2000).

Hypothesis 1 (H1) = Men perceive more hedonic value on digital games than women at the product subcategory level.

Hypothesis 2 (H2) = Men perceive more utilitarian value on digital games than women at the product subcategory level.

We analyze this by creating a scatter plot of the summated variables and comparing statistical differences between single and summated variables. The questionnaire item labels were translated from English to Finnish. Due to the translation issues (eg., synonyms and overlapping terms), only four of the suggested five terms were used. Thus, they (Enjoyable and Useful) were observed separately as two HED/UT (single) variables. Semantic differential scaling from -3 to +3 was used in questionnaire items.

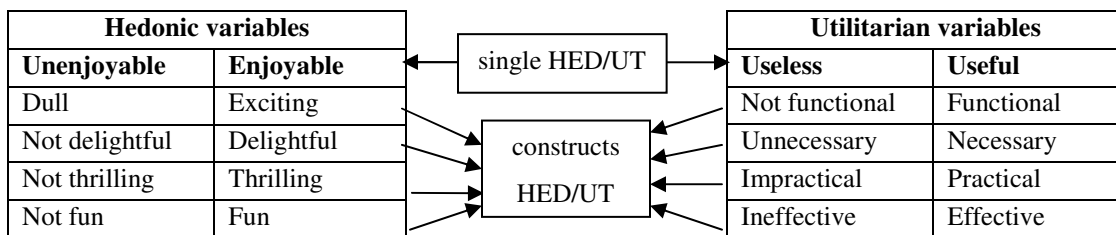


Table 1. Utilitarian and hedonic variables used in questionnaire (adapted from Voss et al., 2003)

The questionnaire form was commented and pre-tested by two research colleagues and three pilot users. A web server based application was used to create and conduct the survey. The respondents were students in a Finnish Business School, taking a course on “Computing Skills” in September, 2008. The empirical set of data was processed by using a statistical application SAS Enterprise Guide, version 4.1.

During the two first actual data collection sessions out of five in total, 71 respondents were asked to categorize the used adjectives by their perceived meaning between utilitarian or hedonic value. The results confirmed that all used adjectives were perceived under their respective constructs.

After demographic questions digital games product category in general without any reference to any specific game brand or subcategory was assessed. For general digital games category, respondents were asked to answer to a specific question in which the level of HED (enjoyable) and UT (useful) was measured by using them as opposite terms on a scale 1-5 (1=utilitarian, 5 =hedonic).

Thereafter, respondents were asked to answer questions on 16 different digital game product categories (see Appendix 1). Users were asked to evaluate subcategories such as, sports and racing games. Each questionnaire page with a product category started always with two to nine real digital game package cover pictures. The objective was to create a better understanding of real life products related to the evaluation by images rather than using only text. All selected games were those that are generally relatively well known and widely spread, and mostly published for consoles, portable consoles and PC platforms. We expected that the respondents might have neither awareness nor experience on some of the categories. For better reliability, each psychometric questionnaire item also included an option to respond “I can not say”.

RESULTS

There were 135 usable responses out of 136 in total (1 uncompleted form). Forty-eight percent of the respondents were female, and 52 percent were male. The respondents were between 18-31 years, 20.4 years being the average age and 20 years the median. Forty-four percent of the respondents reported to be active game players and the remaining 56 % had not played at all in the past 12 months. Most active game players are men. The average age of starting playing digital games was 7.6 years (for more details, see Table 2.). There were only two categories which had relatively high amount of “I can not say” responses (*professions* and *text based adventure*).

Respondents (#)	135
Men / Women (#, %)	70 (52 %) / 65 (48%)
Age in years (average, median, min-max)	20.4, 20.0, 18-31
Age when first time played digital games (average years, median, min-max)	All: 7.4, 7.0, 2-15 Women: 8.4, 8, 2h-15h Men: 6.7, 6, 2-13
Players vs. Non-players (#, %)	59 (44%), 76 (56%)
Average playing time weekly for players (mean, median, range).	Active game players (n=59) : 3h 11min, 2h, 6min - 16h Women (n=13): 57 min, 45 min, 6min – 3h Men (n=46): 3h 42 min, 2h 30 min, 30 min-16h

Table 2. Descriptive statistics on the respondents.

