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An analysis by gender of differences in responses to workplace scenarios in the Australian ICT sector

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Abstract

Recognising that practical intelligence plays an important role in an individual's job success, we explore whether differences in practical intelligence exist between male and female workers in the ICT industry. Taking an interpretive approach we found patterns and themes in the responses to workplace scenarios of ICT workers in three organizations from the viewpoint of gender: Assertiveness, Ethical Behaviour and Expectation of Rewards, Propensity for Communication and Achievement vs. Ascription Orientation.

Keywords

gender, practical intelligence, tacit knowledge, ICT workers, workplace scenarios.

INTRODUCTION

Recognising that practical intelligence plays an important role in an individual's job success (Sternberg, Wagner and Okagaki, 1993), we wanted to see what factors might influence who has it and how they use it. This type of knowledge is characterized as action-oriented, practical know-how and comprising tacit knowledge (Sternberg, Wagner and Okagaki, 1993), that is knowledge which is inarticulable but embodied in doing (Polanyi, 1966). Adapting a psychology-based technique designed to measure practical intelligence and tacit knowledge (Wagner and Sternberg, 1991a, 1991b), we employ ICT workplace-based scenarios to measure how individuals put their knowledge into practice as revealed by the responses they make to those scenarios. As part of our exploratory study we investigated the research question "can patterns of deep smarts or practical intelligence be found and characterized according to gender" given the overwhelming underrepresentation of women in ICT and the characterization of the ICT domain as hegemonically masculine (Faulkner, 2001).

In the next section we review selected gender studies in ICT and introduce some of the theory relevant to this field. Then we present our methodology, followed by results and discussion drawing upon relevant literature to assist with interpretation of the data. Finally conclusions are given.

GENDER STUDIES IN ICT

The study by Horgan and Simeon (1990) is particularly relevant because it also employed Sternberg's approach. While they found no significant differences in the practical intelligence of males compared to females, they did find an inverse relationship between grade point average (GPA) and tacit knowledge in females demonstrating the use of different knowledge for business or academic situations whereas males with high tacit knowledge levels also had high GPAs. Differences were also found when the data was analysed using the three tacit knowledge subscales: self, careers and others. Male scores tended to vary for the subscales whereas female scores on the subscales were highly correlated revealing that the three were less differentiated by the females. The work was specifically focused on the role of mentors and whether having a mentor resulted in having more tacit knowledge. Mentoring was not found to affect levels of tacit knowledge or success for either gender. Similarly the study by Somech and Bogler (1999) was also unable to find any gender differences in levels of tacit knowledge, though males with more tacit knowledge did better academically than males with less tacit knowledge; where females did better academically in general regardless of their levels of tacit knowledge.

The study by Luethge and Byosiere (2007) considers gender differences in knowledge management strategies in the Japanese ICT context. Their study reveals how cultural attitudes have greatly limited the ability of women to achieve more than 14% representation despite structural reforms in Japan. In particular the lack of mentors for

females and the practice of *sempai-kohai* (a senior-junior relationship which is primarily a male-oriented bond) made it almost impossible for women to take on senior managerial roles.

While ICT and gender studies do exist, the topic is still largely under-researched (Trauth, Huang and Quesenberry, 2006) and under-theorized (Trauth, 2006). It is interesting to note that none of the above studies used any theory related to gender thus falling into Trauth's (2006) pretheoretical (involving statistical analyses of gender differences in the adoption, use and involvement in ICT profession) category. Trauth's other categories include: implicit-theoretical (where theory is not directly discussed but views such as essential differences between males and females help the research design and data interpretation) and insufficient-theoretical (the research explicitly utilizes theory-in-use but these theories do not adequately explain the data itself). The key theories in use are essentialism and social constructivism: similar to the nature versus nurture debate. Essentialism explains differences between the genders and IT due to fundamental differences between males and females at the biological, physiological and/or psychological level. Such a view, at best, leads to two ICT workforces segregated into male and female and a "separate but equal" attitude. In contrast, social constructivism sees that the ICT workplace and the male and female identity have each been constructed by the society in which we live: ICT and technology in general have become constructed as a male domain containing "men's work" (Faulkner, 2001) exhibiting traits commonly attributed to males such as individualism, competitiveness, aggressiveness, self-sufficiency and technical ability (Acker, 1990).

Social constructivism forms the basis of much research in this area. This view can lead to solutions which continue to treat the genders differently and does not recognise that a universal theory is impossible, as concepts of "male" or "female" differ across cultures. As an alternative, Trauth has proposed the individual differences theory of gender and IT which "takes into account the uniformity of social shaping messages conveyed in a culture. However, it also takes into account the varied influences of individual background and critical life events that result in a range of responses to those messages" (Trauth, 2006, p.1156).

