Gender Issues in Technology Education: A Quasi-Ethnographic Interview Approach

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In 1999, my study of "Cross-Gender Interactions in Technology Education" was published in the *Journal of Technology Education* (Haynie, 1999). It reported survey findings on "how professionals in technology education feel about certain issues concerning cross-gender interaction in technology education and whether or not men and women differ on those issues" (p. 28). The study purported itself as an attempt to open a new line of inquiry and admitted that, taken alone, it was merely a beginning. My hope was that other researchers would follow that survey with studies of different designs to provide the triangulation required to draw supportable conclusions from qualitative research. I hoped that those researchers would be well versed in the techniques of qualitative research. This has not occurred. Not satisfied to assume that this lack of action meant there are no problems to study, and feeling that failure to proceed was not good for the health of our profession, I decided to take the next step. Since I had previously conducted only quantitative (and mostly experimental) research, I began some independent study about appropriate methods for follow-up studies to the 1999 work. This paper reports the findings of a quasi-ethnographic interview approach conducted in 2002. It is tempered with my own purposeful observations since 1966. Since reference and comparisons are made to findings from the 1999 survey, the triangulation provided here is from three perspectives: survey, interview, and personal observation.

Background

Since the early 1980s, a curriculum known as technology education has evolved from the earlier industrial arts. Industrial arts had failed to attract many female students or teachers but there were some early indicators that the more contemporary technology curriculum would be more attractive to females (Cummings, 1998; Hill, 1998; Sanders, 2001; and Zuga, 1998). Simultaneously, changes in society have made women feel more accepted in traditionally male dominated professions and have redefined acceptable behavior for both males and females in social interactions (Foster, 1996; Haynie, 1999; Stevens, 1996;

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and Wolters & Fridgen, 1996). A small body of research has begun to develop concerning issues such as the lack of women in technology education, the need for more women to enter the profession, the historical reasons why there are so few women, and potential factors which may
cause the problem to persist (ITEA, 1994; Liedtke, 1995; Markert, 1996; Silverman & Pritchard, 1996; Trautman, Hayden, & Smink, 1995; and Volk & Holsey, 1997). Most of the efforts, however, have either been opinion papers or library research. The 1999 survey by Haynie was helpful and based upon recently collected hard data, but not sufficient. Its findings included: "(1) all technology education professionals should regard the school environment as a setting that requires a more conservative demeanor than society at large, (2) they should realize that their colleagues are likely a little more conservative than the values implied by contemporary society, (3) they should be sensitive to constantly monitor the appropriateness of their own actions and adjust them according to the reactions of others, and (4) they should treat all persons with respect and fairness—judging them on their performance and ignoring all other potentially divisive factors" (p. 39).

How should research efforts on women's issues in technology education be directed in the future? Markert (1996) clearly indicated that "Educators at all levels (both male and female) must be mindful of a wide assortment of behaviors they may unknowingly display that create a chilly classroom or null academic environment for their female students" (p. 28). These unknown behaviors must be identified and eradicated because "Speeches and reports that extol the benefits of gender equality are nothing more than empty rhetoric if they are not followed up with commensurate action" (Akubue, 2001, p. 71). The library research conducted thus far, though helpful in demonstrating that study is needed and identifying a few issues, does little to solve the problem—more quantitative and qualitative study (involving people who are living today) is needed to ascertain what "is" and what "should be" concerning the comfort of women in technology education. Once these sorts of investigations reveal the factors that need to be addressed, the profession can make the changes needed to attract and retain more female students and teachers.

Methodology and Instrumentation

In the ethnographic interview technique, the researcher actually becomes part of the instrumentation—thus it is important for the reader to know what preconceptions and notions brought the researcher to study the issues at hand. The reader should be informed of the background of the researcher, preparation for conducting the research, motives, and why the researcher "feels" qualified to conduct the study. It is possible, perhaps likely, that a different researcher would obtain different findings, but that does not invalidate these findings—it would yield additional information from a different perspective.