The reliability (internal consistency) of items in each scale was evaluated using the Cronbach alpha. All constructs exhibited an alpha value of 0.79 or higher (see Appendix 1), indicating very high reliability (Hair et al. 1992). There were no significant differences found between female and male respondents when UT (useful) and HED (enjoyable) were measured by using them as opposite terms within the same question item on a scale 1-5 (1=utilitarian, 5 =hedonic, see Table 3). Both genders equally perceive that digital games contain more HED than UT value at $p < 0.05$ significance level (t-test, difference in means).

Gender	n	Mean	Std Dev	Std Err	DF	t Value	Pr > t
Female	65	3.63	0.93	0.12			
Male	70	3.86	0.60	0.07			
Difference		-0.23	0.77	0.13	133	-1.7	0.092

Table 3. UT/HED as opposite terms within same question item.

There were no major differences between the results using single variable HED/UT and summated HED/UT. Further, there was a high correlation between HED/UT single variables and HED/UT summated variables varying from 0.68 to 0.93. However, summated variable is depicted to be a more reliable way of explaining a theoretical concept than single variable (Hair et al. 1984). Therefore, we present all results by using summated HED/UT variables. The results of the data analysis can be seen in a scatter plot (Figure 1) and detailed statistics are listed in Appendix 1. The summated scatter plot describes the perceived HED/UT value for each category by gender.

Our both hypotheses (H1, H2) were supported partially. There are differences but they are not systematic. We found some evidence that gender significantly differentiates the perceived level of both HED and UT value of digital games at the product subcategory level.

The highest differences between women and men are in masculine games (*first person shooters, action adventure, war strategy, fighting, racing, MMORPGs, sports, see appendix 1*). On the contrary, females valued higher than males game subcategories such as *professions, real life simulation* and *educative games*.

The reasons for differences may vary; some referred digital games in the questionnaire had feminine appealing including pictures of girls as a fashion designer, veterinarian, pink colours and cute animals. All respondents have played some type of digital games (Appendix 1). However, men’s more extensive experience may partly explain relatively higher assessment of

masculine games. In those game subcategories where both genders had approximately the same amount of experience, were equally preferred or mostly preferred by women.

