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AN INVESTIGATION OF GENDER AND OTHER VARIABLES ON TIME TO COMPLETION OF DOCTORAL DEGREES

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A sample of factors presumed relevant to the time required to complete doctoral degrees (TTC) was explored in a survey of 154 recent graduates of Natural Science, Social Science, and Humanities doctoral programs at York University. In addition to the variables of gender and discipline, characteristics of the supervisory relationship, as well as the graduate's financial situation and enrollment status, were investigated. On average, respondents took 5.94 years to complete their degrees with students in the Natural Sciences the fastest completers. Although there were no significant gender differences in TTC, male graduates were more satisfied with their doctoral education overall and the quality of supervision they received (from both their supervisors and their supervisory committees) than were females. Males were also more likely to collaborate with their supervisors in the preparation of research papers. With respect to financial support, respondents who were slower completers reported receiving more years of teaching assistantships. Additionally, respondents from the Natural Sciences reported receiving more years of teaching assistantships and research assistantships than respondents from the other disciplines. A multiple regression analysis revealed that the following combination of variables accounted for 30% of the variance in TTC: beginning the dissertation research early in the program, remaining with the original topic and supervisor, meeting frequently with supervisor, and collaborating with supervisor on conference papers.

The purpose of the present study is to explore the nature and extent to which males and females experience their doctoral training differently and to assess the relationship of any such differences to the time taken to complete all doctoral program requirements. Much of the research on the topic of time to completion of doctoral studies has relied upon data from archival sources (e.g., Evangelauf, 1989; Sheridan and Pyke, 1994; Yeates, 1991). Both Lipschutz (1993) and Tinto (1993) recommend a review of the nature of the educational experience from the perspective of the graduate students themselves. The data

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gathered for this report were based on the self-reports of doctoral program graduates, thereby permitting the collection of more diverse information than would normally be available in archival records.

A large literature has now accumulated dealing with the issue of time to completion (TTC) of doctoral degrees (Abedi and Benkin, 1987; Baird, 1990; Evangelauf, 1989; Filteau, 1992; Fletcher and Stren, 1992; Sheridan and Pyke, 1994). Although several researchers have reported that male students generally complete their degree requirements more quickly than female students (Sheinin, 1989; Tuckman et al., 1990; Yeates, 1991), others suggest that gender differences occur only in certain disciplines (Bowen and Rudenstine, 1992; MacMillan, 1989) and/or may reflect gender-based differences in other factors such as financial support (Berg and Ferber, 1983). The Canadian Association for Graduate Studies (1994), for example, recently conducted an analysis of gender differences in TTC for doctoral students in the 1986 cohort. Data from 30 Canadian graduate schools reveal that women in the social, natural, applied, and life sciences programs took longer than men to complete their degree requirements while the reverse was true for students in the humanities. Still other investigators (Sheridan and Pyke, 1994; Wilson and Reschly, 1995) find no evidence of a gender difference in TTC.

If women do take longer to complete their doctoral-level requirements, perhaps this is a consequence, at least in part, of the accumulated microinequities that women experience as graduate students. Numerous authors have pointed out the myriad ways in which the nature and quality of graduate education is not equivalent for men and women (Aisenberg and Harrington, 1988; Butcher, 1992; Caplan, 1993; Dagg and Thompson, 1988; Godard, 1992; Hall and Sandler, 1982, 1983; Wong and Sanders, 1982; Pyke, 1996; Sandler and Hall, 1986; The Chilly Climate Collective, 1995; Williams, 1990) and have characterized the university environment as a "chilly climate" for women. Differential gender-related experiences subsumed by the chilly climate construct (e.g., sexual harassment, exclusion from the curriculum, prevalence of sexist language) might well contribute to slower completion times.