In many gender studies, techniques such as focus groups, interviews and occasionally surveys are used to answer questions such as what has your experience been?; is ICT a male domain?; what barriers have you experienced? (e.g. Nielson et al., 1998); what is the perceived value of female versus male work in ICT? (Peterson, 2007) or the why behind these answers (Trauth, Nielson and von Hellens, 2003). While some studies such as Peterson (2007) involved both genders, many studies only include female participants and their experiences and perceptions; this has occurred because much work is based on the recognition that the gender imbalance exists as well as a desire to identify the influencing factors. In contrast, our study represented males and females in numbers consistent with the proportion found in the ICT workplace.

METHODOLOGY

Our research scope is not the articulation of experiences or perceptions but rather the analysis of responses to workplace situations which uncover practical intelligence or tacit knowledge usage. Our exploratory study, using data from ICT workers in three Australian organizations, did not commence with any hypotheses but took an interpretivist stance to see if differences and patterns of strategies emerged. The technique uses an inventory of workplace-based scenarios and responses which seek to capture the contextual and often subconscious nature of knowledge, and tacit knowledge in particular.

Three organisations agreed to participate in our study. One organisation was an insurance company with over 10,000 staff, including 1,400 employees in the ICT function. A second organisation was a furniture retailer with around 1,700 staff including 16 ICT staff. The final organisation was a management consulting firm and had a total of 15 staff including 8 ICT specific personnel. All three organizations belonged to the private sector with offices in the eastern Australian capital cities. The companies provided a rich range of personnel from very diverse ethnic backgrounds (for example, of 168 staff participating from the insurance company, more than 50 languages other than English were spoken). The years of IT experience of the employees were also diverse, and coupled with the varying nature of the organisations from IT support staff through to IT management consultancy staff, meant that as KM case studies, much data was able to be scrutinised.

As part of the questionnaire provided to ICT staff, we collected biographical data including age, gender, qualifications, affiliations, languages other than English and professional level (according to the Australian Computer Society (ACS) categories shown in table 1). Following along the lines of the tacit knowledge measurement research conducted by Professor Sternberg's psychology group (Sternberg et al., 1995), we created an inventory of scenarios. These scenarios and possible responses were based on (the combination and/or simplification of) real-life experiences that we obtained via interviews. Interviews comprising both open and closed questions ranging from 26 to 52 minutes in duration were conducted with fourteen IT practitioners and theoreticians. The data collected concerned the collection of "war stories" in which tacit knowledge/practical intelligence was deemed to have been critical. The scenarios did not seek to test gender role congruence, which is whether people responded to certain genders in accordance with the cultural stereotype.

Participants were selected on the basis of seniority/non-seniority, as the literature seemed to indicate that age and experience affected the use of tacit knowledge. Removal of repetition in the 24 initial scenarios resulted in 16 scenarios with 6 to 13 ways of responding to them (which we call answer options). Responses to answer options were to be entered using a 7-point Likert scale with responses ranging from very bad to very good. The scenarios were further refined via a pilot study with ICT practitioners and a second Likert scale for each answer option was added to acquire an “ethical” (should do) response in addition to the “realistic” (would do) Likert scale value, as our participants indicated that they needed to differentiate between the two responses to know how to answer. This result corresponds to the findings of Wagner and Sternberg (1991a, 1991b). In figure 1 an actual scenario and one Likert scale answer option may be seen. We will revisit this scenario and answer option again later.

Scenario 1

You are a DataBase Administrator and have been assigned to a team to begin a data modelling exercise for a new but what you consider to be relatively trivial standalone 'desktop' database.

The modelling technique to be used will be the Unified Modelling Language (UML) with its emphasis on a more modern object oriented approach. You would prefer to be using the traditional Entity - Association (E-A) approach as you feel you don't really need to model all functional and dynamic aspects of the software process, the static model alone should suffice.

The Data Administrator (DA) who is senior to yourself within the organisation, but not actually directly involved in the project, has decided the UML approach is more modern and therefore preferable. While you generally get on okay with the DA, you get along even better with the Chief Information Officer (CIO) and you feel that the CIO is likely to support your independent efforts.

You participate in the exercise, however you are convinced that for the size of the database being created, the E-A approach would more than suffice.

Rate each of the following responses in relation to the given scenario. It is advisable to read all of the responses before replying.