My interest in studying gender issues in technology education first developed in 1966. At that time, I was an undergraduate student preparing to become an industrial arts teacher. In our program of about 100 students there

was one female. I came to be a close friend of this student, but not a romantic companion. I saw her face many challenges as she attempted to fit into a male dominated and sometimes hostile environment. She was highly skilled both academically and technically—she scored at the top of most classes. This may have led to resentment from a few of her male colleagues. Despite the fact that some of the professors proclaimed how important it was to make females feel comfortable and valued in our field, some of their own actions had the opposite effect. I am not saying the situation was horrible: she was not physically abused or hated by all the males, nor was she made the target of sexual aggression. Nonetheless, she was not fully accepted and made to feel "normal." She experienced isolation, innuendo, some resentment, and there was a lot of "talk behind her back" (some of which she heard). I could identify with how she felt more accurately than most of my male colleagues because I was a long-haired, bearded "hippie" in a program of very conservative, clean shaven fellows who ridiculed me more openly than they did her. So, I believe I had more than average sensitivity to such issues among males of my age in our profession, and I paid close attention to what I saw and heard—drawing ridicule when I defended her.

I also have a wife who is a mathematics and statistics teacher (also fields that are somewhat dominated by males) and a daughter who we have tried to raise to seek opportunities without reservations based on perceived societal gender-role expectations. It pleases me to see her grab a hammer or check the oil level dipstick in her car, but I have not succeeded in convincing her to become a technology teacher. A lack of interest is not the reason she gives for avoiding our field.

Though I am a male, white, Anglo-Saxon, Protestant (WASP), I have been very observant of the issues studied here for the past 36 years. I have always attempted to encourage women and girls to enroll in courses I have taught at all levels and I have been frustrated by how unsuccessful these attempts have been. I cannot, however, claim to wear the suit of purity with no prejudices. I am a male, I think like a male, and I am sometimes at a loss as to why a particular woman might react in a certain way. I probably do not understand my wife any better than my male friends say they can understand theirs. And, I take great delight in humorous stories/jokes that poke light-hearted fun at differences between men and women. However, there is a line of decency which, in my view, should not be crossed that demarks the point at which such jokes become insulting and hurtful. If finding some of these jokes humorous disqualifies me from conducting this study, then someone else should do the work. I try to be careful not to tell or transmit hurtful and judgmental jokes in any forum that would, in my opinion, offend women or perpetuate harmful stereotypes. So, the portion of the instrumentation that reflects me personally is imperfect, but it appears to be the only one in our profession to date, and I have made every effort to be fair and accurately observant.

The basic methodology used was personal interviews. I attempted to follow guidelines in a classic work by Spradley (1979) for the conduct of fruitful

ethnographic interviews. I also consulted Borg and Gall (1989), Burgess (1985), and Goetz and LeCompte (1984) for help with design of the study and instrument. A paper instrument, which I developed, was used to record data and the interviews were tape recorded.

The written instrument was comprised of eight half-size sheets (5-1/2" X 8-1/2") stapled together. This format was used so that the instrument would be small enough to be used in a restaurant and still provide ample space for recording the responses. The first page had a scripted introduction in which the clients were thanked for their participation, informed of the purpose, assured of their anonymity, and asked if they would permit tape recording. Then demographic information was gathered and included gender, marital status, age (categoric intervals of 5 years), number of children and their ages and genders, ethnicity, number of years in technology education, number of siblings and their genders, ages of the students they manage, title of their position in technology education, and subjects that they teach.

The first substantive items on the instrument were three broadly stated, opening questions which allowed the interviewee to speak freely and without limit. These concerned (1) the cultural climate in technology education, (2) barriers to women and whether treatment by men could be a problem, and (3) how to attract more women to enter the profession. They were intended to function as "grand tour" questions in accordance with Spradley (1979). Though some very good information was gathered by these opening items, the fact that clients could see that there were six more pages of follow-up questions may have limited the breadth of their responses—perhaps they felt the interview would last several hours if they talked too long at this early point. This may have limited the responses, but the follow-up questions were more detailed, and there were also repeated forms of these opening items at the very end of the instrument that should have compensated for this weakness.

