# Cross-Gender Interaction
# in Technology Education:
# A Survey

W. J. Haynie, III

Though the traditional "industrial arts" programs of the 1950s which involved woodworking, metalworking, and other "shop" areas were heavily male dominated (Cummings, 1998; Hill, 1998; and Zuga, 1998), modern technology education could be more appealing to females. At one time there were very few female students and almost no female teachers in industrial arts courses, but as the discipline began to evolve towards a study of technology during the 1960s and 1970s a trickle of females joined the profession (Zuga, 1998). ITEA records show more females joining the profession since the name change to Technology Education than in the previous decade and an upward trend since then. Part of this increase is due to the attraction of predominately female elementary teachers to membership in the Technology Education for Children Council (TECC), but there are also more females in all segments of the profession than in the past (ITEA, 1998). In the 1950s, the boys who enrolled in industrial arts shop courses, and the men who taught those courses, viewed them as a "man's world" and there was little effort to foster participation by females.

At the same time that more females have been entering technology education, changes have been occurring in what is considered acceptable behavior in general society (Foster, 1996; Stevens, 1996; and Wolters & Fridgen, 1996). In the 1950s there were recognized lines of speech that most people generally agreed were not to be crossed. This especially was true in regard to sexually oriented comments, jokes, gestures, and speech—it was understood that such things were not talked about freely in "mixed company." The liberal movement of the 1960s began some change in those cultural mores and today much of what would have seemed absolutely taboo in the 1950s is presented on television during the "family hours." The terms "conservative" and "liberal" will be used rather loosely in this article, and they were on the instrument as well. Their inferred meanings may be understood by contrasting the television shows "Leave It To Beaver," "Donna Reed," and "Ed Sullivan" (all representing "conservative" views and values) versus "The Simpsons," "Roseanne," and "Late Night With David Letterman" (deemed "liberal").

---

William J. Haynie (haynie@poe.coe.ncsu.edu) is an Associate Professor in the Department of Mathematics, Science and Technology Education, North Carolina State University, Raleigh, NC.

Though this method of defining terms is not scientifically precise, readers should find it helpful in interpreting findings and implications.

How can males and females interact most comfortably within technology education? Though some research has been done concerning fairness of opportunity, attractiveness of topics/approaches, and ways to encourage more females to enter the profession (ITEA, 1994; Liedtke, 1995; Markert, 1996; Silverman & Pritchard, 1996; Trautman, Hayden, & Smink, 1995; and Volk & Holsey, 1997), there is still a need to determine how men and women feel about the cultural atmosphere within our profession, our classrooms and laboratories, and how teachers and students interact. This study is intended to be a beginning in the effort to assess how professionals in technology education feel about certain issues concerning cross-gender interaction in technology education and whether the perceptions of men and women differ on those issues. Since some of the topics are sensitive in nature, perhaps even taboo for some people, this work and its findings must be viewed as establishing a starting place rather than purporting definitive conclusions. Likewise, the cultural mores of our society and within our discipline are not stagnate, therefore continuing work will be needed to track the evolving cultural climate within our discipline. Do the factors studied here negatively impact the comfort level of females and add their weight to others responsible for low levels of participation by females in technology education at all levels?

*Methodology*

A survey of technology education professionals was conducted at the 1997 Technology Student Association (TSA) national conference in Washington, DC, June 23-27, 1997. Volunteer participants were sought at the "Advisors' Update" meetings. All of the advisors were practicing technology education teachers. Respondents were asked to complete the form while at the conference. Questionnaires were distributed to volunteers at the door and a brief announce-ment describing the study was made during the meeting. Of the 150 question-naires distributed, 113 were returned. However, 18 of those were incomplete, so the final sample consisted of 95 (39 females and 56 males) for a response of 63.3%. Only one advisor from each school formally registers for the conference, but many schools have two or more advisors. Of the 238 officially registered advisors, only 31 were female (13%). So, it is clear that females were the minority, but a much higher percentage of females than males chose to be in the study. Perhaps the males were less concerned about these issues and females perceived them as more important.