8. Fully agree to the implementation of the system as it stands in the hope the CIO (and DA) will notice your enthusiasm, perhaps with the possibility that you will be given 'elite' projects in the future

ETHICAL

Choose one:

Extremely Bad Neither Good nor Bad Extremely Good

REALISTIC

Choose one:

Extremely Bad Neither Good nor Bad Extremely Good

Figure 1: Scenario 1 with answer option 8 and ethical and realistic Likert scales taken from our inventory

Table 1. Australian Computer Society Professional Levels

	Female	Male
Level 1: “Little practical experience in IT work, may be supervising ancillary staff”	3	0
Level 2: “Experienced and capable of performing a wide range of IT work”	8	22
Level 3: “Experienced in specialised IT areas, well developed liaison skills”	26	39
Level 4: “Managing a number of teams and the allocation of resources”	0	16
Level 5: “Typically report to CEO, manage major function, extensive IT coordination”	1	4

Sample Population

The results presented are based on the combined data from all three organisations with our goal being to identify themes between the genders rather than within or between the organisations. Our study included 81 males and 38 females. While the sample shows a gender imbalance, the percentage of females is higher than what is typically found in IT organisations. The age range of both genders is similar (that is, 20-60) and we did not analyse the data from this dimension in this paper. For better understanding of the seniority/capabilities/positions of the two groups, Table 1 summarises the professional levels of the participants by gender. The skew of females towards the lower professional levels may have resulted in bias in the findings. This skew represents reality as females are increasingly underrepresented in ICT as one moves up the professional ladder. This is not unique to ICT. A recent government report found that only 8.3% of company-board seats are filled by women (EOWA, 2008).

Recognising that gender is a social construct and society is affected by cultural influences, the characterisation of the genders differs across ethnic cultures (Trauth, Huang and Quesenberry, 2006). Given that the dataset is

multicultural (32 different languages spoken), we have explored the dataset separately from gender and cultural points of view and to some extent across these two dimensions through concurrent analysis. In this paper we evaluate the data by gender only and treat the whole sample population as representative of the Australian multicultural environment in which new and generations-old Australians of many ethnic backgrounds live and work together, particularly in the major Eastern capital cities (namely Sydney, Melbourne and Brisbane) where the majority of ICT workers reside. So while we acknowledge that our sample population does not include regional Australia, have an equal gender mix or represent the genders equally across professional levels, the distribution of our sample is representative of industry norms. It is significant to point out that in keeping with the trends for studying and working in ICT (see for example, Trauth, Huang and Quesenberry, 2006), the majority of the females in our sample are of Asian (predominantly east and south-Asian) and to a lesser extent Middle Eastern or Eastern European ethnic origin.

Data Analysis and Thematic Development

To reduce fatigue and workload and hopefully maximise response validity, each participant was randomly assigned 4 of the 16 scenarios. As participation was voluntary and recruitment was restricted to employees identified to us by the employer we ended up with: a smaller than anticipated sample size; the random allocation of scenarios; and unequal numbers of males and females across the genders. For example, we might have only 5 females and 15 males responding to a particular scenario. This meant that statistical analysis, in general, did not/could not provide significant results. Mean responses often obscured important details, for example, the mean of the extreme responses of very good and very bad resulted in the same mean as for neutral responses. For example, the mean for Scenario 1 option 8 ethical was 3.1 indicating a neutral response similar to the 3.5 mean for the males. However, as shown in figure 2, the response pattern is not similar at all. Following our interpretive methodological approach and to identify patterns otherwise obscured by the basic statistics we looked more closely at each point on the Likert scale to allow patterns to be identified; then from textual analysis of the response options, themes emerged as described below.