The follow-up items consisted of 27 items from the 1999 survey by Haynie and seven new open-ended items designed specifically for this study. The 27 previously used items were chosen because they were ones that resulted in significant findings in the earlier study (which included both men and women).

According to Spradley (1979), the manner in which an ethnographic interview is conducted has great effect upon the depth and accuracy of findings. People who feel comfortable, safe, and valued are more forthcoming than those who are treated merely as sources of information. Spradley compares the ethnographic interview to other "speech events," such as the friendly conversation, and points out how it is similar in form but more directed in purpose. An effective ethnographic interview should begin as a friendly conversation and then transition to its purposeful elements—establishing rapport along the way. This was done by conducting interviews in restaurants. Through e-mail contact several weeks before an anticipated interview, I established an appointment at a time when I could take the client to a restaurant for a meal or dessert. The ride or walk to the restaurant provided several minutes for "small talk." While we waited to have our orders taken, the conversations continued.

Topics generally included our families, backgrounds, personal interests and hobbies, and current events. I shared as much of my own self as I requested from them.

Once the food order was placed, we began the interview with my reading the scripted opening statement and turning on the recorder. When the food arrived, I turned off the recorder and we again resumed small talk. This is in keeping with the recommendations of Spradley (1979) to intersperse some informal conversation within the interview to avoid the nature of an interrogation and maintain good rapport. If the respondent seemed to be tiring or losing attention, I suggested a break or interjected some comment which led to a brief diversion into small talk before proceeding.

Spradley asserted that the ethnographic interview is much akin to a personal conversation except that it includes the following three important elements: explicit purpose, ethnographic explanations, and ethnographic questions. The explicit purpose and the initial ethnographic explanations were transmitted during my scripted opening statement. Additional explanations were interspersed where needed to clarify questions or to keep the informant on track. Most of the interview instrument was comprised of the ethnographic questions. Several techniques and follow-up questions or statements advocated by Spradley were employed during the interviews. These included: project explanations, interview explanations, descriptive questions, structural questions, contrast questions, asymmetrical turn-taking, expressing interest, expressing cultural ignorance, repeating, restating in informant's terms, incorporating, creating hypothetical situations, asking friendly questions, and taking leave.

Spradley pointed out that "practice also reduces the anxiety which all ethnographers experience when they begin interviewing a new informant" (p. 57). I must admit that, though it did not seem intimidating when I first conceptualized this study, I was very nervous at the beginning of the first few interviews. Since I was not a popular person in my youth and had very few dates, I have little poise in isolated social situations with women. I worried about how it looked for me to be taking a woman other than my wife out for dinner—especially since some of the interviews took place in my community. Did other people think it was a date? In fact, my wife and I joked about it and called the interviews my "dates" when we discussed scheduled events. If the interviewee was much younger than I, I worried that other folks might think ill of her or me. Once the actual interview phase began and the tape recorder and written instrument were visible, those questions dissipated—still, they added to my initial feelings of anxiety. Generally, the small talk phase helped me as much as it was intended to relax the informants, and I believe we both felt more at ease after sharing a little about ourselves and our families.

The Informants

An attempt was made to include a broad cross-section of women among the informants. I knew some participants from settings prior to the study, but several were strangers to me. Care must be taken in describing group

demographics because there are few women in our field, especially at certain levels, and it might be possible for readers to logically ascertain who was interviewed despite my promises to conceal their identity. Thus, I will not state any numbers except to say that two or more women represented most of the demographic groups and very few of the categories listed had lone representatives. No women who were asked to participate refused. A total of 12 women were interviewed. Most of the interviews took place during national, regional, or state conferences.

Most of the women were married, but they ranged across the demographic gamut and included those who were single, divorced, divorced and remarried, and widowed. The ages ranged from the 25-30 category to the over 50 category. They had from 0 to 4 children with a mixture of genders. Some had only boys or girls but three had both genders and the children ranged in age from infant to 20 years. Regrettably, the only ethnic groups represented were white and Afro-American. The informants had worked in technology education from fewer than 5 to more than 25 years. When asked about siblings, the informants reported a range from 0 to 5 with some having both male and female siblings and others having only brothers or sisters. If the respondents were among those who managed students, the ages of those students ranged from 12 to 22+ years. The following technology education positions were represented: middle school teacher, high school teacher, university professor, supervisor, and graduate student. Seven of the women currently work and live in the southeast United States. However, even several of these had worked and lived in other areas of the country, which helps reduce the influence of localized geographic factors.