Among the various components of the chilly climate is the relative paucity of appropriate role models for women graduate students. Since a key factor in the successful and timely completion of a doctorate is the supervisory/mentoring relationship, gender differences in the nature of the supervisory experience may help to explain gender differences in TTC (Bargar and Mayo-Chamberlain, 1983; Bowen and Rudenstine, 1992; Braun, 1990; Freeman and Loadman, 1985; Girves and Wemmerus, 1988; Godard, 1992; Hall and Sandler, 1983; Heinrich, 1991; Lyons et al., 1990; McAleese and Welsh, 1985; Woodward, 1993). Tidball (1973, 1976), for example, found that male and female faculty tended to be more supportive of students of their own sex and that female

students were more successful in earning graduate degrees in departments with a relatively higher proportion of female faculty members (Sheridan, 1991). Woodward (1993) found gender differences in terms of ratings of importance of specific aspects of supervision. Both sexes identified the provision of critical feedback as being of primary importance, along with regular checking on progress and provision of academic guidance. Women, however, were more likely to cite "provision of support" as important than were their male counterparts. Similarly, regular supervision seems to be preferable to situations in which it is arranged on an "as needed" basis (Cornell, 1985; Moses, 1984). Woodward (1993) reported that more frequent supervision was strongly associated with successful completion. Finally, Butcher (1992), Cammaert (1985), and others (e.g., Brooks and Perot, 1991; Pyke, 1996; Schneider, 1987) discuss how the perceived or real threat of sexual harassment and sexual intimacy within the supervisory relationship is a difficulty often faced by many women graduate students. In a study of more than 400 psychologists, researchers found that 20–25% of the women had sexual relations with one, or more than one, of their professors (Glaser and Thorpe, 1986). The respondents of this survey reported more problematic issues associated with this sexual contact in retrospect than was perceived at the time of the contact.

The present study explored a number of variables relevant to supervision including supervisor accessibility, frequency of meetings, feedback delays, conflicts among committee members, and general level of satisfaction with the supervision received.

A number of studies have identified discipline area and financial support as among the more important factors influencing degree completion (Bowen and Rudenstine, 1992; Fletcher and Stren, 1992; Sheridan, 1991; Pyke and Sheridan, 1993; Tuckman et al., 1990). Typically students in the natural science disciplines have the fastest completion times at the doctoral level (Duggan, 1989; Sheridan and Pyke, 1994). With respect to funding, where financial support is provided by the institution, faster completion times apply (Abedi and Benkin, 1987; Sheridan and Pyke, 1994; Tuckman et al., 1990), albeit some variance in the research findings has occurred in terms of the benefits and liabilities of the specific form of funding (e.g., teaching assistantships or research assistantships).

In summary, a number of factors may contribute to the speed with which a doctoral student will finish her/his degree requirements. For the purposes of this study, the impact on time to completion of gender, discipline area, various aspects of the supervisory relationship, financial support, and enrollment status are assessed via a questionnaire survey of a sample of recent doctoral graduates.

METHOD

Research Participants

York University offers graduate training in most areas of study. Notable exceptions are engineering, medicine, and allied fields. Admission requires at least a B (second-class) standing, although most students, especially in the highly competitive social science programs, have grade-point averages of A. The vast majority of the students are enrolled on a full-time basis and are allowed a maximum of six years for completion of the doctorate.

The potential participants ($n = 357$) for this study consisted of all the students who had graduated from a doctoral program between 1987 and 1992. Those graduating prior to 1987 were not included because of the difficulty in locating alumni (i.e., addresses on file are no longer current). From this potential pool, a total of 165 individuals responded. Due to the low response rate from administrative studies graduates ($n = 11$), only the responses from graduates of Natural Sciences ($n = 29$), Social Sciences ($n = 93$), and Humanities ($n = 32$) programs were analyzed. Representation in the sample of these discipline fields closely reflects the proportions in the population from which the sample was drawn.