The researcher developed the questionnaire. It included a brief demo-graphics section that identified factors used in the analysis of issues considered in the survey. Most of the survey consisted of 52 items intended to determine respondents' perceptions on issues or situations. Rather than using traditional Likert-type scales for these items, each statement was followed by a continuum line on which respondents were instructed to mark with an "X" to indicate their perception between the two end points or poles of the continuum line. This is a variation of a technique used by Thurstone nearly 70 years ago and altered by others following him (Mueller, 1986). Each continuum was marked "0" on the

left end, "100" on the right end, and had the center marked with "50." These three points on each continuum also had verbal descriptors related to the item. The left end of each continuum represented conservative (1950s) values or perceptions and the right end represented very liberal "anything goes" view-points (or extreme feminist perspectives for some items). For this study "conservative" connotes values evidenced in the "Leave It To Beaver" era on television in the USA and "liberal" connotes those prevalent in USA media today. This was noted in the general instructions at the beginning of the questionnaire.

Participants' responses were scored by actually measuring the position of the "X" they marked on each continuum using a 100-increment rule and entering the measured point (any whole number from 0 to 100) into the computer. Thus, all marks below 50 would represent some degree of conservatism, but a mark at the 13 point on the continuum would be considerably more conservative than a mark at the 37 point.

Since participants' response marks could vary between 0 and 100, the data were treated as continuous and were averaged and analyzed via comparison of means with SAS statistical software. Omnibus tests used the GLM variation of ANOVA and comparison of means used the LSD option for *t* testing. The .05 level of significance was used for all tests.

A series of open response items at the end of the questionnaire also provided opportunities for respondents to comment more freely. The instrument was rather lengthy and the four graduate students (2 male and 2 female) who field-tested it required an average of just over 17 minutes for completion. Because of the time required, there were many who did not complete the open response items or who only commented on one or two of them (these responses are noted where deemed important). The graduate students who helped to field test the instrument agreed that it was long, but they felt that the difficult nature of the problem and its importance warranted the length. These four professionals had public school teaching experience in technology education ranging from 2 to 13 years. Only minor editorial revisions were made after the initial field test.

*Findings*

Demographic information is displayed in Table 1. Some of these factors were used in later analyses to see if they influenced respondents' perceptions of the issues. One item used a continuum to ask how participants felt about the changing social climate: "The social trends of our times have led to more apparent general acceptance of crude and sexually oriented language in many settings. In my view this change is:" "0=disgraceful," "50=OK," "100=open & healthy." The overall mean of 23.4 indicates a conservative viewpoint and there was no difference between the views of males and females. However, teachers with more than ten years of experience were more conservative in their perception than their less experienced colleagues [$F(1,90)= 4.87$, $p=.0298$].

**Table 1**
*Demographic information*

|  | Groupings Used in Data Analysis | |
|---|---|---|
| Gender | Male, 56 (59%) | Female, 39 (41%) |
| Age | 40 years or less, 46 (48%) | 41 or older, 49 (59%) |
| Experience | 10 years or less, 51 (54%) | 11 or more, 44 (46%) |

*n*=95

One item asked whether men and women are treated fairly in technology education. The overall mean of 44.4 indicates relative fairness with slight advantage to men. The means and ranges were: Women 41.7, 0-70, and men 46.2, 16-100 (no significant difference).

A series of six continuums were used to assess participants' perceptions of "sexually oriented comments, jokes, gestures or speech" (see Table 2). Each continuum was marked: "0=absolutely forbidden," "50=OK if tasteful," and "100=anything goes." Half of these items specified situations in which only "your own gender" is present and the other half included "the opposite sex." There were three situations: 1) students present; 2) on duty, but no students present; and 3) off duty (lounge or eating out at a conference). There were no significant differences between the means of men and women on any of these

