Cross-Cultural Influences on Women in the IT Workforce

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ABSTRACT

A review of 862 papers published in SIGMIS/CPR proceedings over the past 44 years revealed only 29 articles that focused on gender and the IT workforce or gender and IT education, the majority of which were presented at the 2003 conference whose theme was diversity in the IT workforce. Therefore, in response to the call for papers to extend our understanding of topics central to computer personnel research, we present data from our field study of gender and IT that is directed at understanding differing cross-cultural influences on female experiences in the IT workforce. Four themes emerged from analysis of data from four separate studies of women in the IT workforces in Australia, Ireland, New Zealand and the United States: motherhood and careers, career choice, family dynamics and gender stereotypes. Analysis of interviews with 167 women reveals a wide range of influences on women's choice of an IT career. These results lend empirical support to the individual differences theory of gender and IT as an alternative to essentialist or social construction theories.

Categories and Subject Descriptors

H.1 Models and Principles; K.7 The Computing Profession; K.4 Computers and Society

General Terms

Management, Human Factors, Theory

Keywords

Diversity, feminism, feminist theory, gender, gender equity, gender issues, gender differences, women, IT workforce, careers of women in IT, IT profession, IS careers, IS professionals, IT careers, IT professionals, individual differences theory of gender and IT, theory

1. INTRODUCTION

The under representation of women in the information technology (IT) sector has been a major concern of educators, practitioners, and researchers in IT workforce and personnel studies (e.g. [1][2]). A wide variety of issues related to female under

representation has been investigated with regard to why women are under represented and how to narrow the IT gender gap. These include social contexts, media influences, gender stereotypes, education and work environment, and recruitment and retention. Over the past several decades, the ACM SIGMIS/Computer Personnel Research Conference has served as a forum for examining a wide range of issues related to IT personnel including gender issues. For example, one of the major objectives of the 2003 conference "Freedom in Philadelphia--Leveraging Differences and Diversity in the IT Workforce" was to examine gender issues in IT education, the profession, and the workplace.

There are two phenomena of significance to the study of the under representation of women in IT. First, although women comprise approximately half of the American labor force,[1] they are not only under represented in the American IT workforce, they are a declining part of it. The Information Technology Association of America's (ITAA) Blue Ribbon Diversity Panel revealed that in 2004 women represented only 32.4% of the U.S. IT workforce [3]. Further, this statistic has been decreasing over the last decade. For instance, in 2002 women accounted for 34.9% of the American IT workforce and 41% in 1996 [4]. The declining participation of women is further indicated by the fact that men are far more likely than women to return to the IT workforce as the market recovers from the dot.com bust. This is evident in the fact that the unemployment rate of skilled men is decreasing much faster than that of skilled women. For example, from 2003 to 2004, the number of unemployed skilled male IT workers dropped 34.4% while the number of unemployed skilled female IT workers dropped only 5.15% [3]. Thus, the under representation of women in the IT workforce continues to grow and appears to be compounded by differential reentry patterns of workers after the dot.com bust based on gender.

The second phenomena of interest is that the under representation of women exists against a backdrop of an expanded global IT workforce [5]. An increasing number of countries have realized the importance of developing a variety of IT related sectors, such as computer hardware, software, and IT and information services [6]. At the same time, networking technologies have made both asynchronous and real-time communications among different regions and countries feasible, creating new ways of working and increased collaboration [7]. As a result, a variety of countries have become equipped with a maturing IT sector and a pool of talented IT workers, which enables them to enter the global IT outsourcing market and to engage in globally collaborative software work. Ironically, the skill shortage of the American IT workforce has caused IT institutions and industry to turn to the global intellectual pool for recruiting talented international students and

skilled IT workers through F-1 and H1-B visas [8]. Evidence of this is given in the 2005 ITAA report which points out that while the representation of women and certain ethnic minorities in the American IT workforce are lower than those in the overall workforce, the representation of Asians in the American IT workforce doubled the number of Asians in the overall workforce.