The study participants thus consisted of 154 Ph.D. graduates: 80 women and 74 men. The percentage of women is somewhat higher in this sample (52%) than in the population (46%), perhaps reflecting lower mobility of women graduates. The majority of the graduates were Canadian citizens (86%, $n = 132$). Six percent of the respondents identified themselves as permanent residents ($n = 10$) and 8% were VISA students ($n = 12$). The average age of the graduates when they began their doctoral program was 29.74 years with a modal age of 25. On entry to the doctoral program, 92% of the respondents were full-time ($n = 141$) and 8% ($n = 13$) were registered as part-time. In this latter group, there were 7 males and 6 females. Ninety percent ($n = 138$) of the participants were employed at the time of the survey and 75% of the respondents felt that they were appropriately employed ($n = 116$). Graduates in Natural Science and Social Science fields were significantly more likely to regard current employment as appropriate than those in the Humanities disciplines, $F(2, 138) = 6.392$, $p = .002$.

At the time of admission to the program, 39% of the respondents were married, 40% were single, 15% were cohabiting, and 6% were separated or divorced. Approximately equal percentages of men and women were either married or cohabiting when they commenced their doctoral studies (56% of women and 51% of men). Over the course of their tenure in the program, significantly more female respondents underwent changes in marital status than did male respondents, $\chi^2(1, n = 154) = 4.33$, $p = .04$, with 48% of the women reporting a change in marital status, as compared to 31% of the men. However,

changes in marital status did not affect the total time taken to complete all degree requirements.

Measures

A questionnaire was designed to assess various aspects of the graduate experience and included questions concerning demographic information, experiences as a doctoral student, experiences with supervision, financial and enrollment information. The questionnaire required approximately 30 minutes to complete. The forced-choice items were provided with a Likert 7-point scale.

Procedure

Questionnaires and consent forms were sent out to the original pool of 357 graduates with a letter explaining the purpose of the study along with a letter of support from the Dean of the Faculty of Graduate Studies. Individuals who had not returned their questionnaire, four, and then seven weeks after the initial solicitation, were sent follow-up letters. Three weeks after the last follow-up letter, an attempt was made to contact all nonrespondents by telephone.

Of the 357 graduates who were initially sent a questionnaire package, only 246 actually received the material. This reduced number was a consequence of incorrect (out-of-date) addresses. Thus, the response rate from the group who received the questionnaire was 67% ($n = 165$).

Official university records, which note the date when all requirements are completed (including oral defense and any revisions to the dissertation after the defense date), were used to calculate length of time to completion. On average, the respondents took 5.94 years to complete their degrees. For most analyses involving the speed of completion variable, participants were ranked in terms of time to completion of degree requirements. The ranked list was then divided into thirds with the top third identified as the "fast" completers (mean = 4 years), the middle third the "average" completers (mean = 5.98 years), and the bottom third defined as the "slow" completers (mean = 8.6 years).

Data were analyzed using chi-square, analysis of variance: and multiple regression statistical techniques. The three variables of particular interest were speed of degree completion (fast, average, slow), area of study (Natural Sciences, Social Sciences, Humanities), and gender of graduate.

RESULTS

Gender Differences

A two-way analysis of variance of the effects of gender and discipline area on TTC revealed no significant main effects for gender or interaction effects,

but a significant main effect for discipline area was observed. The mean completion time for each discipline area was 4.86, 6.39, and 6.58 years respectively for Natural Science, Humanities, and Social Science graduates. Paired *t*-tests revealed that the graduates in the Natural Sciences completed their studies significantly faster than respondents in the Humanities, $t\ (54) = -2.42$, $p = .02$, and Social Sciences, $t\ (40) = 3.33$, $p = .002$. No significant difference was found between these latter two discipline groups.

Although no gender difference was observed in actual TTC, there were gender differences in expected completion time $\chi^2(1, n = 90) = 11.75$, $p < .003$. Significantly more women than men reported that they thought they would complete their requirements in a shorter time frame. Men, on the other hand, reported that they had accurately anticipated completion time—i.e., that it took about as long as they thought it would. In addition, gender was frequently cited as a personal characteristic that was perceived to have affected degree progress. Of those respondents who felt that their gender had an impact on their progress ($n = 34$), a chi-square analysis revealed that significantly more women than men believed this to be the case, $\chi^2(1, n = 54) = 7.27$, $p = .007$. Although most of these respondents thought that their gender had a negative impact on their progress, this perception was unrelated to their actual speed of completion (i.e., there was no difference in actual TTC between this group and those who did not view their gender as having had a negative impact on progress).

