What can we Learn From Gender Research? Seven Lessons for Business Research Methods

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Abstract: This paper considers issues, insights and lessons about conducting research in business that are drawn from this author's experiences with gender research in the information technology (IT) field over the past decade. A research program on gender and information technology (IT) is used as the basis for consideration of methodological insights for business research. The purpose in discussing gender research is not so much to focus on the findings of this work. Rather, the purpose is to focus on research issues that have or could arise, the learning from which is transferrable to business research. The reason is that there are similarities between gender research and business research. Both are action oriented in that the research is driven by real issues and practical problems. The research is conducted into the phenomenon in order to inform actions and interventions. This problem-orientation that drives business research also drives gender and IT research. Seven lessons relevant to business research methods are: the effect of data type, the choice of epistemology, the role of theory, building on disparate literature, the influence of researcher standpoint, stakeholder perspective that is privileged, and resolving the rigor vs. relevance conundrum. This review of insights for business research that is drawn from experiences with conducting research on gender and IT makes a case for increased methodological pluralism. Arguably, the degree to which institutions and publication outlets take these issues into account is indicative of their openness to exploring emergent topics. Methodological conservatism might be in order in some areas. But business research, which endeavors to respond to real world problems, needs to have the methodological tools available to respond to them. It must also be responsive to business trends and issues that might bring with them challenges for current methods for conducting research. New economic constraints, issues such as climate change that blur business area boundaries, globalization, social inclusion and innovation are 21st century issues that will encourage the research community to overcome resistance to different ideas, methodologies, epistemologies and theories.

Keywords: critical theory, diversity, epistemology, feminism, gender differences, gender and IT, individual differences theory of gender and information technology, interpretive research, research methods, social inclusion, theory, women and IT workforce

1. Introduction

This paper considers issues and themes about conducting research in business that are drawn from the author's experiences with gender research in the information technology (IT) field over the past decade. A research program on gender and information technology (IT) is used as the basis for consideration of methodological insights for business research. The purpose in discussing gender research is not so much to focus on the findings of this work. Rather, the purpose is to focus on research issues that have or could arise, the learning from which is transferrable to business research. The reason is that there are similarities between gender research and business research. Both are action oriented in that the research is driven by issues and problem. The research is conducted into the phenomenon in order to inform actions and interventions. This problem-orientation that drives business research also drives gender and IT research. In the sections below the gender research program is described. This is followed by a discussion of seven lessons for business research methods that are drawn from this research agenda.

2. Overview of gender research

2.1 The problem

The problem that motivates this research is that women represent half of the population, and, in many societies, half of the labor force, yet are woefully underrepresented in the information technology (IT) field. In view of the economic projections about the continued growth of the IT sector, it is particularly important that all members of society see this as a viable career option. That is, the inclusion of women in the IT sector is a matter of both economic necessity and social justice. There are several answers to the question of why it is important to address the gender imbalance in the IT field (Trauth, Huang, Morgan, Quesenberry and Yeo, 2006).

The first argument for redressing the gender imbalance can be termed the *innovation argument.* The information economy is also an innovation economy. The reason is that as technology, including information technology, becomes a commodity there is an economic incentive to move its production to the lowest wage economies. Consequently, economies in countries such as the U.S. are focusing their attention on continuous innovation and the development of ever new information products and services as a way to compete in this sector. In such an economy 'talent' or human capital development is what is prized because it is human brainpower and creativity that fuels such innovation. And the 'best brains' can be located in a variety of bodies, not just male. The second argument can be termed the *consumer argument.* In an information society in which all citizens are engaged in the consumption of information products it is crucial that the varying needs of this diverse consumer base be represented. The air bag story is now given as a classic example of the failure to include diverse perspectives in design considerations. The problem with the automobile air bag is that it was designed with a western man in mind as the generic 'person' without sufficient consideration to the effect of the deployed airbag on someone of a lighter and slighter build than the average western man, with the tragic consequences that have resulted (Smith, 2009). The third argument for gender balance is termed the d*emographic argument.* In much of the western world, demographic changes add urgency to the desire to create a more diverse IT labor force. The impending retirement of the baby boom coupled with projected growth in the IT sector over the next ten years will produce an IT labor force demand that cannot be satisfied by white men alone; yet women typically make up less than 25% of the IT labor force of many countries (Panko 2008). The fourth reason for advocating greater gender balance is a simple *economic security argument.* As this paper is being written the USA is in the throes of the most severe economic recession in generations. Tens of thousands of workers have lost their jobs; it is predicted to get worse before it gets better. In such circumstances it is incumbent upon individuals to be prepared for economic uncertainties. Thus with the possibility of spouses and partners losing jobs, everyone needs to be prepared to work. And if they are getting lower paying jobs two-income families will become increasingly important. Thus, it seems to make good economic sense that women are able to hold information sector jobs. Finally, there is the *equity argument*. This argument is that in an open society, all people ought to have equal opportunity to pursue all careers. It is a matter of fairness. But ensuring such equity, however, isn't just a matter of individual choice. It also requires addressing structural barriers that are enacted through cultural norms, societal stereotypes and institutional behaviors.