As a result, IT human resource personnel are facing an intriguing dilemma. On the one hand, the existence and expansion of the global IT workforce in both IT outsourcing and domestic markets indicate a diversification trend of the IT workforce. On the other hand, women and some racial and ethnic minorities remain under represented in the IT workforce, something that calls for further efforts to improve the diversification. Such a dilemma requires that those engaged in IT workforce research reexamine the discourse regarding diversification of the IT workforce in a critical and broad sense: what diversity means and how to address diversification issues from multiple integrated perspectives.

Trauth et al. [5] argue that we should take a comprehensive view of diversity that builds upon the notion of "diversity as difference," and include in our consideration not only demographic differences, but also socio-cultural and individual differences. Other researchers have also pointed out that the IT gender gap is not an isolated phenomenon and stress the need to address the gender issues in conjunction with other issues such as class, race, ethnicity, etc. [9][10].

The situation of the low and declining representation of women in IT compounded by the unmet labor needs in the U.S. suggests that this should be a significant research topic for computer personnel researchers. Further, the globalization of the IT labor force suggests the need to consider these gender issues in a cross cultural context. Hence, we decided to examine the published literature on IT gender issues from the ACM SIGMIS/CPR Conferences over the past 44 years from two perspectives: the national contexts in which the studies are situated; and the underlying theories used in those papers. Our motivations for studying the published SIGMIS/CPR gender and IT literature from these two perspectives are threefold: 1) to respond to this year's call for papers to review what has been learned by the CPR community of researchers over 44 years of activity (in our case, specifically regarding gender issues in IT personnel research); 2) to answer the call for addressing gender and IT issues from a broader perspective; and 3) to address the need to examine the cross-cultural influence on the IT workforce as the global IT workforce is increasingly diversified.

2. REVIEW OF ACM SIGMIS/CPR LITERTURE ON GENDER AND IT ISSUES

We reviewed the published SIGMIS/CPR proceedings over the past 44 years using the keyword "gender" and searched within published collections of SIGMIS/CPR proceedings in the ACM digital library. Our search of 862 CPR conference papers yielded in 119 papers. Then we screened those articles based on whether or not gender was the subject matter of the paper. Through this screening process, only 29 articles were found to focus on gender and the IT workforce or gender and IT education. For example, Sumner and Yager [11] conducted a pilot study to identify potential career anchors possessed by IT personnel. Although the word "gender" appeared several places in the article, it is not a main theme. Thus it was excluded after the screening process. Next we analyzed each of these 29 articles to identify the theoretical perspectives used in the articles and the societal context[2] in which the study was situated. Appendix A contains detailed results of this literature analysis.

We employed four categories in our coding scheme of theoretical perspectives: *essentialist theory*, *social construction theory*, *individual differences theory*, and *others*. This categorization reflects the common theoretical orientations of gender and IT research. The *essentialist theory* invokes biological differences between men and women to explain differences in their relationship to technology. This theoretical position is based on the assertion that such differences are fixed and unified [12][13][14][15]. The *social construction theory* argues that the influences of various socio-cultural factors are the primary constructs that shape individuals and their relationship to IT [16][17], hence, IT has been socially shaped as "men's work" and places IT careers outside the female domain [16][18][19][15][20]. The *individual difference theory* is situated between the essentialist theory and social construction theory and argues from the individual perspective that there are a variety of relationships between gender and IT resulting from a combination of personal characteristics and environmental influences [21][22][23].

In addition to these three theoretical perspectives, there are several papers that employ non-gender related theories or that do not appear to have a theoretical orientation. Those papers were coded as *others* with respect to theoretical orientation. For example, Myers et al. [24] report on a qualitative study of the challenging issues that female security professionals may face when compared to those of other IT fields. This paper focuses on identifying the possible challenging issues. It does not employ an explicit theoretical orientation to articulate the reasons behind those challenges.