Thirty-four percent ($n = 52$) of the graduates were registered as part-time at some point subsequent to the first year of their program. A series of chi-square analyses revealed that (1) graduates who initially enrolled as full-time but later switched to part-time took significantly longer to complete their degree requirements than did those respondents who remained full-time, $\chi^2\ (2, n = 153) = 30.73$, $p = .000$; (2) Natural Science graduates were the least likely to be subsequently registered as part-time followed by those in Humanities, and finally, those registered in Social Sciences, $\chi^2\ (2, n = 153) = 6.695$, $p = .035$; (3) no significant effect for gender of respondent was found in terms of the numbers moving to part-time status subsequent to initial registration.

A three-factor analysis of variance revealed a statistically significant main effect for gender in the reported general level of satisfaction with the overall graduate experience, with men expressing higher levels of satisfaction than women, $F\ (1, 136) = 8.673$, $p = .004$. There were no significant discipline or TTC or interaction effects associated with rated overall satisfaction.

The Supervisory Experience

A summary of the differences observed on the three variables of interest (TTC, gender, and discipline) with respect to the nature of the supervisory experience is presented in Table 1. In terms of TTC, fast completers seemed to

TABLE 1. The Supervisory Experience

	Sex Differences	Discipline Differences	TTC Differences	Comments
Degree of difficulty finding a supervisor	No	Yes	No	Humanities students found supervisor selection easy, followed by Natural Sciences students, and finally, Social Science students, F (2,131) = 4.428, $p \leq .014$.
Changed supervisors	No	No	Yes	Slow completers were more likely to have changed supervisors than fast completers, $\chi(2, n = 154) = 9.74$, $p \leq .008$.
Supervisor interest in dissertation topic	Yes	No	No	Men reported more supervisor interest in topic than women, F (1,137) = 6.524, $p \leq .012$.
Satisfaction with quality of supervision from supervisor	Yes	No	No	Women reported less satisfaction with supervisor than men, F (1,146) = 7.78, $p \leq .006$.
Satisfaction with quality of supervision from committee	Yes	Yes	No	Women less satisfied than men, F (1,132) = 5.513, $p \leq .02$. Social Science more satisfied than other disciplines, F (2,132) = 4.469, $p \leq .013$.
Did committee conflict affect student progress?	Yes	No	No	Women reported more committee conflict than men and felt that it affected their progress, F (1,133) = 3.65, $p \leq .05$.
Frequency of supervisory meetings	No	Yes	Yes	Fast completers met more frequently than slow completers, F (2,136) = 2.969, $p \leq .05$. Natural Science students met more frequently than other disciplines, F (2,136) = 3.89, $p < .02$.

TABLE 1. (*Continued*)

	Sex Differences	Discipline Differences	TTC Differences	Comments
Delays in feedback from supervisors	No	No	No	
Delays in feedback from committee	Yes	Yes	Yes	More slow completers reported delays, χ (2, n = 145) = 6.34, $p \leq .04$. Social Science more delays, $\chi(2, n = 145) = 12.085, p \leq .002$. Women more delays than men, $\chi(1, n = 145) = 4.11, p \leq .04$.
Collaboration with supervisor on research paper presentation	Yes	Yes	Yes	More fast completers than slow, $\chi(2, n = 153) = 13.231, p \leq .001$. Social Science most likely, $\chi(2, n = 153) = 47.147, p \leq .00$. More men than women, χ (1, n = 153) = 4.654, $p \leq .03$.
Collaboration with supervisor on articles	No	Yes	Yes	More fast completers than slow, χ (2, n = 149) = 9.94, $p \leq .007$. Social Science most likely, $\chi(2, n = 149) = 39.277, p \leq .00$.