**Table 2**
*Perceptions on Sexually-Oriented Jokes and Speech*

|  | Mean Responses | | | | | |
|---|---|---|---|---|---|---|
|  | Males | | Females | | Overall | |
|  | M | (SD) | M | (SD) | M | (SD) |
| Situations |  | (Range) |  | (Range) |  | (Range) |
| Mixed Company: |  |  |  |  |  |  |
| Students Present | 11.7 | (14.2) | 12.7 | (18.1) | 12.1 |  |
|  |  | (0-49) |  | (0-50) |  |  |
| On Duty, No Students | 24.3 | (18.7) | 27.0 | (20.9) | 25.4 |  |
|  |  | (0-50) |  | (0-51) |  |  |
| Off Duty | 31.1 | (21.4) | 34.4 | (18.3) | 32.5 |  |
|  |  | (0-75) |  | (2-65) |  |  |
| Same Sex Only: |  |  |  |  |  |  |
| Students Present | 17.8 | (15.7) | 16.9 | (20.6) | 17.4 |  |
|  |  | (0-50) |  | (0-59) |  |  |
| On Duty, No Students | 28.5 | (17.8) | 28.9 | (22.2) | 28.7 |  |
|  |  | (0-78) |  | (0-58) |  |  |
| Off Duty | 35.1 | (20.7) | 34.8 | (20.7) | 35.0 |  |
|  |  | (0-87) |  | (0-65) |  |  |

Key:
0=Absolutely forbidden, 50=OK if tasteful, 100=Anything goes

continuums and all of them were below 36, indicating some degree of prohibition. There was, however, a definite pattern in the means. Means were a few points higher (less prohibition) when only one gender was present and they also were higher for the "off duty" settings. When students were present, the means were much lower, indicating that a higher standard of decency is expected when working with students. Of all of the analyses performed with various demographic sub groupings, the only one which was significant was that women who had one or more brothers were less tolerant of such comments and jokes in mixed company than were women who had no brothers [$F(1,37)=7.01$, $p=.0119$].

Another item stated: "I enjoy telling and hearing sexually oriented jokes in general." The continuum was marked: "0=never," "50=in limited settings," "100=very much." The overall mean was 29.7 and there was a significant difference between the views of men and women on this item, [$F(1,88)=4.87$, $p=.0300$]. Though both groups' means were considerably below the midpoint of 50, men (34.4, range 0-90) reported that they enjoy these sorts of jokes more than women (23.1, range 0-77). The less experienced teachers were also more tolerant of these jokes than teachers with over ten years of experience, $F(1,88)= 6.36$, $p=.0135$.

A series of four items asked about gender specific but non-salacious jokes (see Table 3). As before, half of these items involved situations in which only one's own gender was present and the others included mixed company. Two of the items asked about jokes which were "gender specific but not derogatory (or only mildly so), with plays on 'male machismo' or 'female sensitivity'." There were no significant differences between the genders on these two items, but there was a trend that showed more liberal views when only one gender was present. Teachers with more than ten years of experience were more tolerant of these mild jokes than their junior colleagues. The remaining two items in this series concerned jokes which were "gender specific and intentionally derogatory, but not salacious (male immaturity/impatience, impulsiveness, PMS, driving, 'dumb blonde,' etc.)." These means were lower than those for the less offensive jokes above. There was no significant difference, though the trend showed slightly greater enjoyment of these jokes by males when with other males.

One item read: "In most regards, I feel that professionals in technology education correctly recognize the expected language and behavior patterns in cross-gender relationships, and they act/speak accordingly." The continuum was marked: "0=No! Too crude;" "50=Yes, OK;" and "100=No! Too stilted." Perceptions of men and women did not differ. The overall mean was 45.2, just slightly lower (cruder) than the "OK" point on the continuum. Another series of items concerned appropriate ways to greet colleagues and students and when it is acceptable to touch other people (Table 4). The continuums for all of these items were marked: "0=No! Forbidden;" "50=OK;" and "100=Yes, encouraged." Participants agreed that it is appropriate to greet both same sex and opposite sex professionals and students with a handshake. Greeting with an embrace, however, was not encouraged in general and there was no significant