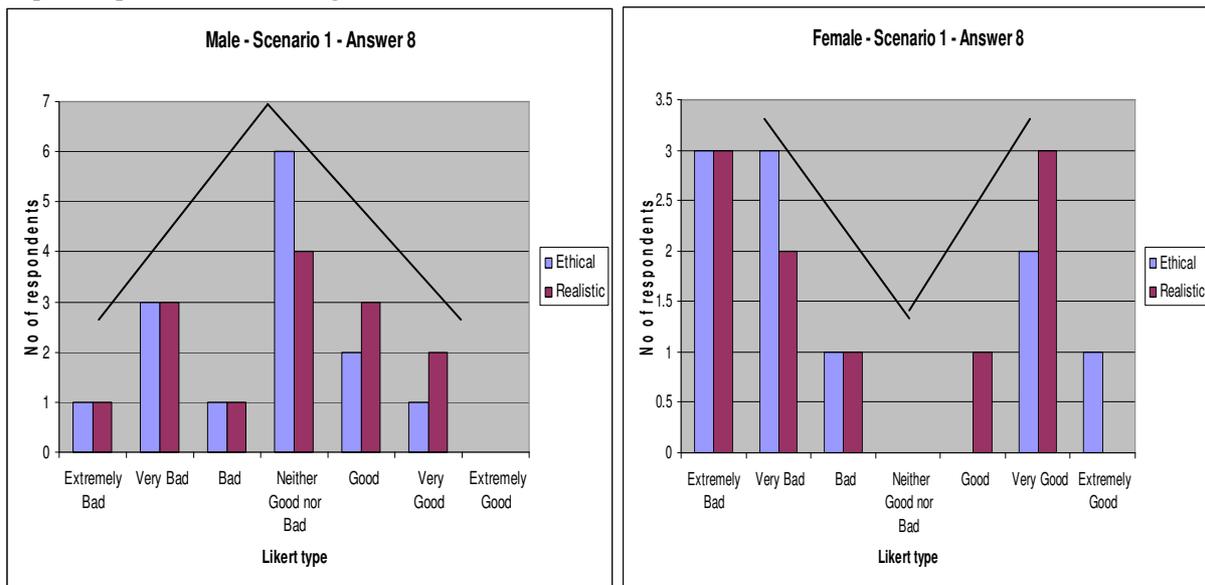


Figure 2: Bar charts comparing male and female responses to Scenario 1 answer option 8 (see Fig 1).

To assist in identification of patterns we created bar charts for each answer option by gender. In Figure 2 we see an almost inverse picture of behaviour which we have pointed out by overlaying on the male chart and on the female chart. Each pair of charts for each answer option was manually reviewed. If there were no apparent differences or patterns, we considered the next response or next scenario. When a pattern was evident we added that scenario, answer option and pattern of responses to the set of “interesting” data to be explored for themes.

While the scenario-response instrument gathered numerical data via a Likert scale, it was necessary to use thematic analysis to uncover themes from the text-based scenarios and responses. With a dataset of “interesting” scenarios and responses, we began interpretation of what the given answer might indicate. For instance, selecting good or very good to a scenario response was considered positive. If the participant was positive to an answer option suggesting discussion with a superior as a way to resolve the problem, we can possibly interpret that they believe in communication as an effective resolution strategy, they are not adverse to talking to a superior, they have confidence in their ability to communicate, they are happy to follow and use the organisations hierarchy/authority system, etc. As evident, even in the above example, interpretation of the choice is difficult and ambiguous. However, if the scenario is worded to say that “you do not have much faith in the ability of the

superior” or “your boss has less experience than yourself in this area” and they still chose a positive response to sorting out the problem via the superior, it lends greater weight to the fact that they believe in authority structures even when there are shortcomings of those in authority. To assist with interpretation of a specific answer option we also considered responses to alternative and similar answer options. Thematic analysis was applied to the set of plausible interpretations to reveal a pattern of preferences/behaviours for the genders. Thematic analysis seeks to identify, analyse, describe and report patterns (themes) across qualitative data (Owen, 1984). The goal is to minimally structure and describe a data set which is rich in detail. The themes identify patterned responses or meanings which shed light on the research questions. Using Owen’s (1984) criteria for thematic analysis, within the unit of analysis we looked for recurrence and repetition. To further assist with interpretation of the responses and the identification of themes we drew upon related gender studies to see whether they supported or contradicted our interpretations.

FINDINGS AND DISCUSSION

In this section we discuss differences that were found in the responses to the scenarios sometimes by using simplified or partial examples and actual numbers. Sometimes we offer generalizations rather than specific examples. The interpretations of the scenario responses by gender formed the basis of finding themes. In some cases we are able to bring in findings from the literature to support or contradict our interpretation. Thematic analysis resulted in the following themes: Assertiveness, Ethical Behaviour, Rewards, Propensity for Communication and lastly Achievement vs. Ascription Orientation.