Findings

The first substantive question read to the informants was broad: "Acknowledging that technology education is still somewhat a male-dominated field, and has a long history as such, how do you feel about the current cultural climate in technology education?" All informants expressed a basic comfort level in technology education and several mentioned positive change since the curriculum change toward computer-intensive work and away from the heavy industry topics of the preceding industrial arts era. Several women mentioned a perceived difference between older men and younger men in the profession. More of the older men were perceived to hold conservative views than the younger men. This was mentioned by both younger and older women. The more experienced informants remembered a field historically dominated and governed by a "good old boys club" with conservative values—they felt they had been pioneers to break into this field. The younger women expressed this perception only concerning older men within the profession. Both older and younger women felt they were better accepted by younger men who had joined the profession since the shift toward technology and away from industry. Some said that breakdown of sex-role stereotypes within society at large is helping in technology education also, but previously developed viewpoints persist among some senior male members of the profession. Specific events described by

informants most often occurred in university courses or at conferences—only one event in a public school was described in which a woman was made to feel that she was out of her place by a male technology education professional. Despite a few negative comments and examples, overall, the informants reported that they feel very comfortable most of the time in technology education, students respect them, they wish more girls would take courses and consider a technology education profession, and most men make appropriate efforts to insure their comfort.

The second grand tour question asked, "What are the biggest barriers to women in our field? Do any of these have to do with the way women are treated by men?" Most of the informants had little substantive to say in answer to this question, although two who had not mentioned anything negative in answer to the first item offered the observation previously made by others that a few older men made them feel out of place. Several informants noted a lack of women to serve as role models and this makes it more difficult to attract and retain female students and teachers. One respondent lamented the lack of a well established network for females as there is for men.

The third grand tour question asked, "Do you foresee changes in the near future that will attract more women to technology education? What could we do to attract more women?" The shift in curriculum away from the industrial "shops" of the past and toward computers, communication, bio-medical technology, design, graphics, research and development, and similar topics was mentioned as a positive change in making the field more attractive to women. Other factors included an increase in girls involved in Technology Student Association conferences, more female role model teachers, and some shift in general society which shows women in more assertive and non-stereotypical roles on television. Things that the profession could do to increase enrollment of females and attract more female teachers include: equity camps, online teacher education courses that result in licensure that can be taken while working fulltime or raising a family, technology camps, lateral entry opportunities that will attract more women to a second career in technology education, high visibility events such as TSA and standards research efforts, and affirmative action efforts designed to attract more women. This last suggestion was mentioned by an informant who called for more women in leadership roles within the profession. She pointed out that there are no females on the current ITEA Board and that the few who have served before were "alone"—she used the "old boy's club" analogy to describe our leadership, both historically and currently.

Items From the 1999 Survey

Following these broad questions, a series of items from the previous 1999 survey by Haynie were used as "member checks" (Merriam, 1995) to confirm some of the findings from the previous study. This was possible because half of the women had participated in the earlier study. One of these items asked the

informants how they felt about the prevailing social trends of our times which permit "more apparent general acceptance of crude and sexually oriented language." Though two women indicated this is "OK," the others said it is a problem and seven used words such as "disgraceful," "rude," or "inappropriate." Two items from the 1999 survey asked about gender specific jokes of two types: those that are "not derogatory or only mildly so with plays on 'male macho' or 'female sensitivity,'" and those that are "intentionally derogatory, but not pornographic (male immaturity/impatience, impulsiveness, PMS, driving, 'dumb blond,' etc.)." All informants except one indicated that the first type of jokes were OK if tasteful, but a few pointed out that there would be variations in what individuals consider tasteful or that few of the jokes actually are tasteful. Most of the women said the second type of jokes are offensive or absolutely forbidden, though three of them view these as OK and indicated that they personally share them freely with others. Nearly everyone indicated that the forum in which the joke was told and who was telling the joke made a difference—a joke they might share with their best friend would be inappropriate and poorly perceived if it came from a colleague or their boss.