**Table 3**

*Perceptions on Gender Specific, Non Salacious Jokes*

| | Males | Females | Mean Responses Less Experience | More Experience | Overall |
|---|---|---|---|---|---|
| Situations | M (SD) (Range) | M (SD) (Range) | M (SD) (Range) | M (SD) (Range) | M |
| **Mixed Company:** | | | | | |
| Mild, Non Derogatory | 36.7 (19.1) (0-62) | 29.8 (23.1) (0-77) | 28.8 (22.6)* (0-77) | 39.5 (17.5) (0-62) | 33.86 |
| Intentionally Derogatory | 33.1 (17.5) (0-52) | 27.6 (22.8) (0-78) | 29.0 (21.8) (0-78) | 32.9 (17.5) (0-52) | 30.81 |
| **Same Sex Only:** | | | | | |
| Mild, Non Derogatory | 40.0 (20.9) (0-93) | 31.8 (19.9) (0-63) | 30.3 (19.7)* (0-63) | 43.8 (19.8) (0-93) | 36.69 |
| Intentionally Derogatory | 37.2 (21.9) (0-87) | 28.5 (20.9) (0-79) | 30.3 (19.8) (0-79) | 37.3 (23.7) (0-87) | 33.57 |

Key: 0=Absolutely forbidden, 50=OK if tasteful, 100=Anything goes
*p<.05

difference between genders in this regard. The overall mean was 39.9 which is below the 50=OK point on the continuum. On the other hand, when asked about greeting same sex professionals with an embrace, men and women differed significantly [F(1,92)= 9.06, p=.0034]. Men rarely thought it was appropriate to greet each other with an embrace and women felt it was very near the "OK" point on the continuum. Both men and women agreed that it is not appropriate to greet same sex or opposite sex students with an embrace.

Four items (Table 4) asked about the appropriateness of touching of colleagues or students "on the shoulder." In all of these items, men had significantly higher means than women, showing that they encouraged touching more, and in each case the men's mean was slightly above the "50=OK" point on the continuum while the women's mean was below.

The subgroup of teachers with more than ten years of experience had significantly higher means (showing greater levels of acceptance) than their less experienced peers on three of these items (as noted in Table 4). The last series of items using continuums for responses involved, "What would you do if…" statements which asked respondents how they would handle potentially embarrassing or otherwise uncomfortable situations. Each continuum was marked: "0=No! Chastise;" "50=OK, Ignore it;" and "100=Yes, Encourage." None of these situations was marked 50=OK or higher by either men or women, but there were some significant differences in how harshly men and women would react to some situations (see Table 5). The viewpoints of teachers who had opposite gender siblings differed significantly from their colleagues in four of these items (as indicated by notes "a" and "b" in Table 5). It appears that women who had brothers expected a higher standard of modesty from men than women without brothers—they were more likely to chastise men who said something they did not like or who took an uninvited "second look" at them. An earlier item had found that they did not condone salacious jokes in mixed company. In these cases, the women with brothers appeared to have somewhat a "they know better" attitude while the women without any brothers seemed to exhibit more of a "men will be men" attitude of resignation.

In another item it was found that men who had sisters were more likely to chastise students for making comments about another student's body/sex appeal than were men with no sisters. Perhaps growing up in a home with sisters allows men to sense how personally hurtful such comments can be, especially to girls in their teenage years. There were only four items in which significant differences such as these were found, but there were numerous items in which the non significant trends showed people of both genders who had opposite sex siblings to be more sensitive to the issues and more conservative in their viewpoints.

The final section of the questionnaire consisted of the open response items. The first of these was, "If a colleague asks you out, and you do not wish to go, how many times may they try again before you feel they have crossed the line to be harassing you?" The overall mean response on this item was 2.12 and there was no significant difference between the means of men and women. The ranges of responses were: Men=0-7, Women=1-5.