Theme 1: Assertiveness

The most recurrent response was a lack of aggression or preference on the part of the females to take action themselves. Depending on the scenario, this could be interpreted as compliance with the decisions of others, particularly those in senior positions, a desire not to rock the boat, taking a back seat or deferring to someone else’s judgment. We note that these behaviours are consistent with the female stereotyping of Broverman et al. (1972): “has difficulty making decisions”, “not at all confident”, “very easily influenced”, “very submissive” “not at all aggressive” and perhaps “very strong need for security”. There is an overall perception that females lack ‘toughness’ (Peterson, 2007). This contrasts with qualities associated with males such as aggressive and more confident (Crump, Logan and McIlroy, 2007), autonomous, assertive (Peterson, 2007), self-sufficient and individualistic (Acker, 1990). While we do not want to judge or reinforce such attitudes or generalise to all females, what our study confirms is that many of Broverman’s stereotypes still prevail over thirty years later and that our cultural background affects the way we behave. While political and economic reforms can assist to facilitate change, reality “cannot be changed by one single person but must evolve over time as the environment and attitudes of the society change ... in order to adapt to the environment there must be a feedback loop, or continual reflection on the results of actions” (Crump, Logan and McIlroy, 2007 p.352.). In that spirit, this paper seeks to provide a feedback loop by analysing data which suggests use of certain deep smarts by gender and encourages reflection of those behavioural patterns.

In one scenario there was an option to protest that the idea was a poor one. Protesting was seen as extremely bad by 14/20 females, whereas only 10/28 males were at all negative. The unwillingness to complain can be seen as support for female willingness to comply. In another scenario where a superior made a poor decision regarding a computer network more males chose to disagree with their superior than the females even though the scenario stated that you knew a better option due to experience you had gained in your previous employment; this also indicated perhaps a greater respect for authority or acceptance of the decisions made by others. For the same scenario when the option was to ignore the situation, males and females were overall negative. However, there was greater disparity between the ethical and realistic responses of the females, where ethically the idea was bad but realistically ignoring was a possibility. In the scenario it stated realistically there is little you can do, and in case something should go wrong it’s not going to be your fault. It seems that the females took those words to heart, whereas the males thought they could change the situation or may have welcomed the challenge.

In a scenario which considered the management of subordinates, one of the options was to handle a less competent team member by giving them more specific tasks because it is simply not worth the effort to argue with him. Based on the responses to similar situations, we might have expected that females would favour this option, however, females were more negative and less noncommittal than the males. In keeping with other scenarios it could be that the males saw the strategy as one that would in the end have the greatest gain as the steps and logic behind handling this person were described in some detail - besides his skills in coding mean that he will be able to effectively contribute here, and then you can get rid of him, to concentrate on testing with other team members of your choice. This could perhaps be interpreted as supporting the characterization of males as “very logical” (Broverman et al., 1972) or masculinity associated with rationality, determination and high performance (Metcalf and Linstead, 2003).

Some women in ICT are assertive, or at least view themselves that way (for example see Trauth, Nielson and von Hellens, 2003). However, within the same studies when the experiences of women from Australia are described, it is clear that these women are not from Anglo backgrounds but from Eastern cultures characterized as collectivistic, particularistic and high context (that is relationship and long term oriented) (Trompenaars and Hampden-Turner, 1997) and even feminine (Hofstede, 1980) (meaning less gendered and more relationship-focused). In contrast, Anglo societies are seen to be individualistic, universalistic and low context (that is rule and more short term focused) and masculine (Hofstede, 1980) (achievement focused and gender stereotyped). That is, women from cultures which see ICT as a suitable career may not have the characteristics which they need to thrive and rise in the Australian male dominated ICT domain.

In a scenario involving informing a superior that their knowledge is out of date, one response involved informally demonstrating a better way hoping that will convince the superior to follow your way. This can be seen as an indirect approach. Males were split with equal negative and positive responses. However, females thought this indirect approach was better than other alternatives, another indicator that they were less aggressive and direct in their problem solving.

When considering how to handle a team member with insufficient skills for the task at hand, twice as many males were positive compared to the number of negative males to the idea of creating a 'competency hurdle' to force the person to comply with. Females were marginally negative overall. We conjecture that males may see the challenge in a more positive light and females may be less inclined to want to create challenges. Females were divided over the suggestion to add another team member to do the work of the incompetent coworker, but the males were mostly negative. Males may see this as avoiding the problem or been more inclined to take into account potential consequences for team morale and the budget.

Theme 2: Ethical Behaviour and Expectation of Rewards

A number of the responses shed some light on the ethical behaviour of females compared with males. This theme is mostly concerned with work ethic, but some scenarios concern professional and moral ethics. In considering attitude to work we also consider the relationship between recognition and reward for that effort.