be more involved with their supervisors than their slower counterparts. They were less likely to change supervisors; they met more frequently with their supervisors; they were more likely to collaborate with their supervisors on research paper presentations and journal articles. When respondents were asked to characterize the nature of their relationship with their supervisors by endorsing any of 14 descriptors, the most commonly selected qualities were professional, pleasant, and supportive, all endorsed by over 100 individuals. Only one of the 14 items revealed any significant gender, discipline area, or TTC effects. Significantly more fast than slow completers characterized their relationship with their supervisors as "intimate," χn^2 (2, n = 33) = 7.87, p = .02. Fast completers also reported fewer delays in obtaining feedback from supervisory committees.

With respect to differences between men and women graduates, the quality of the supervisory experience for women appeared to be less satisfactory than that enjoyed by men. Relative to the women, men reported greater supervisor interest in their research topics, higher levels of satisfaction with the overall quality of supervision from both supervisors and supervisory committees, and less conflict within supervisory committees. Additionally, more men than women were involved in collaborative ventures with their supervisors. Women were more likely than men to report that their committees delayed their degree progress, citing internal conflict and slow feedback as critical factors.

Some differences across the discipline fields in certain aspects of the supervisory experience were observed. Although finding a supervisor was not a problem for most respondents, students in Social Science disciplines reported the most difficulty. Social Science students also reported more delays in obtaining feedback from supervisory committees. However, they were more satisfied with the quality of supervision they received from their committees than students in the other discipline areas. Graduates from the Natural Science disciplines reported the highest frequency of meetings with their supervisors.

The Research Experience

A summary of the differences obtained with respect to aspects of the research experience appears in Table 2. Fast completers had less difficulty selecting a dissertation topic, began working on their research earlier, and were less likely to change topics. The only gender difference observed was that women tended to find topic selection easier than men, but this did not result in getting started on the project earlier. In terms of discipline differences, Social Science students had the most difficulty settling on a topic, initiated their research at a later stage of their program, and were more likely to report difficulty in carrying out their research than students in the other areas. Additionally, there was a trend for more Social Science students to change their dissertation topic.

TABLE 2. The Research Experience

	Sex Differences	Discipline Differences	TTC Differences	Comments
Degree of difficulty selecting dissertation topic	Yes	Yes	Yes	Fast completers found selection easier than slow completers, F (2, 151) = 3.34, $p \leq .04$. Humanities students found selection the easiest, followed by Natural Science then Social Science students, F (2,151) = 3.598, $p \leq .03$. Women found topic selection easier than men, F (1,151) = 3.91, $p \leq .05$.
Date student began working on dissertation	No	Yes	Yes	Fast completers began working on topics earlier than slow completers, F (2,154) = 18.18, $p \leq .000$. Natural Sclence students began the earliest, followed by Humanities, then Social Science students, F (2, 154) = 6.127, $p \leq .003$.
Difficulties encountered in conducting research	No	Yes	No	More Social Science students reported difficulties than Natural Science or Humanities students, X(2, n = 148) = 10.31, $p \leq .006$.
Switched dissertation topics	No	No	Yes	Fewer fast completers switch than slow completers, X(2, n = 152) = 5.8. $p \leq .05$. There was a trend for more Social Science students to switch topics than Natural Science or Humanities students, X(2, n = 152) = 5.57, $p \leq .06$.

Financial Support

In general, information on the various forms of financial support (scholarship, teaching assistantship, student loan, etc.) revealed few significant effects. The percentage of the sample reporting each type of funding is presented in Table 3. The most frequently reported forms of support were various types of scholarships ($n = 149$), teaching assistantships ($n = 127$), and part-time work ($n = 61$). However, in terms of number of years of receiving teaching assistantships, a three-factor analysis of variance revealed main effects for TTC and discipline. Those respondents who took the longest to complete their degree reported receiving more years of teaching assistantship funding, $F\ (2, 127) = 4.466$, $p = .014$. Interestingly, respondents from the Natural Sciences received the most years of teaching assistantships ($\bar{x} = 4.58$) followed by students in the Humanities ($\bar{x} = 4.44$) and Social Sciences ($\bar{x} = 3.64$), $F(2, 127) = 6.833$, $p = .002$. No significant gender differences were detected in the number of years respondents received teaching assistantships. Additionally, a three-factor analysis of variance was performed concerning the number of years respondents reported receiving research assistantships. A significant main effect for discipline was detected whereby respondents from the Natural Sciences reported receiving more years of research assistantships ($\bar{x} = 4.00$) followed by gradu-