Our findings indicate that only 6 out of 29 articles on gender issues in the IT workforce and education were presented before 2000. The majority of the gender issue related papers (79.3%, 23 out of 29) were published since 2000, among which 10 papers were presented in 2003 when the conference theme was leveraging differences and diversity in IT workforce. Our analysis of those 29 articles shows that the dominant theoretical perspective is social construction theory (75.9%) that focuses on the social construction of IT as a male domain. Our findings also indicate that there is little research on the influences of multiple cultural contexts on gender and IT issues. The exception is a paper by Nielsen et al. [25] which discusses how the differences between the Asian and non-Asian cultural contexts influence female students' perceptions and attitudes in Australia. Twenty-seven out of 29 papers depict a western cultural context; 21 of these explicitly studied the U.S. and Canada; and 5 explicitly studied Australia.

From our literature analysis of ACM SIGMIS/CPR research papers on IT gender issues several conclusions can be drawn. First, research on gender and IT is still in the beginning stages as indicated by the fact that over the 44 years of conferences, the gender research has only recently appeared in the proceedings. Second, the theoretical base of gender and IT research is somewhat monolithic with the majority of the research being enacted from a social construction perspective. Finally, there appears to be a paucity of research that addresses gender and IT

issues from cross-cultural perspective. These findings motivate the following research questions which we subsequently address in this paper:

1. Why is it important to consider cross-cultural perspectives in gender and IT research?

2. Are cross-cultural perspectives manifested in the experiences of women in the global IT workforce? If so, how?

3. What are the implications of those variable manifestations for the theoretical underpinnings and future agendas in gender and IT research?

3. EXAMINATION OF CROSS CULTURAL ISSUES

In order to address these research questions, we examined cross cultural datasets of four qualitative field studies of women working in IT in Australia/New Zealand, Ireland and the U.S. The investigation of women working in IT in Australia and New Zealand (conducted in 2000) was carried out in conjunction with an Australian Research Council funded study of Women and IT (WinIT) project at Griffith University in Brisbane, Australia [21][26]. The investigation of women working in IT in Ireland represents two separate field studies of women in Ireland's IT sector. The first set of data, collected during 1989 and 1990 was part of a Fulbright funded study of socio-cultural influences on Ireland's information economy [6][27]. The data collected in 2003 is part of a follow up, Science Foundation Ireland funded study of socio-cultural impacts of Ireland's information economy. The investigation of women working in IT in the U.S. is part of an on-going research project sponsored by the National Science Foundation to investigate individual differences in the social shaping of gender and IT.

The data in these studies was collected by the first author through face-to-face, open-ended interviews with female IT practitioners. The interviews lasted between 60 and 120 minutes in length and investigated the participants' educational and work industry experiences with gender and IT and resulting insights. The interviews explored the participants' background, interpersonal influences and broader themes of gender and IT. (A more detailed discussion of the themes can be found in Trauth et al. [22]).

This research has been conducted along with the evolution of a theoretical perspective – the individual differences theory of gender and IT – that has been proposed by the first author [21][22][5]. This theoretical perspective focuses on differences among women in the ways they experience and respond to characteristics of IT work, the IT workplace and societal messages about women and IT. The theory argues that greater nuance is needed in the examination of gender and IT. This theory focuses on women as individuals, having distinct personalities, experiencing a range of socio-cultural influences, and therefore exhibiting a range of responses to the social construction of IT. In this paper the theory is used to illuminate the investigation of cross cultural influences on gender and IT by examining possible connections between economic and cultural factors and the experiences of women in the IT workforce.

Interviews with 167 female IT practitioners were used as a multi-cultural dataset for this paper. Thirty-one of these interviews were conducted in Australia/New Zealand, 46 were conducted in Ireland, and 90 were conducted in the United States (as shown in Table 1). These women represent a wide range of demographic and personal characteristics. The women range in age from 21 to 64 years old with a median age of 40 years old.[3] The women have followed a range of educational paths (IT and non-IT related) and degrees (baccalaureate and graduate degrees). The women represent a diverse background of IT work experience including roles in information/requirements analysis, systems design and development, quality assurance, systems administration and support, consulting, training and management. The interview data is also supplemented by participant observations of the women and their environment.