I had in mind certain types of jokes and attempted to indicate them through the descriptors included with the items. The findings here very closely paralleled those of the earlier survey. Still, I was not certain that we all shared a common understanding of what the two categories meant. Fortunately, after the final interview, and as I began writing this report, I received a humorous e-mail which I felt was near the border between these two types of jokes. I often relay similar jokes to colleagues if I feel they would not be offended, but I stopped short on sending this one. Yes, I did find it to be very funny. I saved it on my computer and when a few close friends came into the office, I pulled it up on the screen for their amusement, but I did not feel comfortable broadcasting it for fear that it might offend some individuals. The e-mail had an image with the heading "the difference between men and women." The image showed two faux electronic devices with nice brushed aluminum faces and neatly arranged controls that would have made any electronics teacher of the 1960s proud. One of the devices was labeled "Men" and it had only one switch marked "on" and "off" with a pilot light above it. The other device, labeled "Women" had the same switch and pilot light, but additionally had 43 more knobs for various analog controls and adjustments. I decided this joke was close enough to the imaginary line I had drawn in my own mind between offensive and non-offensive to use as a test case. So, I sent it to the women who had participated in the interviews with requests for them to categorize it as derogatory or non-derogatory, offensive or not, and humorous or not. At the end of the message I apologized to any of the informants who might find it offensive. All of the respondents replied to my request. One woman found it "mildly derogatory," and all of the others said it was not derogatory toward women—but two said they thought that it somewhat "slammed" men. None found it offensive and all found it humorous, though one said it was only slightly humorous. A few of them sent it to other friends or colleagues. One woman, however, pointed out

that it would depend somewhat on who the joke came from and in what setting. She also indicated that there was an implicit sexual overtone to the image. Follow-up conversations with three other informants showed that it could be understood on several levels and might indicate various gender stereotypes commonly used in jokes. I had not initially perceived the possible sexual interpretation and only one of the women that I asked said she had caught that meaning initially, but they all recognized it when it was pointed out. Still, they felt that it was not a harmful joke in general.

Another question asked about crude and sexually-oriented jokes in mixed company. These were considered taboo for professional settings, though they were considered acceptable and enjoyable by several of the women in certain situations. Again, it depends more on the setting, who is telling the joke, who is present to hear it, the magnitude of the salacious nature of the joke, and other factors. These findings replicated those of the earlier survey.

One of my hunches (perhaps biases) prior to the first survey was that inappropriate, crude, and sexually oriented language among males might be one of the hidden factors driving women from the field. My observations in the late 1960s were that some of the shops had almost a "locker room" atmosphere, and the lone woman who took the classes was an invader. There were occasions when males said very crude or suggestive things in her presence that seemed intended to offend her or (at least) to make her feel out of place. Do my fellow male colleagues (in significant numbers) still hold the prejudices and exhibit the behaviors that I witnessed nearly 40 years ago, or has our profession matured? Another possibility is that the general view among both women and men has changed so much in society at large that the comments I found so offensive in the past are now within the range of what is commonly acceptable behavior. If that is the case, then my hunch about making women feel uncomfortable and uninvited through abusive language would be moot. That was the reason for this particular series of questions on the 1999 survey and for following them up in these interviews.

The next question in this series asked: "In most regards, do you feel that professionals in technology education correctly recognize the expected language and behavior patterns in cross gender relationships, and that they act/speak accordingly?" Universally, all of the interviewees answered yes and only one reminded me that "sometimes some of the older men will go too far." This finding supports the one in the 1999 survey in which both women and men shared the same perception. In fact, one of the women in the interviews indicated that my follow-up probing question on this issue was unnecessary because there were few "skeletons in the closet" to find.