The business problem of the need for a gender balance in the IT field produces, in turn, a research problem. The problem is that there is insufficient scholarly knowledge of the factors that account for women's under representation in the IT field. Further, there is insufficient theoretical understanding of these factors. What we have, instead, is a situation in which generally well intentioned people identify and theorize factors in an ad hoc fashion. That is, since everyone experiences gender, it is commonly thought that rigorous data-driven interventions are unnecessary. This has contributed to a lack of theoretically-informed interventions to address the gender imbalance.

2.2 Gender and IT research agenda

In response to this need, a research agenda was enacted ten years ago with two goals in mind. One was to explore and better understand how individual, institutional and societal factors operate to discourage women's participation in the IT field. The second goal was to develop an alternative way of theorizing the influence of these factors. This section provides a brief overview of the research agenda with a focus on methodological, epistemological and theoretical considerations.

2.2.1 Methodological and epistemological considerations

The research methodology employed in this research program has involved four forms of data collection: interviews; participant observation; and survey and focus groups. Both quantitative and qualitative data have been collected. Both interpretive and positivist epistemologies have been employed. Two hundred life history interviews were conducted between 2000 and 2006[1] with women in the IT profession in the USA (123), Australia (21), New Zealand (10), and Ireland (46) in order to identify individual responses to socio-cultural factors that inhibit or encourage female participation in the IT professions. These interpretive field studies employed face-to-face, open-ended interviews with female IT practitioners and academics. Strategic, convenience sampling techniques were used to

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[1] Twenty-five of the interviews with Irish women were conducted in 1990 before this research program was undertaken. They were part of a larger study of socio-cultural influences on the emerging information economy in Ireland (Trauth, 2000).

facilitate geographical representation of the women in the studies. In the case of the Irish, Australian and New Zealand studies women throughout the country were interviewed. In the case of the American study the geographical representation was limited to three states: Massachusetts (32), North Carolina (30), and Pennsylvania (31). In addition, 31 interviews were carried out throughout the USA with women academics in the IT field. The geographical limitation in the American study was imposed because of the size of the American population in contrast to that of Ireland, Australia and New Zealand. Limiting the geographical representation, thus, facilitated more focused socio-cultural analysis. During interviews that typically lasted 90 minutes, women were asked to talk about their educational backgrounds, work experiences and about family and socio-cultural factors that influenced them to become IT professionals. The women were also asked about factors that have either enhanced or inhibited their participation in the IT sector.

These interviews constitute the bulk of the research conducted as part of this research program. But three additional forms of data have been collected more recently. Participant observation data were collected in 2008 in South Africa with both women and men working in the IT industry. These individuals were students in an intensive Master of IT course that was taught by the author. Finally, a mixed methods study of American university students was undertaken in 2007 and is ongoing. In this study a positivist epistemology is employed in a survey that is investigating the intersectionality of ethnicity, socio-economic class and gender. A subset of the students will also participate in (interpretive) focus groups.