In a situation where the respondent is to imagine you prefer to work on your own and trust your own skills more than the skills of others in your team, males were spread evenly across negative and positive responses to the option to work excessive overtime to get the job done themselves. Few females (8/40) were positive. As discussed earlier, it could be that females may not have the capacity to work excessive amounts of overtime given home and childcare responsibilities. Females are recognized to give work-life balance more importance (DICTA, 2006) and this may make them less favourable to performing overtime. Males are predominantly still the main income earner in Australia and may be more willing to perform overtime. Another explanation could also be that females may not agree with the sentiment expressed in the scenario that they would rather work on their own and do it all themselves. Revealing the complexity of issues, while others have found females to be team oriented, groupwork is one of the factors identified which discourages females from studying and working in ICT (Nielson et al., 1998). Their reluctance is primarily based on the competitiveness of their other team members who are usually all males (Waite, Jackson and Diwan, 2003). The male ego may also play a role in wanting to take charge and accomplish the task on their own.

Another example of being willing to work harder and put in extra effort, was in a situation where the networking team are providing poor service in which it was stated in the scenario Because you are not senior in the organisation you feel however there is actually little that you can do. Females were twice as positive as the males realistically to the option of approach the networks group in a surreptitiously complimentary manner, acting as if you fully appreciate their importance in the organization with the intention of getting on their better side, the hope being they provide you and your group with better services (Scenario 15, Option 4). To the option bone up and make a good case for change females were ethically very positive, but realistically spread across negative and positive. Males were spread ethically and realistically and were more noncommittal than the females. The necessity for work life balance for the females as primary care providers possibly accounts for their ethical/realistic dilemma.

However, we get almost opposite results on a different scenario also suggesting extensive effort and this time, unpaid overtime. In this scenario professional, rather than just work ethics are in question as the problem is to make sure that what is delivered to the customer is error free. When considering the option of whether to fix the problem yourself at your own expense, males were mostly negative about this, whereas the females all responded positively. This result conflicts with the previous comment regarding work-life balance. Perhaps there is some connection with the study by Beyer (1998) who found that females underestimated their performance and were less confident in their responses for masculine tasks (tests of knowledge of sports figures and politics), but were more likely to recall their mistakes, even with performance and accuracy controlled, than the males. Given that much of the work in the knowledge economy is technology related and thus male-oriented or dominated, a

feeling of inadequacy based on females recognising that in the past they have been poor judges of their own performance and also remembering their past mistakes, may result in the females feeling less confident about their current or future performance and a greater sense of guilt or responsibility for things going wrong.

Another profession-based ethical dilemma concerned how to handle the knowledge that a security audit was not based on a thorough investigation of the organisation. One option was to anonymously provide evidence that the report is just a copy of one given to another organisation and leave the decision of how to handle the unethical auditors to management. Both genders were negative to this response but males were more indecisive, that is, they had a higher response rate to “neither good nor bad”. The greater indecision, a willingness to tolerate an indirect approach rather than take action and avoid conflict on behalf of the males, does not reconcile with their behaviour in other scenarios.

We suggest from our data that females may have a heightened sense of ethics which could be related to Broverman et al.’s (1972) characterization that women are “very religious” compared to men who are “not at all religious”. Others have found that females tend to be more moralistic on the whole than males, thus dubbing them ‘God’s police’ (Summer, 1994). Certainly our overall data across scenarios revealed that there was a greater discrepancy between the ethical and realistic responses of females compared to the males whose ethical responses tended to be similar to their realistic responses. We conjecture one reason for this discrepancy is that traditionally females have been powerless in society to do as they chose. As a result, females are torn between what they believe they ethically “should do” or “should like to do” and how they “would” or “would have” to realistically behave.

Theme 3: Propensity for Communication

Females showed more willingness to communicate and discuss ideas than the males. When asked as part of a problem solving strategy about the possibility of suggesting an alternative contact they knew from their previous employment, 7 out of 10 females thought this was a good idea, compared to 14 out of 30 males. Similar to the male reluctance to ask for directions when lost (Wright, 2003), unwillingness to admit failure or the male ego may have prevented them from communication or simply that they are not as skilled or comfortable with talking. In females, ego may not be so relevant. Brush et al. (2004) found that “women are intuitively better at communicating. They like to share information around. Men do not like to relinquish their power — that is why they don’t share information.” The different male and female patterns of communication include women using communication for interaction and adopting a more collaborative approach to work than many of their male colleagues (Brush et al., 2004). Similarly, in the scenario concerning the management of the incompetent subordinate, one option was to bring in a mentor to resolve the situation. Males and females were positive, though males were less so. It may be that they consider bringing in a mentor would be seen as a loss of face or ego issue.

Where the solution offered was to politely communicate to your superior to let your thoughts known, both genders generally thought this was a good approach, but no females thought this was a bad idea and less were neutral compared to the males. Polite discussion may also fit with the females’ view of power distance between subordinate and superior. In communicating, females seemed more sensitive to power structures as evidenced in the females preferring an indirect approach and encouraging a change in behaviour by modelling that change rather than directly tell[ing] the superior that their knowledge is out of date.