**Table 5**
*Perceptions on Appropriate Reactions to Uncomfortable Interactions*

| | Mean Responses | | | | |
|---|---|---|---|---|---|
| | Males<br>M (SD)<br>(Range) | Females<br>M (SD)<br>(Range) | Less Experience<br>M (SD)<br>(Range) | More Experience<br>M (SD)<br>(Range) | Overall<br>M |
| A colleague touched you and you did not like it[a] | 27.8 (29.9) (0-50) | 21.5 (18.6) (0-50) | 26.9 (16.9) (0-50) | 23.3 (22.4) (0-50) | 25.26 |
| A student touched another student who seemed not to mind the action | 39.2 (18.4)* (0-63) | 29.9 (19.3) (0-50) | 31.5 (19.6) (0-57) | 39.8 (17.9) (0-63) | 35.42 |
| A student touched another student who recoiled | 13.6 (14.7)* (0-50) | 7.7 (12.3) (0-35) | 11.4 (12.7) (0-36) | 10.9 (15.5) (0-50) | 11.22 |
| A student complained about being touched | 17.0 (29.5) (0-100) | 19.8 (33.9) (0-100) | 27.1 (34.9)* (0-100) | 7.7 (22.6) (0-100) | 18.16 |
| A colleague said something sexual you did not like[b] | 17.9 (16.9) (0-50) | 20.1 (17.3) (0-50) | 20.1 (16.3) (0-50) | 17.3 (17.8) (0-50) | 18.82 |
| A student said something sexual you did not like | 9.4 (11.1) (0-41) | 6.5 (9.6) (0-34) | 9.5 (11.2) (0-41) | 6.8 (9.5) (0-31) | 8.21 |
| A student said something that offended other students | 7.0 (9.1) (0-26) | 3.8 (6.4) (0-18) | 7.7 (8.8)* (0-23) | 3.5 (7.0) (0-26) | 5.70 |
| A student used derogatory slang about homosexuals | 15.67 (17.5)* (0-52) | 5.2 (9.4) (0-31) | 10.6 (12.1) (0-40) | 12.2 (18.8) (0-52) | 11.34 |
| A student called another student a "fag" | 12.9 (15.5)* (0-50) | 4.8 (8.9) (0-28) | 9.6 (12.1) (0-40) | 9.5 (15.6) (0-50) | 9.55 |

| | | | | | |
|---|---|---|---|---|---|
| A student comments on another student's body/sex appeal[b] | 15.1 (15.4) (0-50) | 10.5 (13.2) (0-35) | 12.4 (13.4) (0-43) | 14.1 (15.9) (0-50) | 13.18 |
| A colleague used a crude, but not sexually oriented word | 28.4 (18.3)* (0-57) | 19.7 (19.0) (0-50) | 23.5 (19.1) (0-50) | 26.3 (18.9) (0-57) | 24.78 |
| A student used a crude, but not sexually oriented word | 15.5 (16.6) (0-50) | 9.9 (13.7) (0-50) | 12.6 (15.0) (0-50) | 13.9 (16.5) (0-50) | 13.21 |
| You noticed a professional of the opposite sex taking an obvious, but uninvited, "second look" at you[a] | 39.0 (22.0) (0-87) | 34.0 (21.4) (0-52) | 32.8 (22.6)* (0-84) | 41.8 (19.9) (0-87) | 36.87 |
| A male student uninvitedly "takes over" difficult task from a female student who was struggling to do it | 29.1 (24.2) (0-100) | 23.2 (24.4) (0-77) | 25.5 (23.9) (0-77) | 27.9 (25.1) (0-100) | 26.56 |
| A male colleague uninvitedly "takes over" a difficult task from you when you are struggling to do it (males omit) | NA | 25.0 (25.7) (50-100) | 28.3 (28.1) (50-100) | 16.5 (16.3) (50-100) | 25.00 |

Key: 0=No! Chastize; 50=OK, Ignore; 100=Yes, Encourage

[a]=Females with brothers were significantly more likely to confront

[b]=Males with sisters were significantly more likely to confront

*$p<.05$

Three items asked how respondents would signal that they disapproved of actions or speech of others. Facial expressions, frowns, backing away, and looking away were all mentioned frequently. Only a few respondents said they would confront the offending party openly, and they would do this only if the situation became a severe problem. Most respondents agreed that most people would recognize these "signals" of disapproval, and that they generally respond accordingly.