2.2.2 Theoretical considerations

The problem of female under representation in the IT field was theorized using an emergent gender theory that looks to within-gender variation for insights. The *individual differences theory of gender and IT* (Trauth 2002, 2006; Trauth et al., 2004, 2009) considers gender relations in the IT field at two different levels of analysis. The societal level is concerned with the origins and operations of gender group influences. The individual level is concerned with explanations for variation among women with respect to how they respond to gender group influences. This variation is posited as resulting from differences in demographic traits, personalities, and individual and socio-cultural influences. This theory is comprised of three constructs. The *individual identity* construct includes subconstructs such as age, ethnicity, nationality, socio-economic class, parenthood and the aspect of the IT field which one has entered. The *individual influence* construct includes subconstructs such as educational background, personality traits, abilities, mentors, role models, and significant life experiences. Finally, the *environmental influence* construct includes cultural, economic, policy, and societal infrastructure influences. The *individual differences theory of gender and IT* argues that, collectively, these constructs account for the differences among women in the ways they relate to the IT field, and respond to gendered discourses about IT.

The findings from this research reveal pervasive, systemic, yet variable interaction with gender-based influences throughout a woman's education and career. This individual variation has been categorized into differences in: *exposure, experience* and *response* (Trauth and Quesenberry, 2006, 2007). Differential *exposure* - the amount of gender bias which a particular woman actually encounters - varies by such individual factors as her ethnicity, age or parental status, as well as by the geographic region in which she lives. Differential *experience* - a woman's consciousness of bias and the extent to which she notices and internalizes it – is influenced by such individual factors as role models, mentors and significant life experiences, as well as by an individual's personality, abilities, academic prowess, and the culture and economy of a particular geographic region. Differential *response* is affected by such individual factors as the degree of family support a woman receives, her coping mechanisms and her sense of personal agency, as well as by institutional factors such as gender and equality laws and policies of a geographic region as well as the equality climate of institutional settings.

3. What can business research methods learn from gender research?

In this section the issues, insights and lessons learned from gender research are made applicable to business research.

3.1 The effect of data type

The first insight is about the type of data: each has a particular contribution to make to our understanding of issues. Each has its strengths and weaknesses. Quantitative research provides explicit, objective documentation of a phenomenon. It enables wider reach and population

generalizations. Qualitative research, on the other hand, provides "the story behind the statistics." In some senses, it picks up where quantitative research leaves off: from observing and documenting the phenomenon to a nuanced understanding of it. Whereas quantitative research endeavors to generalize to a population, the goal of qualitative research is to generalize to theory (Lee and Baskerville, 2003). Finally, qualitative research opens the door to epistemological variety. It enables not only interpretive but critical research as well. (This is discussed more in Section 3.2.)

In choosing between quantitative and qualitative data, both the strengths and weaknesses need to be taken into account. For example, a disadvantage of quantitative research is that there is not the opportunity for nuanced understanding that is afforded by qualitative research. But a drawback of some qualitative research is its lack of transparency about the method. The reader is often asked to believe without explanation, how the author came to the conclusions she or he did. These strengths and weaknesses have led to methodological bias in some business journals towards exclusive publication of one type of data or the other. Hence, authors wishing to publish in certain journals are made to fit their research to a publisher's methodological constraints rather than allowing the appropriate method to emanate from the nature of the research to be conducted. A related issue is the use of mixed methods. Bias towards one type of data or another will diminish the opportunity to produce rich insights through the use of multiple lenses to view a phenomenon.

3.2 The choice of epistemology

The second insight is about epistemology. Different goals are achieved by different epistemologies. As an illustration, consider the effect of epistemology on gender and IT research. A series of papers considered how the goal, methods and findings of research change along an epistemological continuum (Howcroft and Trauth, 2004; Trauth and Howcroft, 2006; Howcroft and Trauth, 2008). Positivist studies are focused on accurate and replicable documentation leading to valid generalizations about gender and IT. The majority of this research has been directed at documenting *that* there is a gender difference with respect to design, development and use of information systems and technology, or with respect to participation in the IT field. It is difficult to consider how interventions flow out of such findings without discussing the role of theory (taken up in Section 3.3). However, more recently positivist gender research has taken a more sophisticated approach to the phenomenon under study. Examples include Armstrong et al. (2007), Riemenschneider et al (2006), Kuhn and Joshi (2009), Trauth et al. (2010) and Adya and Kaiser (2005).