Table 1 Interview Category

Category	Year(s) Conducted	# of Interviewees
Australia/New Zealand	2000	31
Ireland	1990	25
Ireland	2003	21
United States	2002-2005	90
Total	**1990-2005**	**167**

Beyond the cultural differences reflected in the four countries in which the interviews were conducted, the female participants also represent a range of racial and ethnic backgrounds including: Asian and Pacific Islander (China, Korea, Japan, India, and Fiji), Caribbean (Jamaica and Puerto Rico), Hispanic, Middle Eastern (Lebanon, and Egypt) eastern European (Poland, and Bosnia and Herzegovina), western European (France, Germany, Italy, and the UK). As a result, these women were able to surface a rich variety of cross-cultural influences and the ways in which they are manifested in their professional lives.

To demonstrate how these cross-cultural influences are manifested in the lives of female IT practitioners, we discuss four themes: motherhood and careers, career choice, family dynamics, and gender aptitude stereotypes. We explore these themes for several reasons. First, the themes build on prior work with the individual differences theory of gender and IT by investigating the influence of environmental context on women in the choice of IT careers [28]. In doing so, we explore economic and cultural factors of the environmental context in both historical and temporal senses. Second, the themes, when holistically examined, represent a range of diverse influences such as political-economic, and geographical aspects of cross-cultural messages, variety in family dynamics and expectations, and differences in support structures. Finally, the themes demonstrate that it is important to consider cross-cultural perspectives in gender and IT research as they are major influencing factors in women's choices of IT. This is becoming more and more important as the global IT workforce continues to expand and the domestic IT workforce becomes more and more diversified with respect to the variety of cultural backgrounds. These themes are discussed in more detail in the remainder of this section.

3.1 Motherhood and Careers

A prevalent manifestation of cross-cultural influence on the experiences of women in the IT workforce relates to motherhood and careers. One aspect in particular highlights the temporal nature of cross-cultural influences and how societal messages

evolve overtime. During the data collection in the first Irish study a common theme expressed by the participants was that women, in particular mothers, should not work outside the home. As Patricia explained:

> "This is a very traditional society... It is still frowned upon for a mother to work" [Patricia].

Likewise, Siobhann explained that in the 1980s a 'marriage tax' in Ireland made it very difficult for married women to work because they did not have a personal tax free allowance:

> "[The Irish tax rates were very high and the laws] added together the husband and wife's salaries and taxed them as one. So, the husband got all the tax free allowances and the wife's would not get any. [As a result] every hourly salary is taxed at the high rate" [Siobhann].

A decade later, the sentiment in the 2003 interviews changed and many of the Irish women who were interviewed felt the position of women in their country has improved. For instance, Norah felt that the position of women is "definitely better" and there are more opportunities for women particularly in the sciences. Dymphna explained that working women are no longer viewed as taking a job away from a man who is supporting a family. She felt this was mainly because people have learned that dual-income couples are necessary in the new economic reality of increased costs and mortgages. Although, the position of women has improved, barriers to their participation in the IT workforce still remain however. For example, Iaobh recognizes that it is more difficult for women to climb the corporate ladder of success:

> "I think [climbing the corporate ladder] depends on children. I think that is one thing that can hold some women back. ... But I think that is changing, men are getting more involved" [Iaobh].