All but one of the women indicated they would feel comfortable telling a male colleague who asked permission to tell a salacious joke that they did not want to hear it. However, only half of the women reported that they would deny the request if they knew the person well. Three questions asked how informants would react in embarrassing or offensive situations. All of the women reported that they would either use a facial expression, back away, or verbally confront a

man who said something they found offensive, touched them in a way that made them uncomfortable, or offended them in any other way. These signals of disapproval were generally understood and effective in eradicating offending behavior. These findings also replicated those of the previous survey.

When asked how they manage situations in which students crossed the line of decency, most informants agreed they would reprimand students who used terms such as "fag" in description of homosexuals, or commented on another student's body type or sex appeal. Most of the women would make these reprimands privately, but a few would do it openly in class. Several indicated additional punishments appropriate to the level of the students and the specific comments involved. However, one informant said she would just let these comments pass unchallenged.

Another question asked what the informants would do if a male student "takes over" a difficult task from a female student who was struggling to do it, but who had not requested his help. The most common response was for the teacher to indicate that the female student needed the opportunity to learn from the experience, some responded they would remove him from the situation, and one reported she had the opposite problem in a computer graphics class in which a girl had pushed a boy aside so she could complete his assigned task.

Offensive Events Experienced

Next, the informants were asked to describe events in which they were offended, embarrassed, or threatened by the actions or speech of a technology education colleague and how it made them feel. Not everyone had a response and some were very similar. The following were representative:

- At the ITEA conference, a former classmate hugged me too closely/clinging in the presence of my spouse.
- At a conference an older man made a comment about the "good looking woman" and it made me feel like a token instead of a valued professional.
- One professor frequently made me feel like I stood out, it was isolated to only one person but it was obvious to everyone. I do not think he even knew he was offending me.
- One former faculty colleague used offensive language frequently. Another actually made a sexual advance.
- A man I seldom see except at conferences is a close hugger and sometimes makes "fresh" comments. I believe he thinks he is being cute or funny—I try to avoid him.
- At the national conference I was talking to a salesman at one of the exhibitors' booths and a male colleague barged in, grabbed the salesman's hand and drew him away as if I were not even there. It made me feel that I was not taken seriously.

When asked if they had ever worked in another male-dominated field and how relationships in technology education compared to that field, five

informants reported they had. Two had worked in engineering and one each in military service, landscaping, and retail sales. Two reported their experiences in both fields were very similar, but three encountered more offensive and rough language and felt less respected in their previous experience than in technology education. One former engineering employee said there was better opportunity for women in technology education and the woman who had served in the military said the "thick skin" she had developed there gave her courage to confront anyone who offended her.

Free Response Items

When given an open-ended opportunity to speak about things that make them feel uncomfortable in our profession, some of the women had no answer, and the ones who did respond noted the following:

- Inability of the profession to define itself to others.
- Technical challenges (i.e., fix the sander).
- Isolation—I'm the only technology education teacher at the school.
- Rift between traditional industrial arts and modern technology education teachers.
- There is a glass ceiling preventing advancement, but that may not be gender specific.
- Lack of long and broad technical experience.
- Age—I'm the youngest teacher at my school.

The next question asked, "What is the best thing about working in technology education?" Several highlights of the responses included:

- Feeling needed and that the subject is important (2).
- Fun (5), Variety (3), Exciting (2), Creativity (2).
- The people and the curriculum.
- Family atmosphere.

The last series of substantive questions asked if there was ever a time when technology education did not seem attractive as a profession and how they would react if their own daughter or son wished to become a technology education teacher. Five women admitted that they did not see technology education as a likely career in high school or college. Two of them were influenced to enter the profession by other female technology education teachers who became role models. All of the women interviewed responded that more female role models would attract more women and that they would encourage their own children (of either gender) who expressed interest in technology education to consider the profession.

The final repeat form of the initial open-ended questions elicited the same general responses as the first set, with addition of only the following points:

- We should emphasize quality programs and high standards more to eliminate the "dumping ground" mentality of school administrators and guidance counselors.
- There is some gap between what is taught in teacher education programs and the real world of the public school technology education laboratory.
- Personally, I have not had lots of bad experiences, but there are other females who have been coddled or minimized, and we could encourage and mentor females better.