Interpretive research, on the other hand, is interested in understanding *how* the current status of gender relations has come to occur. Its goal is to understand the social and psychological processes whereby overt and internalized constraints hold women back from equal participation in the IT sector. In shifting from positivist to interpretive research, the goal would change to exploring the ways in which women are influenced by and react to the social shaping of both gender identity and IT. In the interpretive study the focus is on the story of women who "overcame the odds" and how they did so. The results are intended for use in supporting and evaluating interventions directed at women and their societal context. Examples include the work of von Hellens (e.g. von Hellens and Nielsen, 2001) and Quesenberry (e.g. Quesenberry and Trauth, 2008).

Critical research goes one step further by asking *why* gender is constructed as it is and whose interests are being privileged. Hence, it endeavors to expose systems of power that are served by the gender imbalance. The purpose of critical research is to challenge assumptions, identify contradictions and to raise awareness about systems of power. The critical exploration of gender and IT moves beyond articulating key influencing factors affecting women and the within-gender variation in how they overcome them. Its goal is to raise issues of a structural and ideological nature that may frame the experiences that hold women back and serve to reproduce inequality. Examples include the work of Adam (2002), Howcroft (e.g. Trauth and Howcroft, 2006; Howcroft and Trauth, 2004, 2008), Kvasny (e.g. Kvasny 2006) and Richardson (e.g. Adam, Howcroft and Richardson, 2004).

The effect of epistemological choice in business IT research is pointed out in a study on group decision support systems in which two different epistemologies (first positivist and then interpretive) were used to analyze transcripts from a group decision support system discussion (Trauth and Jessup, 2000). What emerged from the analysis were two very different conclusions. The positivist analysis concluded that effective group behavior directed at consensus around alternative solution scenarios had occurred. However, the interpretive analysis revealed a very different picture: the absence of shared consciousness about the issue at hand as well as imbalanced participation by

relevant stakeholders in the decision-making process. As this example shows, a shift in business research from positivist epistemology to interpretive and critical, is a move from the 'safe' research space of objective, quantification of seemingly immutable phenomenon to the 'vulnerable' research space of multiple and subjective understandings of reality. This can be unsettling for some readers and publications that prefer the comfort of numbers. It is even more unsettling for those made uncomfortable by the unstable territory of power, control, resistance and inequality. However, for research that endeavors to address real world questions, interpretive or critical epistemologies may be the most appropriate choice.

3.3 The role of theory

As a relatively new area of investigation research about gender and IT reveals the range of approaches that can be taken to theorizing a phenomenon (Trauth, 2006). The earliest gender work that was published in information systems journals used the narrower definition of theory. That is, theory testing and theory extension work was conducted. However the theories were not those used to explain the phenomenon of gender. Rather, they were theories about technology adoption and use such as the technology acceptance model or the theory of reasoned action. Examples include Venkatesh and Morris (2000), Venkatesh et al. (2000), Gefen and Straub (1997), Webster and Martocchio (1992) and Ahuja and Thatcher (2005). This research can be described as undertheorized with respect to the phenomenon of gender. A second approach taken to theorizing a new topic is to use no theory at all. In the case of gender, this means compiling and representing statistical data regarding the differences between men and women with respect to technology adoption, use or organizational impact. In response to the absence of sufficient theory to explain the phenomenon of the gender imbalance in the IT field, this author is developing *the individual differences theory of gender and IT* as a way of accounting for the observed differences in men's and women's relationships to information technology and the IT field.

Theory can play one of several different roles in a research project. The decision about the role of theory is a function of both the research tradition and the purpose of the research. Gregor (2006) explains that understandings of theory can range from a very narrow definition that limits theory to prediction only, to a more inclusive definition that defines theory as explanation. In between are the issues of causality and generalization. At heart, a theory is an attempt to understand a phenomenon. As such, that understanding can range from a descriptive conceptualization to a systematic statement of rules to be tested towards the production of general principles or causes.