One item asked: "If a colleague desired to tell a crude or sexually oriented joke in mixed company and asked permission (hinting at its content), would you feel uncomfortable about answering truthfully?" To this question, 21 respondents answered yes and 40 answered no. This was followed with: "In most cases, would you allow them to tell it?" Responses were yes=37, and no=24. So, despite the fact that the mean (in an earlier item) for appreciation of such jokes was below 30 on a scale of 100, and the fact that another previous consensus mean of 23.4 showed that respondents believe our society is becoming too crude, over 60% of the respondents would allow someone to tell salacious jokes in mixed company if they were asked for permission. Many people evidently tolerate behavior that they do not appreciate.

Three items concerned respondents' general comfort level within technology education. "Do you generally feel comfortable among opposite sex colleagues in technology education?" (yes=59, and no=4). "Do you feel that colleagues of your own gender generally speak and act in appropriate ways around people of the opposite sex?" (yes=61, and no=5). The final item in this series asked if respondents felt that "inappropriate or excessive use of profanity, gestures, and/or sexually suggestive language and jokes by males is a major factor in explaining why more women do not enter the technology education profession?" Only one of the 59 participants who responded to this item answered yes.

Of the 21 responses to the final free response item and solicited comments item, 10 were entirely positive and commended our profession on its positive cross-gender interactions. Four respondents mentioned problems they had experienced with dating within the profession. The following quotations were selected noteworthy:
- "We should all monitor the reactions of others and adjust."
- "All people should be treated with respect."
- "Getting girls into TE earlier will increase female #'s and any problems will disappear."
- "The type of personality of women encountered in a male dominated area usually provides for an easier mix of attitudes and does not allow for slurs to be seen in every action."

This last comment was from a conservative veteran female teacher. She indicated here that a certain "type" of woman would feel more at home in technology education than others would. Thus, her comment could appear to be a positive one in that it expressed a reasonable comfort level, but it also has a very negative connotation in that it could exclude a large segment of females from our profession. It was the only comment that even hinted at this perception

among all of the free response items—hopefully it is both a minority and a false impression. If only certain "types" of women are attracted to technology education, then we still have a good bit of work to do to make our profession attractive to all "types" of men and women.

**Considerations**

The author hesitates to attempt to draw firm conclusions from this research for two reasons. First, it was a very broad attempt to open a new area of inquiry within our profession and, like most early efforts, it likely has some flaws that would limit its interpretation. Among these are the fact that only a small percentage of technology teachers attend national TSA Conferences; participants in the study were all volunteers; due to conference location, the eastern portion of the country was likely over represented; and requesting participants to complete the questionnaire while at the conference may have been burdensome. Thus, the findings may only represent the views of those who felt strongly about the issues. It is clear that a higher percentage of the females at the conference participated in the study than did males. Nonetheless, should not these voices be heard if our male dominated profession is to attract and retain more females? Is it possible that the disproportionate response of females is itself an important finding that indicates a lack of sensitivity among males about these issues?

The other reason for hesitation in interpretation is the unusual nature of the instrument itself. Collecting the data via continuums may have been novel to most participants and may have resulted in a lower reliability than more well known Likert scales. However, this technique did allow participants to mark each response exactly where they thought it should be on a continuum instead of "force fitting" their perceptions into categories devised by the researcher. So, having conceded that drawing firm conclusions may be fraught with potential hazard, or even error, the following "considerations" are offered.

Most of the technology education professionals who were respondents to this study appear to be slightly conservative in their views and in their acceptance of salacious behavior. There was consistent agreement that this sort of discourse is not acceptable around students. Moreover, there was evidence to support the general notion that salacious behavior is not acceptable in any of the professional settings presented. Despite the influence on our society of examples of crude behavior in popular television shows, our profession appears to be conservative in regard to sexually suggestive behavior. Whether or not technology education professionals differ in this regard relative to teachers of other subjects, or other professionals in general, is not known and warrants further inquiry. Perhaps this or similar research should be conducted again in ten years to track changes.