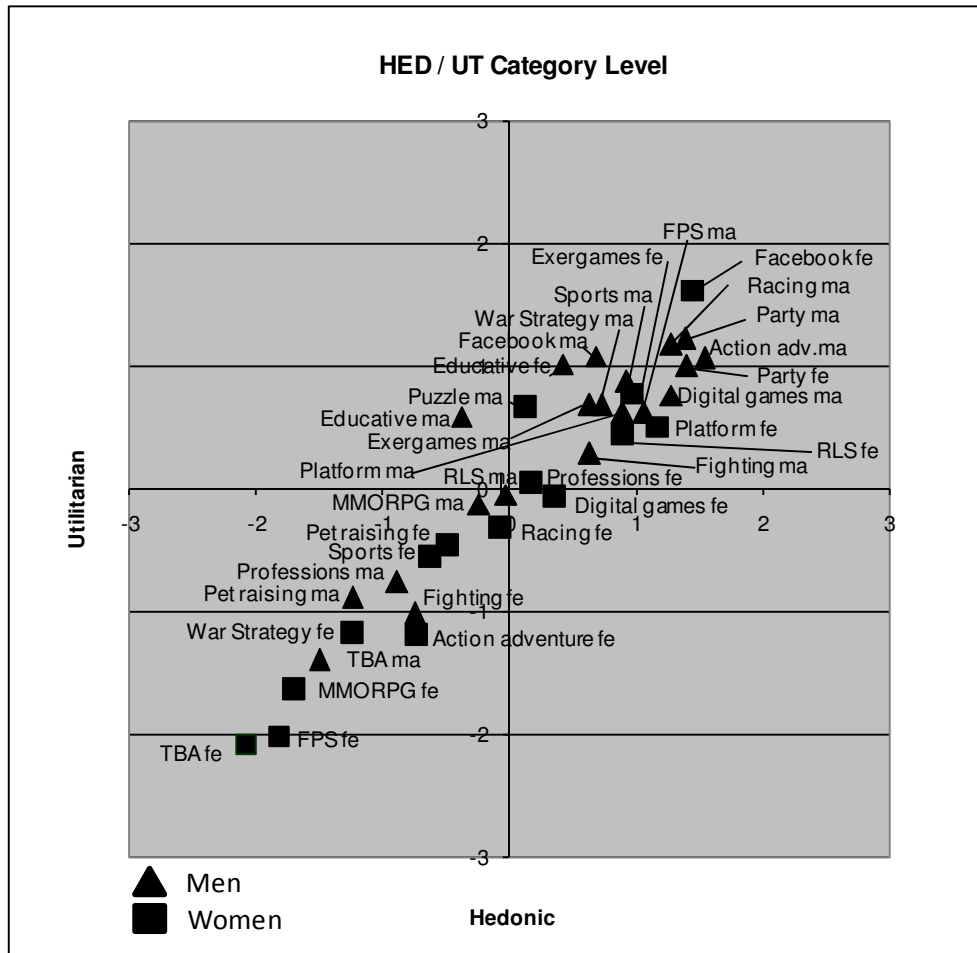


Figure 1. Perceived UT/HED values by digital game subcategories.

In the higher scale of HED/UT both women and men perceived similarly the *party* games (eg. Sing Star, Guitar Hero). On the contrary, *text based the adventure* (TBA) games are very low on HED/UT. These games were quite successful until mid 90’s but are practically nonexistent category nowadays. This is an example of technology impact on changes in consumption preferences. Clearly, men respondents did not appreciate very high games that were clearly targeted to women (*professions* and *pet raising*).

Finally, there were other digital game categories where no statistically significant differences were found between women and men. Mario, Sonic, Rayman and Spyro and other famous game characters did not influence the evaluation of HED/UT value. Furthermore, gender does not differentiate puzzle games such as “Sudoku”, “Crosswords”, ”Mine sweeper”, and “Bejeweled”. Exergames, in which real exercise has a significant role in the gameplay, have been strongly promoted during the past 2-3 years, after the launch of Nintendo Wii –platform. Even though, these games are quite often advertised to women, the real world connection, sports being beneficial, probably overruled the marketing message.

Using theories as a surprise machine (DiMaggio 1995) we had also included one relatively known internet service which is not really a digital game but claimed to be a social utility. The result was that Facebook was very highly ranked by women; in fact, it was ranked the first both in HED and UT value above all the digital games. Hence, Facebook could be seen as a site where the meanings of gender are expressed and realized in the same way as Rakow (1992) argues about the use of the fixed-line telephone. Womens’ use of Facebook can reveal their aptitudes and abilities for communication like telephones did (Rakow 1992; Rakow et al. 1993).

SUMMARY AND CONCLUSION

The objective of this study was to examine how gender of the player differentiates the perceived level of hedonic (HED) and the perceived level of utilitarian (UT) value of digital games at the product subcategory level. Furthermore, rather than generalizing digital games into one category, we discussed them at their specific subcategory level divided by their gameplay. The results indicate that digital games are not only high on hedonic value, and that the level of perceived HED and UT depends on gender and game subcategory. There are differences on perceived HED/UT values between men and women, but the differences are not systematic.

Traditional gender roles are strong in perceived HED/UT value. Women prefer different kinds of games than men and some of these game subcategories appeal more to be targeted at female players than the others. This actually confirms some prior research observations on stereotypical roles between women and men in game playing (Cassell et al. 2000). Even though there are still women that want to play masculine games and vice versa (Nakamura et al. 2005).

In conclusion, the greatest differences between genders can be found on masculine games where men emphasize these games' HED/UT value. However, these differences can be explained by men's higher relevant experience rather than by gameplay elements.

Theoretically, according to Voss et al. (2003) hedonic and utilitarian value of different products can be evaluated through HED/UT. However, they had difficulties to find products that only would be high on HED or UT. In this study the used summated variables strongly correlate in all different subcategories. This would suggest that perceived hedonic and utilitarian values are not separated constructs in the context of digital games, but that they are processed simultaneously.

As a limitation to this study, the dualistic perspective where complex sensory and emotional experiences are measured by using two quantitative constructs such as HED and UT within a survey may be misleading. HED and UT do not fully explain what the true meaning of these games is for the users and *why* certain game categories are preferred. Therefore, a more in-depth qualitative study by interviewing game players is needed to understand why these differences may occur.