Some business researchers and some business journals limit their definition of the 'acceptable' role of theory to theory testing. This can be limiting, particularly in settings such as gender where the phenomenon is at the early stages of being understood. It can bring a narrowness to investigations with the potential for analytical rigor but real world irrelevance. (This is discussed more in section 3.7.) Taking a broader view, one that emerges from the phenomenon itself, allows for theory to take on a variety of roles that could include: theory testing, theoretically-informed research, theory development or extension, or grounded theory.

3.4 Building on disparate literature

An essential challenge with research that is driven by real-world problems is that the real world doesn't fit neatly into disciplinary categories. Hence, the research is often multidisciplinary and the research literature can be found in many places. In the case of gender and IT research, the literature can be found in the journals and conferences of disciplines such as: women's studies, psychology, education, information systems and computer science. This brings the challenge of keeping up not only with the increasing number of journals in one's own area (such as information systems) but also the relevant literature that is published in journals and conferences in the other fields.

But in doing so, a researcher can encounter another, and potentially more challenging, issue: academic politics. This issue is about what journals, conferences and books are considered to be 'legitimate' in a given discipline. The problem occurs when the definition of legitimate literature is too narrow. This would be manifested by a reward system that recognizes research only when it is published in certain venues or when emerging scholars are taught to look for relevant research only when it appears in certain locations. When this occurs, there is a danger of researchers missing important research, of 'reinventing the wheel' by not sufficiently building upon the full extent of cumulative knowledge.

To address a real-world problem, whether about a gender imbalance or about a business problem, a researcher needs to follow the research – wherever that leads her or him. Hence, the challenge for both gender and business research is to be able to follow the relevant research literature wherever it may be found and to train students for boundaryless literature searching. In this digital age there is little excuse for not thoroughly searching for relevant literature; it would only be the construction of 'legitimacy' that would limit inclusion of potentially relevant research.

3.5 Influence of researcher standpoint

A recent issue that has entered methodological discussions is about researcher reflexivity. Proponents of reflexive or 'confessional' accounts of research (e.g. Kvasny, et al, 2005; Schultze, 2000) argue for greater transparency in presenting methodological details, that includes information about the researcher and how her or his identity characteristics (e.g. gender, ethnicity, nationality), philosophical orientation, disciplinary background, etc. has influenced the research. In the information systems field foundational work on methods such as that of Klein and Myers (1999) has included "the relationship between the researcher and the researched" among the principles for conducting interpretive field studies. Another term that expresses the same methodological stance comes from feminist methodology. Feminist standpoint theory (FST) emphasizes the situated knowledge of marginalized individuals. It provides a systematic approach for theorizing the complexities of lived contexts, experiences and perspectives of women (Haraway, 1988). Harding (2004) describes standpoint theory as "an organic epistemology, methodology, and social theory that can arise whenever oppressed peoples gain public voice. The social order looks different from the perspective of our lives and our struggles" (p. 3).

To illustrate this point, this author will shift to the first person to demonstrate how researcher standpoint can influence the approach to research. First, I have an interdisciplinary PhD in information science not business. Since my education about information problems was interdisciplinary I was educated to look across disciplinary boundaries in the pursuit of knowledge. Hence, an integral part of how I approach research is not so much discipline oriented as topic or problem oriented. Second, the first two decades of my career were spent as a professor in business schools where I was consistently pushing up against disciplinary boundaries and definitions of 'legitimate' research. For example, I conducted research on telecommunications before it was considered to be a 'legitimate' topic in information systems (e.g. Trauth et al, 1983). Third, I had significant international experience prior to conducting gender research. Hence, I brought this culturally-contextual understanding of the different definitions of femininity and masculinity to the way in which I was theorizing gender and IT. Fourth, I had conducted human capital research for 13 years prior to my engagement with gender research. This work was both quantitative (e.g. Lee et al., 1995, Trauth et al., 1993), conducted at the industry and organizational levels of analysis, and qualitative (e.g. Trauth, 2000), conducted at the industry and societal levels of analysis. Because of this research experience I had a deep understanding of issues surrounding IT like skills as well as credibility that enabled me to link gender research, a topic considered to be non mainstream, to a long tradition of human capital research. Finally, I have engaged with the topic of gender and IT as a researcher, teacher and administrator. I have developed and taught courses on diversity and gender. I have conducted and published research on gender. I have had administrative responsibility for the enactment of interventions to address the gender imbalance an IT program of study. Hence, I bring an action and intervention orientation to my gender research.