Another theme of motherhood and careers raised by several women in our study relates to how communist or socialist societies shape their views of women working. For example, Anita, who is from Bosnia and Herzegovina, explained that communist and socialist ideologies, as opposed to capitalist ideologies, typically have a different view of female employment. She felt that the former Soviet Union had very little gender segregation in high paying careers because of an importance placed on gender equality issues. Likewise, Charlene, an Australian woman who grew up in communist Poland, felt that communist and socialist ideologies were more open to women working because of pure economics. She felt this paradigm was a result of a "different society structure" where both women and men had careers and shared domestic responsibilities:

> "I feel coming from a communist country, I was raised in a little bit different way than girls are raised [in capitalist western cultures]. There was more expectation on us to get to any field we wanted and gender was not really an issue. And because of economical reasons, our mothers had to work. As such, they were also our bread winners as much as our fathers. I guess, there was a bigger awareness or let's say, acceptance of women [working]" [Charlene].

Many women also spoke about the role of government-provided child care and maternity leave. Brianna, an Irish woman, felt that the Irish national policies on maternal and paternal leave are extremely beneficial for working mothers. By taking a short amount of paid leave from work, mothers and/or fathers are able to spend quality time with newborn children but are not punished when returning to the workforce.

3.2 Career Choice

One theme that repeatedly surfaced in the interviews was the difference in career choice decision factors. Women in the U.S. study felt the American societal message of career choice centers on *what you want to be.* Yet, in other countries the societal message of career choice centers on *what you can be* or *what you should be.* For instance, Cynthia, an Australian woman from China, explained that in China the decision to enter a certain career depends more on strong academic marks than a particular interest in the subject. She explained that she did not have an interest in the IT workforce per se, but was encouraged to pursue a career in the field because she performed well on university entrance exams. Mitual, an Australian woman from India, echoed Cynthia's sentiments. She explained that in India she was a "topper" or a high scoring student on exams:

> "I was really intelligent. I was a topper. So that is why [people said I would become a doctor]... I had good marks, [but not enough to go into medicine]... I didn't want to give up. I wanted to be a professional" [Cynthia].

Mitul added that exam scores only determine what a woman *can be*, but social class determines what a woman *should be.* She explained that in the highest social class, the expectation is that women will not work unlike women in middle or lower classes who are expected to work. As a result, Mitul felt it might be easier for Indian women from the middle class to enter the IT workforce than those from the upper class.

Yang, an Australian woman from South Korea, offered insight into how the differences in societal messages about career choice can be manifested. She thinks women in Australian technology courses at her university are typically Asian because they are preparing for high paying careers in their home countries. Since IT careers are in demand in many nearby countries (Malaysia, Singapore and Indonesia) a larger number of the students come to Australia to seek an IT education.

Another career choice theme that was expressed by a few women from Ireland centers on the idea of "clean" work. Some women explained that traditional factory or agrarian careers required a large amount of physical labor in which workers were expected to get their hands dirty. The emergence of information work has brought a shift in the nature of work. A career in the IT workforce is generally consider "clean" since an employee does not interact directly with dirt or factory machinery. For example, Deirdre explained that when choosing a career her school counselor and her father persuaded her to select an IT career because you do not "get dirty."

3.3 Family Dynamics

A third theme raised by many participants was the influence of family dynamics on their careers. The participants spoke about how their cultures were more family-centered than work-centered. As a result, the women expressed a number of options available to

them to help balance work and family. For example, Karen, an Indian woman working in America, explained:

"Traditionally in an Indian environment, when the girl is pregnant, when she is in her 3rd trimester, she would go to her mom's place and have the baby there. And come back after the baby is a few months older. It is a very traditional thing to do, because the mom's side of the family offers a lot more support" [Karen].

Mitul explained that in India the grandparents typically care for a child while the parents are at work. Otherwise, child care facilities are available, although this option can be costly. Furthermore, as observed by the third author of this paper who is Chinese, it is not uncommon for Chinese women studying or working in America to send their newborn babies to China to be raised by the grandparents during the initial stages of infancy.

Related to work-life balance, several Asian women spoke about the expectations to care for their parents and in-laws as they get older. For instance, Carol, a Chinese American woman, explained that in China domestic responsibilities include taking care of your children, and "taking care of your parents and your husband's parents." When asked if this perception differed from that of her American co-workers, she responded:

"I think [a] difference is that probably they do not have to take care of their parents. That is the big difference I can see" [Carol].