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Appendix 1. Statistical comparison between women and men respondents within game subcategories.

Game category	HED/ UT	n	t Value	DM*	Pr > t	Sig.	MF M/W**	CA** *	EXP M/W % ****	EXP12 M/W % ****
First Person Shooter (FPS)	HED	123	-11.16	-2.88	<.0001	YES	Men	0.97	100/25	69/3
First Person Shooter (FPS)	UT	121	-12.44	-2.64	<.0001	YES	Men	0.94	100/25	69/3
Action Adventure	HED	123	-8.81	-2.28	<.0001	YES	Men	0.97	99/39	65/6
Action Adventure	UT	123	-10.42	-2.25	<.0001	YES	Men	0.93	99/39	65/6
War strategy	HED	123	-6.83	-1.98	<.0001	YES	Men	0.97	94/42	61/6
War strategy	UT	121	-7.35	-1.85	<.0001	YES	Men	0.94	94/42	61/6
Sports	HED	126	-5.89	-1.54	<.0001	YES	Men	0.94	100/74	74/17
MMORPGs	UT	105	-5.02	-1.50	<.0001	YES	Men	0.92	56/11	21/2
Racing	UT	121	-6.54	-1.49	<.0001	YES	Men	0.92	91/89	71/21
MMORPGs	HED	109	-4.51	-1.46	<.0001	YES	Men	0.96	56/11	21/2
Sports	UT	124	-6.93	-1.44	<.0001	YES	Men	0.89	100/74	74/17
Fighting	HED	111	-4.36	-1.38	<.0001	YES	Men	0.97	67/63	41/8
Racing	HED	122	-5.23	-1.35	<.0001	YES	Men	0.96	91/89	71/21
Fighting	UT	110	-4.94	-1.30	<.0001	YES	Men	0.92	67/63	41/8
Digital games	HED	130	-4.2	-0.92	<.0001	YES	Men	0.92	100/100	67/18
Digital games	UT	127	-4.48	-0.82	<.0001	YES	Men	0.79	100/100	67/18
Text based adventure	HED	72	-1.68	-0.59	0.0967	NO		0.96	29/19	3/0
Text based adventure	UT	68	-1.38	-0.45	0.1728	NO		0.92	29/19	3/0
Party	UT	119	-0.86	-0.22	0.3913	NO		0.90	84/75	67/65
Platform	UT	118	-0.61	-0.13	0.5456	NO		0.86	93/89	38/22
Party	HED	121	0.02	0.01	0.9857	NO		0.96	84/75	67/65
Exergames	UT	114	0.29	0.08	0.7736	NO		0.93	40/42	33/24
Puzzle	UT	117	0.62	0.14	0.5397	NO		0.92	83/75	52/48
Platform	HED	118	1.15	0.27	0.2545	NO		0.95	93/89	38/22
Exergames	HED	113	1.14	0.34	0.2556	NO		0.96	40/42	33/24
Puzzle	HED	118	1.42	0.37	0.158	NO		0.95	83/75	52/48
Pet raising	UT	105	1.49	0.43	0.1383	NO		0.93	35/27	6/3
Educative	UT	115	1.86	0.43	0.0649	NO		0.91	70/65	29/25
Real life simulation	UT	105	1.69	0.50	0.0942	NO		0.93	74/66	18/17
Facebook	UT	127	2.5	0.54	0.0137	YES	Women	0.91	84/91	83/89
Pet raising	HED	108	2.47	0.75	0.0149	YES	Women	0.96	35/27	6/3
Facebook	HED	126	3.38	0.76	0.001	YES	Women	0.94	84/91	83/89
Educative	HED	118	3.22	0.80	0.0017	YES	Women	0.95	70/65	29/25
Professions	UT	80	2.24	0.80	0.0281	YES	Women	0.97	6/6	3/0
Real life simulation	HED	105	2.81	0.93	0.0059	YES	Women	0.97	74/66	18/17
Professions	HED	80	2.99	1.05	0.0037	YES	Women	0.97	6/6	3/0

* Difference in mean (female minus male)

** More favorable (Men/Women)

*** Cronbach Alpha

**** EXP ("Have you ever played a game of this type?"), Men/Women

**** EXP12 ("Have you played a game of this type in the past 12 months?"), Men/Women