While transparency about researcher standpoint is commonplace, if not ubiquitous, for interpretive and critical research a case can be made for its inclusion in positivist studies as well. The argument is that an individual's life experiences, biases, interests and identity will shape the assumptions one makes about a phenomenon. This is true even in positivist research. Decisions about what to include and not include in a survey, what theory to use to inform the research, and how the interpretation of findings is conducted all result from human judgments made by a human researcher. Advocates of transparency about researcher standpoint believe that the claim of an 'objective researcher' is a myth.

3.6 The stakeholder perspective that is privileged

In addition to the influence of the researcher's standpoint on the research is the influence of the stakeholder's perspective on the conduct and outcomes of the research. In gender research there are a variety of perspectives that can be taken, a variety of viewpoints that can be emphasized. For example, consider research that is focused on workplace factors influencing the retention of women in

the IT workplace. If a scholarly article is directed at senior executives, it would be strategic in nature, perhaps emphasizing the cost-effectiveness of gender inclusion. The epistemology might be positivist or interpretive. But if it is targeting the female employees themselves, the paper might be about an interpretive investigation of the ways that women cope with such factors as workplace climate, exclusion from networks or the absence of mentors. But it could also be a critical study of institutional barriers to gender equity in the IT workplace. Finally, if gender scholarship is targeting a general audience, then the focus could shift from cost-effectiveness or coping to broader societal themes such as justice or equity.

In the same way, business research has different stakeholders. This is not to say that one perspective is more important than another. Rather, the point is simply that multiple perspectives exist. Whereas there is a tendency to address research results to executives that might not always be the best orientation. But to the extent that a definition of legitimate 'business relevance' is limited to executive perspectives then a narrowness enters the research domain. The determination of legitimate business relevance is the joint action of institutions and publication outlets. Academic institutions, by rewarding executive perspectives, can drive narrowness. On the other hand conference committees and journal editors can also drive narrowness. Doing so has implications for both the approach that is taken to study a phenomenon and how the implications of findings are considered.

3.7 Resolving the rigor vs. relevance conundrum

The final lesson for business research that can be gleaned from its comparison with gender research returns us to the theme that introduced this paper. That is, both areas of research declare themselves to be problem-oriented. For this reason the theoretical vs. applied argument is raised. This dichotomy is often presented as a conundrum: research cannot be practical and at the same time scholarly. It can be methodologically rigorous at the cost of relevance. But if it is highly relevant to real-world problems then it must not be rigorous research. This is a false dichotomy. Rather, what is behind this argument is mistaking the use of *different research methods* for *bad research.* For example, consider a researcher who believes that theory only exists to be tested, that positivism is the only epistemology that exists and that quantitative measurement is the only valid way to conduct research. How does this person react when confronted with research employing interpretive field work, that uses theory only as a sensitizing device, and from which population generalizations cannot be made?

The plain fact is that there is a tremendous need for theoretically-informed interventions in order to properly address real-world problems. Using the gender example, in the absence of a theoretically guided and methodologically rigorous examination of a gender issue, interventions might be developed that reflect counterproductive gender stereotypes and that end up doing more harm than good. Such an ad hoc approach to interventions does not reflect a systematic and thorough theorizing of the problem. In the absence of research rigor to understand a problem the intervention that is developed to address it runs the risk of being irrelevant. Hence, a strong argument can be made that rigor and relevance go hand in hand.

4. Conclusion

This review of insights for business research that is drawn from experiences with conducting research on gender and IT makes a case for increased methodological pluralism. Arguably, the degree to which institutions and publication outlets take these issues into account is indicative of their openness to exploring emergent topics. Methodological conservatism might be in order in some areas. But business research, which endeavors to respond to real world problems, needs to have the methodological tools available to respond to them. It must also be responsive to business trends and issues that might bring with them challenges for current methods for conducting research. New economic constraints, issues such as climate change that blur business area boundaries, globalization, social inclusion and innovation are 21st century issues that will encourage the research community to overcome resistance to different ideas, methodologies, epistemologies and theories.

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