TABLE 3. Identified Means of Financial Support (Scholarships, Assistantships, Employment, Other)[a]

Source of Funding	*N*	% of Sample	% Male of *n*	% Female of *n*
National Scholarship	44	29	41	59
Provincial Scholarship	52	34	38	62
University Scholarship	32	21	47	53
Other Scholarships	21	14	57	43
Graduate Assistantship	41	27	41	59
Research Assistantship	51	33	45	55
Teaching Assistantship	127	82	47	53
Bursary	5	3	40	60
PT Inside Employment	31	20	48	52
FT Outside Employment	34	22	44	56
Family Support	22	15	27	73
Spousal Support	44	29	36	64
Student Loans	19	12	58	42
PT Outside Employment	61	40	39	61
FT Inside Employment	16	10	56	44
Other	20	13	45	55

[a]Respondent could indicate more than one source of funding and more than one year of a particular source of funding

ates in Social Sciences ($\bar{x} = 1.82$), and finally respondents in Humanities ($\bar{x} = 1.00$), $F(2, 51) = 10.446$, $p = .000$. No gender or TTC differences were detected in the number of years respondents received research assistantships.

A three-factor analysis of variance based on whether or not respondents received scholarship funding revealed no main effects for TTC, gender, or discipline area. However, a significant two-way interaction (gender by discipline area) was obtained. In the Natural Sciences and Humanities, women tended to receive scholarship funding more often than their male counterparts, whereas in the Social Sciences men more often received scholarship funding than women, $F(2, 137) = 4.691$, $p = .011$. Finally, significantly more women than men received financial support from their families, $\chi^2 (1, n = 36) = 4.39$, $p = .04$.

Regression Analysis

A multiple linear regression analysis was computed to assess the combined effect of 10 independent variables on TTC. Variables selected for inclusion in the analysis were those that had yielded statistically significant effects vis à vis TTC in analyses reported above. As indicated in Table 4, the five most influential variables accounted for 30.2% of the total variance in TTC. The addition of other variables only marginally increased the proportion of explained variance. The fastest completion times are associated with an early start on the dissertation, maintaining the same supervisor and topic, frequent meetings with the supervisor, and student/supervisor collaborations on papers.

DISCUSSION

It is clear that the issue of time to completion is a complex one, with graduates identifying many factors affecting their progress. Those factors significantly associated with shorter completion times include participation in a Natural Science discipline; maintaining full-time enrollment; ease in topic selection;

TABLE 4. Summary of Block Regression Analysis for Variables Predicting Time to Completion

Variable	*B*	S.E. *B*	*T*	Sig *T*
Begin Dissertation	6.095704	1.269428	4.802	.0000
Change Supervisor	10.620589	5.239592	2.2027	.0445
How Often Met with Supervisor	5.199337	1.724476	3.015	.0030
Number of Papers Written with Supervisor	−1.380752	.685693	−2.014	.0459
Switch Dissertation Topics	5.929115	.4667453	1.270	.2060
(Constant)	(41.590656)	(6.256257)		

keeping the same dissertation supervisor throughout; getting started on the dissertation early in the program; keeping the same dissertation topic; developing a close relationship with the supervisor; meeting frequently with the supervisor; a fast turn around time for material submitted to supervisory committees; fewer years of teaching assistantship support; collaborating with the supervisor on papers and articles. These findings are quite consistent with those reported in the literature.