   The last finding that must be reported was an event that I observed at a conference of technology education professionals from several states (during which some of the interviews actually occurred). A female administrator from the university hosting the conference made a brief introductory speech welcoming the participants. The organization president (a male who has been prominent and active in the profession since the days of industrial arts) forgot her name as he thanked her for her remarks, and instead substituted "Marilyn." When his error was noted, he quipped to the group, "I got her confused with Marilyn Monroe." Though this guest is blonde and presents an attractive image, both her dress and demeanor made it clear that she wished to make a professional rather than "beauty queen" impression. The audience response was a mixture of some who laughed and many who felt most embarrassed. I looked to see the reactions of several of the interviewees from this study and each gave a look of utter despair, rolled their eyes, or otherwise made it clear that this was exactly the sort of comments which minimize women in our profession and isolate them. I also noted that few women in the group were laughing, most looked annoyed to some degree, and the most robust laughers would (in general) fit the profile stereotype of the old boys club mentioned by women in response to early questions in the study. It was obvious that the president thought there was nothing wrong with his comment and he probably meant no harm, but an impression was made among all present that do care about such matters, including the visitor. I sent an apology to her and explained the basic concept of this study and my earlier work. Her response was: "Thanks for your remarks. I think you are right on the money about these sorts of episodes having the effect of holding back progress toward [technology education] becoming a truly inclusive, civil, and progressive professional field." Perhaps her response, as an outside observer of only one event, best summarizes a key finding of this work. How many other women are left with a similar impression the first time they meet a technology education professional? In one of the major gatherings of the 2003 ITEA Conference in Nashville, a man at the podium to give an award made reference to the recipient spending time at "Hooters" (a restaurant chain which proudly flaunts its exclusive employment of provocatively clad young women as waitpersons). Again, the chortles from the audience showed that many people were embarrassed by this comment.

Conclusions

Since so much of this paper has concerned reporting of actual comments by women in our profession and observations of the researcher, only a few conclusions will be elaborated here. The reader is encouraged to review the "findings" section and draw personal conclusions. It must be noted, however, that none of the findings in this study were in contradiction with those of the previous survey (Haynie, 1999) or with my observations of the past 36 years. From these three sources, I conclude that:

- Women are generally well accepted and comfortable in the technology education profession, but there are some problems which make them feel isolated, patronized, minimized, conspicuous, or otherwise uncomfortable.
- Many of the problems leading to these feelings of isolation are due to the attitudes and actions of a minority of men within our profession who hold outdated views.
- These problems will best be eliminated if more women are encouraged to enter the profession and are advanced to positions of leadership in which they may serve as role models.
- The general manner in which men and women interact in the profession is healthy and normal within the context of our current social mores and standards of behavior.
- Men within the profession should be careful to avoid saying things which call attention to the gender of female students or colleagues and to only emphasize the abilities and attributes which make all people valuable within the profession.
- The evolving nature of the curriculum, coupled with retirement of some key older men who hold the most biased viewpoints, will slowly work to reduce the frequency of negative events and make the profession more attractive to women.

Recommendations

Three recommendations seem appropriate from the findings of this study. First, a similar study should be conducted at a later time to see if the changes projected here actually occur and to find what new pressures arise in coming years. Second, perhaps more study is needed by different researchers using various techniques. The triangulation provided here (survey data, interviews, and long term personal observation) is heavily influenced by one researcher and his viewpoints—though he has tried to be fair, there could be important information that was not revealed because women feel hesitant to share it with any man, or with him in particular. Likewise, perhaps none of the methods used thus far can fully answer the research questions posed. These problems can only be overcome if other researchers become involved and additional techniques are employed. Lastly, some of the interviewees mentioned events and perceptions that actually had more to do with other marginalized populations than they did with women in technology education. Are there factors which need to be

discovered that make this profession or field of study uncomfortable for African-Americans, Latinos, other cultural groups, gays, disabled persons, or any other identifiable group that is sometimes marginalized in our society? If so, studies to investigate such factors should be conducted. Sanders (2001) noted that despite some gains in diversity, "technology education is still taught mostly by middle-aged white men"—the troubling question remains: Why?

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