Males, while less desirous of using communication or the advice of others in favour of taking action, when they did talk they nevertheless preferred to speak their mind (Broverman et al., 1972 calls this male trait “very blunt” and the female counterpart “tactful”) and were less concerned with avoiding conflict. This may tie in with Broverman et al.’s characterisation of females as “very aware of the feelings of others”. Unlike the males, females used communication and others involvement to avoid conflict and resolve the problem. In the feminine ideal rhetoric, females are seen as being socially and emotionally competent (Crump, Logan and McIlroy, 2007) by being team orientated, and possessing communication and caring skills (O’Sullivan and Sheridan, 2005).

Theme 4: Achievement vs. Ascription Orientation

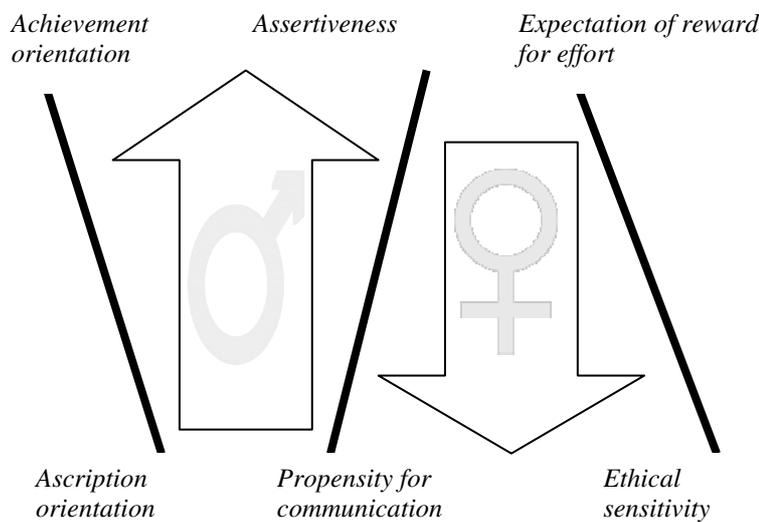
Another recurring theme is the greater tendency of males to explicitly acknowledge achievements, regardless of their own status within the organisation’s formal hierarchy. Males seemed more comfortable with telling the individual and/or their superior when a colleague had done a good job. Similarly they were less avoiding of confronting people with their shortcomings; this behaviour perhaps translates to the concepts of giving credit where credit is due, or blame where blame is due and taking responsibility for one’s actions. Focusing on what has been achieved as the basis of respect is a cultural value orientation identified by (Trompenaars and Hampden-Turner, 1997) to describe how status is accorded. The other side of achievement orientation is ascription orientation, where one is ascribed status based on characteristics such as a person’s age, seniority, gender or wealth.

One scenario considered congratulating someone who had done a good job with the possible effect that it might encourage them to seek a better position elsewhere and then you wouldn't be able to enjoy working with them any longer. One response was to pass on praise to the team leader and leave the decision and consequences to them. Such an option indicates a desire to pass the decision making and consequences to someone else. All females thought this was a good idea. Males were also positive but some were neutral or negative. The reason could be the superior-subordinate type of relationship described in the scenario and a higher ascription orientation by the females. Further reinforcing this idea, males were willing to encounter negative reactions, such as the praise giving the employee the confidence to find a better paid job elsewhere, to the females who were apprehensive toward such an outcome.

As elaborated under theme 2, in scenario 15 option 4, praise was used to mask a hidden agenda and to indirectly resolve a problem. There is also a possible implication that the person was behaving like a "crawler" or "yes man". In this case the males were mostly negative ethically (24 out of 39) but the females were more spread in their responses (6 positive, 2 neutral, 6 negative). Half of the males realistic responses were opposite to their ethical choices with (12 out of 39) choosing this as a bad option and almost half (18 out of 39) seeing the use of (false) praise in this circumstance as a good response. Similarly, realistically this option was seen more favourably (10 out of 14). Males may have felt that it was up to the individual to make their own choices and that credit should be given where it is due. The females may have been concerned with the consequences of their actions, or males acted in the knowledge of how important recognition was for the ego.