In general, professionals of both genders indicated that they would confront (to some degree) persons who offended them or their students. Men are, evidently, more tolerant in some settings and less likely to chastise offenders than women. It was noteworthy that men were significantly more tolerant than women of derogatory statements about homosexuals and students calling each other a "fag." Since prejudice of any sort cannot be allowed in public schools, male teachers are encouraged to chastise anti homosexual speech, slurs, and

actions with the same fervor as other abusive behaviors, regardless of their own personal views on homosexuality. Pre-service teachers should be made aware of this problem.

It appears that there is a reasonably healthy relationship between the genders within our profession. It seems that many technology education professionals feel that most colleagues recognize and uphold a level of good taste in their speech, and that a facial expression or simple rebuff is all that is generally required to indicate when one is offended by something someone else has said or done. Several statements were made that indicated that women wanted to be perceived for their abilities rather than their gender. This may be the most important outcome of this study.

Perhaps the closest thing to true "conclusions" that can be drawn from this initial work is that: (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 to be slightly 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, (4) and they should treat all persons with respect and fairness—judging them on their performance and ignoring all other potentially divisive factors.

Though our field is still predominantly male, there does appear to be some level of common understanding among males and females concerning the appropriate cultural mores for our profession at the present time and the majority of professionals evidently do conduct themselves accordingly. In addition to simple replications or variations with other groups of technology education professionals, three areas of inquiry should be probed as a continuation of the work herein. First, the finding that women who had brothers were less tolerant of coarse male behavior needs to be studied further. One might expect those women who had brothers to be more accustomed to and tolerant of traditional male behavior than women who did not grow up in homes with male siblings, but this was not the case in this study. Second, comparisons need to be made between the views of technology education professionals and those of professionals from other disciplines within education. Lastly, comparisons also need to be made with professionals in other technical (traditionally male dominated) fields outside of education. Perhaps the social climate is changing more or less in some of these other settings than it is in technology education. These potential changes could be approaching our profession.

### References
Cummings, J. (1998). Foreword. In B. L. Rider (Ed.), *Diversity in technology education* (pp. iii-v). New York: Glencoe.
Foster, W. T. (1996). Technology, the arts, and social constructivism: R2D2 meets Degas. In R. L. Custer & A. E. Wiens (eds.), *Technology and the quality of life* (pp. 239-272). New York: Glencoe.
Hill, C. E. (1998). Women as technology educators. In B. L. Rider (Ed.), *Diversity in technology education* (pp. 57-75). New York: Glencoe.

International Technology Education Association. (1994). ITEA strategic plan: Advancing technological literacy. Reston, VA: ITEA.

International Technology Education Association. (1998). Personal interview and FAX memo from ITEA staff concerning membership trends, April 14, 1998.

Liedtke, J. (1995). Changing the organizational culture of technology education to attract minorities and women. *The Technology Teacher*, *54*(6), 9-14.

Markert, L. R. (1996). Gender related to success in science and technology. *The Journal of Technology Studies*, *22*(2), 21-29.

Mueller, D. J. (1986). Measuring social attitudes. New York: Teachers College Press.

Silverman, S., & Pritchard, A. M. (1996). Building their future: Girls and technology education in Connecticut. *Journal of Technology Education*, *7*(2), 41-54.

Stephens, G. (1996). Technology, crime & civil liberties. In R. L. Custer & A. E. Wiens (eds*.), Technology and the quality of life* (pp. 345-380). New York: Glencoe.

Trautman, D. K., Hayden, T. E., & Smink, J. M. (1995). Women surviving in technology education: What does it take? *The Technology Teacher*, *54*(5), 39-42.

Volk, K., & Holsey, L. (1997). TAP: A gender equity program in high technology. *The Technology Teacher*, *56*(4), 10-13.

Wolters, F. K., & Fridgen, J. D. (1996). The impact of technology on leisure. In R. L. Custer & A. E. Wiens (eds.), *Technology and the quality of life* (pp. 459-500). New York: Glencoe.

Zuga, K. F. (1998). A historical view of women's roles in technology education. In B. L. Rider (Ed*.), Diversity in technology education* (pp. 13-35). New York: Glencoe.