Several women also spoke about the importance of pleasing parents and in-laws in terms of career and lifestyle choices. Several Asian women spoke about the expectations that their parents and in-laws would be involved in decision making about whom to marry, where to work, and when to have children. Karen explained that it would have been "impossible" to marry her husband if his parents would not have been supportive. Mitul considered herself to be lucky because her parents and her in-laws did not object of her working once she had a child. She added that if they had objected it would have been a difficult situation and she "probably would not have gone against their wishes."

3.4 Gender Stereotypes
A final theme noted by a number of women related to the varying messages about gender aptitude stereotypes surrounding IT. In some cultures the societal stereotype is that women are not well suited for technical work. Yet, in other cultures the stereotype is the opposite. This conflicting depiction of women's relationship with IT was frequently discussed in the interviews. For instance, Cynthia spoke at great length about the differences between Chinese and Australian perceptions of women doing technical work:

"I think more women in China study engineering than [in Australia]. In China, our country says a woman and a man are equal. There is no [stereotype that IT] is men's work" [Cynthia].

The conflicting stereotypes about aptitude are further complicated by cultural messages about gender, race, and class. Some of the women felt that gender was not the primary distinguishing factor in stereotypes in their countries. Rather, race and class demographics were typically the primary targets of stereotypes.

For example, Allison, an American woman from Jamaica, explained that negative stereotypes in Jamaica are not focused on gender. She explains that because the country is so diverse "the issue is not race and gender, it is status and money." As a result she has a difficult time reconciling race or gender discrimination she faces in the U.S. In addition, Candace, an Australian woman from Fiji, explained that gender is not the primary factor in societal stereotypes. Rather, she explained that ethnic background such as European, Fijian or Indian is the primary distinguishing factor in Fiji:

"To be honest, nobody really cared that much about male-female [differences], because the main focus was between Fiji and Indian culture [differences]. That was the huge cultural dichotomy that existed. ... Everything else kind of paled in comparison to that" [Candace].

Another aspect of gender aptitude stereotypes centers on the interpretation of the term "geek." Carol explained the differences in America and China with respect to the connotation of referring to a woman as a geek. She feels that in the U.S. it is generally considered insulting to refer to females as geeks. As a result, a number of young girls she has met do not want the negative label associated with an interest in IT and chose not to pursue IT careers. Yet in China, Carol adds it "is just the opposite" since referring to a female as a geek is a positive comment and, in many ways, a complement.

4. DISCUSSION
In this paper we present the results of our investigation of cross-cultural influences on women in the IT field that was conducted in order to empirically address our three research questions. First, the results of our analysis show the importance of including a cross-cultural perspective in gender and IT research. We present evidence of different cultural influences on women in the IT field that are related to differences in nationality and ethnicity. Second, we classified the manifestation of these cross-cultural influences into four factors: motherhood and careers, family dynamics, career choice and gender stereotypes. Thus, while themes related to parenting, family and economics might be evident in studies of women in each societal context; the *ways* in which these themes are experienced by the women vary across cultures. That is, not all women experience economic or parenthood issues in the same ways. Finally, the results of this research have clear implications for the theoretical underpinnings of gender and IT research. The evidence of varying cultural influences on women in the IT labor force and varying responses by women to common experiences such as parenthood, suggest the need for more nuanced examination of factors affecting women's recruitment into and retention in the IT field.

Thus, the findings presented in this study lend further support for the theoretical insights offered by the individual differences theory of gender and IT. Whereas the essentialist perspective ignores context and looks to biology alone and the social construction perspective tends to assume a common set of social influences across all women, the individual differences perspective accounts for variation both in the societal messages about gender that women receive and in the ways they respond to them. Evidence that different cultures exert different influences on women challenges the assumption of a common social construction of 'female roles' as they relate to a career in the IT

field. This would suggest that future research on gender and IT consider gender in conjunction with other factors. It also suggests that greater theoretical variety be incorporated in gender and IT research.