Bringing the themes together

Analysis of data suggest a connection between individuals who prefer to use communication (theme 3), follow the directions of those in more senior positions (themes 1 and 4) and get the job done right regardless of personal cost or embarrassment (theme 2). On the other hand, individuals who tend to be more decisive, speak their mind and take their own action (theme 1) rather than seek to resolve an issue through communication (theme 3) also tend to have confidence in their personal achievements regardless of their seniority or position (theme 4) and are also less likely to put in extra effort that will be unrewarded (theme 2). In figure 3 we have drawn the themes together into one model to show that preference for communication and assigning status based on seniority and formal authority structures (ascription orientation) tends to result in less focus on personal achievement, recognition for individual effort and asserting one's own view. Inversely, interest in communication is diminished



where the focus is on one's achievements, being rewarded for those achievements and making and asserting your own decisions. These are generalizations supported by our data which also shows a female tendency for the former and male tendency towards the latter. We have grey-ed the gender symbols to indicate that these are stereotypical over-generalisations and many exceptions to the rule can be found among and across the genders.

Figure 3: Model drawing together themes of responses to workplace scenarios by gender.

CONCLUSION

This exploratory study has identified a number of themes regarding behavioural differences between the genders based on the preferences of 128 Australian ICT workers to a set of workplace scenarios and answer options. These themes include a male preference for action and decision-making compared to a greater reluctance on the part of females to assert themselves, particularly if a superior is involved. This reluctance does not appear to be due to lesser interest or involvement in the workplace, as the females also revealed a strong work ethic with respect to willingness to do, even unpaid, overtime and to have a stronger sense of ownership of an error or desire to "do the right thing". There was a tendency for males towards working alone or taking direct charge of the situation. The females seemed to want to work within the hierarchy or structure of the organization. When

involved in decision making females were often more consultative with a preference towards being in a group. In contrast to the more aggressive behaviour of the males, females were more inclined toward conflict avoidance, though they believed that communication and seeking the assistance of others were key problem-solving and conflict resolution strategies. While communication and consultation were often preferred more highly by the females than the males, males seemed to favour the use of praise, in some situations to motivate and improve performance or in other situations simply because they thought the person's actions were worthy of praise. Life-work balance was potentially an issue that females (were forced to) treat more seriously when considering issues such as work overtime.

The objective of this research is not to provide evidence to support or justify gender stereotypes, rather to see if differences in practical intelligence or deep smarts, that is what practical knowledge is employed as part of managing one's self, other and career (Sternberg et al., 1995), could be found across the genders. As noted in the assertiveness theme, we also seek to bring these stereotypes into view to challenge them. While we could argue that the differences were not statistically significant due to our sample size for individual scenarios, one could also account for the small differences because the females are becoming one of the boys or that the workplace is being slowly feminised, as has happened in the previously male-dominated accounting domain (Walker, 2003). Despite the differences being small, nevertheless patterns of gendered responses were evident. Avoiding an essentialist or even social constructivist view, we can find other reasons why the females in our study could be said to be more submissive, less decisive and more "knowing of their place". One obvious reason is that fewer females were in senior positions and thus it was not their role to make decisions or acceptable to discuss matters and provide their opinions to those in more senior positions. We note that the findings of many past gender and technology studies have been flawed by not acknowledging such power imbalances. For example, in the study by Venkatesh and Morris (2000) asking 'are men and women different with respect to technology adoption?' there is no consideration that "technology acceptance is not necessarily the choice of a freely operating individual. The men and women in the study may not have had the same choice as to whether or not they accepted the particular software system—their jobs may have been quite diverse. If the men were higher up the organizational hierarchy, as is traditionally the case, their working lives may well have been quite different in both content and focus" (Adam, Howcroft and Richardson, 2004 p. 228).

Our findings, particularly for theme 1 on assertiveness, complement the findings of Trauth, Huang and Quesenberry (2006) regarding the increasing importance of cross-cultural issues influencing women's decisions regarding career choices in ICT by showing the role that culture plays in women's behaviour in the ICT workplace and the limitations this can pose for career advancement. This has practical implications for individuals, managers and Equal Opportunity employers who may need to be more proactive in addressing gender imbalances at all levels. In terms of the major gender and ICT theories, we see that culturalization and socialization play key roles affecting differences in behaviour but that the differences are often small and sometimes unexpected. If essential differences between the genders existed, we would expect differences to be consistent and clear. Every female and every male should behave similarly, yet we find some males and females choosing to respond according to the opposite gender under some circumstances but not all. Cultural background together with gender was also not able to show clear and consistent patterns of behaviour. Thus our findings support Trauth's (2006) individual differences theory of gender and IT. At a practical level it means that it is possible to inspire females into ICT through positive experiences and attitudes to females in this sector leading to a more diverse workforce to the benefit of both genders and organizations and society as a whole.

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