With respect to discipline area differences, graduates from Natural Science fields had the fewest number of part-time registrants, met with their supervisors more frequently, made the earliest start on their dissertation research, and had more years of both teaching assistantship and research assistantship funding. Social Science respondents, on the other hand, reported longer delays in obtaining feedback from supervisory committees and encountered more difficulties both in obtaining a supervisor and in conducting their research. They were also somewhat more likely to change research topics than respondents in the other fields. These discipline area differences are in keeping with the observation that Natural Science graduates had the shortest TTC while Social Science graduates had the longest average TTC. However, the regression analysis suggests that it is not the discipline area per se that is relevant. Rather, it is those variables that covary with discipline which seem to explain the fast completion time—e.g., getting an early start on the dissertation research, not switching topics, meeting frequently with the supervisor.

The relationship between financial support and TTC has been explored in a number of studies. Tuckman et al. (1990), for example, found that teaching assistantship (TA) funding increased the time taken to complete degree requirements whereas Abedi and Benkin (1987) reported shorter completion times associated with TA support. In the present study, longer TTC was associated with more years of TA funding and Natural Science students reported the highest number of years of such funding. Since Natural Science graduates had the fastest completion times, these findings are counterintuitive. However, these results may reflect imprecision in the data collection. Quite often students in Natural Science disciplines are awarded a partial TA to "top up" other sources of support. So, although four years of TA funding might have been reported, the total time commitment across the four years for a student in the Natural Sciences might only be the equivalent of one full TA. This practice is much less common in the other discipline fields; hence four years of TA funding reported by a Social Science graduate would indeed reflect four full TAs. Rather than years of funding, a more accurate index would be the total amount of support received. Sheridan and Pyke (1994) report that the length of time in a doctoral program decreases as the amount of funding increases.

Perhaps the most interesting data yielded by this study are the significant gender differences. Women doctoral graduates as compared with their male

counterparts reported significantly less supervisor interest in their research topic and significantly more conflict among their supervisory committee members. Significantly more women than men reported lengthy delays in obtaining feedback; significantly more women than men believed that these delays had slowed them down; significantly more women than men believed that their gender affected their progress; significantly fewer women than men collaborated with their supervisors on papers. Women, as compared with the men respondents, reported significantly lower levels of satisfaction with their supervisors and supervisory committees and significantly less satisfaction with their graduate school experience overall. In addition, there is some suggestion in the data that women may have been experiencing significant life stress (e.g., changes in marital status). What is especially remarkable is that in spite of these perceived unsatisfactory academic experiences and stressful personal events, women did not take longer than men to complete their degrees.

These results provide some support for the chilly climate construct—i.e., that inequities exist at least in the perceptions of the treatment received by male and female graduate students. For example, significantly more women than men believed that their gender had a negative impact on their progress and significantly more women than men reported lengthy delays in obtaining feedback from supervisory committees. However, the findings can also be explained or interpreted as reflections of differing expectations on the part of women and men about the nature of graduate education. In support of this interpretation is the finding that significantly more women than men expected to complete their degree requirements faster than they did. That this expectation was not realized may have engendered a certain degree of dissatisfaction on the part of the women graduate students. If women have expectations about the supervisory process that are in some sense more demanding than (or different from) those of men (Woodward, 1993), then it would not be surprising to find higher levels of dissatisfaction among women students. For example, men may be more tolerant of conflict among committee members and/or more familiar with forms of academic acrimony so such conflicts may be less salient and hence less distressing or distracting. A number of authors have suggested that women's approach to intellectual study differs from that of men (Aisenberg and Harrington, 1988; Belenky et al., 1986). Such differing orientations may well generate differing expectations (e.g., Woodward, 1993). This issue of male/female differences in expectations vis à vis graduate education would seem to be a profitable area for further research.

The implications of this research for graduate students, faculty advisors, and university administrators are very clear. It is critically important that students begin their dissertation research as soon as possible and that they meet regularly and frequently with their supervisors. Graduate program structures and policies

should be designed to promote these key variables influencing the timely completion of doctoral degrees.

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