5. CONCLUSION
The results presented in this paper contribute to the growing body of computer personnel research literature that is focused on gender and the IT workforce. It also responds to the call for addressing issues from a broader perspective by examining cross-cultural variation in gender and IT issues. The analysis of four themes (motherhood and careers, career choice, family dynamics and gender stereotypes) reveals a wide range of influences on women's choice of an IT career based upon nationality and ethnicity. These results reinforce the need to move away from monolithic analyses of gender and IT that assume a common experience for all women and toward more robust analyses that take into account the wide variation of both influences on women in the IT field and women's varied responses to them. Consequently, these results lend further support to the individual differences theory of gender and IT

6. ACKNOWLEDGMENTS

7. ENDNOTES
[1] The reference point of this paper is the situation for American women since the authors are American citizens or residents and conduct the majority of their gender research in the United States. For perspectives in other countries see, for example, Adam and Richardson's work [29][30][31] regarding gender in the UK and von Hellens and Nielsen's work [32] regarding gender in Australia.

[2] The term "societal context" encompasses regions (such as "western") as well as continents and nations.

[3] Age data was not collected for all participants in the original Ireland and Australian studies. Hence, the age statistics do not include information for the 25 women in the first Irish study and 10 Australian women.

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Appendix A: Review Results of ACM SIGMIS/CPR Literature on Gender and IT Issues

	Author	Year	Theoretical Analysis	Theoretical Perspective	Context
1	Trauth et al.	2005	Explicit	Individual Difference Theory	U.S.
2	Joshi and Kuhn	2005	Inferred	Social Construction Theory	U.S.
3	Myers et al.	2005	N/A	No explicit theory	U.S.
4	Trauth et al.	2004	Explicit	Individual Difference Theory	U.S.
5	Roldan et al.	2004	Explicit	Social Construction and Organizational Cultural Theory	N/A
6	Tapia and Kvasny	2004	Explicit	Social Construction Theory	Western Context
7	Ahuja et al.	2004	Inferred	Social Construction Theory	U.S.
8	Joshi et al.	2003	Inferred	Social Construction Theory	U.S.
9	Gallivan	2003	Inferred	Social Construction Theory	U.S.
10	Cukier	2003	Explicit	Institutional Discourse Theory	Canada
11	Carayon et al.	2003	Inferred	Social Construction Theory	U.S.
12	Tapia	2003	Explicit	Social Construction Theory and Individual Difference Theory	U.S.
13	Nielsen et al.	2003	Explicit	Structuration Theory	Australia
14	Davia and Kuhn	2003	Inferred	Social Construction Theory	U.S.
15	Kvasny	2003	Explicit	Social Construction Theory	U.S.
16	Katz et al.	2003	Inferred	Social Construction Theory	U.S.
17	Newton et al.	2003	Explicit	Social Construction Theory	U.S.
18	Beise et al.	2002	Inferred	Social Construction Theory	U.S.
19	Sumner and Niederman	2002	Inferred	Social Construction Theory	U.S.
21	Joshi and Kuhn	2001	Explicit	Theory of Reasoned Action	U.S.
22	Sumner and Werner	2001	Inferred	Social Construction Theory	U.S.
23	von Hellens et al.	2001	Explicit	Social Construction Theory	Australia
23	von Hellens et al.	2000	Inferred	Social Construction Theory	Australia
24	Nielsen et al.	1999	Explicit	Social Construction Theory	Australia
25	Nielsen et al.	1998	Explicit	Social Construction Theory	Australia
26	Nielsen et al.	1997	Explicit	Social Construction Theory	Australia (Asian and Non-Asian Students)
27	Ahuja	1995	Explicit	Social Construction Theory	U.S.
28	Igbaria and Chidambaram	1995	Explicit	Essentialist and Social Construction Theory	U.S.
29	Willoughby and Hughes	1988	Explicit	Essentialist Theory	U.S.