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Educational choice and persistence in male- and female-dominated fields

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Abstract Even though female students now make up more than half of all higher education students in many countries, the distribution of women across fields of study is still very uneven. This study examines the gendered nature of recruitment and dropout in higher education. Our results show that students who made gender traditional choices more often had an early preference for the study programme they enrolled in. Moreover, female students reported more often than male students that they had been encouraged by their parents and friends. However, unlike what we expected, there are no differences between students in gender traditional and non-traditional programmes with regard to encouragement from parents and students' confidence that they had made the right choice. While male students' dropout is unrelated to the gender composition of educational programmes, women drop out of female-dominated programmes to a lesser extent.

Keywords Attrition · Educational choice · Gender segregation · Higher education · Persistence · Student dropout

Introduction

During the past few decades systems of higher education have expanded dramatically in most industrialised countries. In both the UK and in Norway, for example, the number enrolled in higher education more than doubled from the 1970's to the turn of the century (Brooks, 2002; Hansen & Mastekaasa, 2003). This expansion is

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partly due to the increase in the number of female students. Women now make up more than half of all higher education students in many countries in the industrialised world. The distribution of men and women across fields of study is, however, still very uneven (Bradley, 2000; Jacobs, 1996; Støren & Arnesen, 2003). Cross-national analyses indicate that segregation across fields is at best weakly related to women's status in other social spheres, to overall female enrolment in higher education, and to female representation in most elite sectors of higher education (Bradley, 2000). Horizontal inequalities across fields seem to be more resistant than vertical inequalities between educational levels to gender-egalitarian cultural pressures (Charles & Bradley, 2002). Gender segregation in higher education is a major factor behind the uneven distribution of women and men across occupations, and thus also to gender differences in wages (e.g. Høgsnes, 1999; Jacobs, 2003). A better understanding of the processes behind these horizontal segregation patterns is therefore essential in a gender equality perspective.

Gender segregation in higher education will result if men and women choose to enrol in different programmes (differential selection into programmes), or if they drop out of the programmes at different rates (differential selection out). Several studies have established that both parents and peers are important influences in the choice process; the question of how these influences differ by gender has, however, received relatively little attention (Brooks, 2002).

A number of studies have examined gender differences in dropout. Some of these report higher dropout rates for female students (e.g. Ishitani, 2003), others find men to be more likely to drop out (Johnes & McNabb, 2004), while others again find no gender difference (Liljander, 1998; Murtaugh, Burns, & Schuster, 1999). Thus, no clear pattern has been documented. More important in the present context, results on variation in gender differences among educational programmes and fields are also highly inconsistent. Robst, Keil and Russo (1998) found that the proportion of females in the academic staff had a positive effect on retention for female students. The opposite effect was reported by Johnes and McNabb (2004): The proportion of male students in a course was positively related to completion for women, but negatively for men. Correspondingly, Rogers and Menaghan (1991) reported that women's likelihood of persistence in science and technology increased as the proportion of men increased. Sax (1996) found that the proportion of women was positively related to men's attrition rates, but not to women's, while Smith and Naylor (2001) found no relationship between gender composition and attrition rates for either men or women.

In this paper we explore gender segregation using a sample of students from Norwegian university colleges. The university colleges offer mostly three year professionally oriented programmes in fields like education, engineering and nursing. In Norway as in many other countries, the influx of female students has been even stronger in these fields of higher education than in traditional disciplinary university fields. Nevertheless, there are still large variations between the different educational programmes. Most programmes, like nursing, education and social work, are clearly female-dominated, but there are also strongly male-dominated enclaves like engineering.

While most studies of gender segregation in higher education have focused on either recruitment or dropout, the aim of the present study is to examine both these issues and to explore possible relationships between them. First, we analyse students' reports on the choice process preceding entry into male and female-dominated

educational programmes. Do male and female student differ in how early they make their choices and in their assessments of how much parents and peers were involved in the process?

The second set of analyses is concerned with gender differences in persistence. Are female students more likely to drop out of male-dominated fields, and do male students more often drop out of female-dominated fields? Finally, we examine the relationship between the initial choice and later dropout: do those who later drop out report less encouragement and confidence in their choices, and does this explain later gender differences in dropout?

Theories and research on gender differences in higher education

A common explanation for gender segregation, in higher education as well as more generally, is that it is due to differences in the early socialization of boys and girls (cf. Eagly, 2000). Boys and girls internalize different values and preferences, and this leads them to choose different subject areas. In particular, the 'nurturing' role of women may encourage girls and women to make educational choices that lead to caring occupations (Bradley, 2000). A second type of explanation, particularly common among economists, is that gender differences arise because women tend to choose careers that make it easier to combine employment and family life (e.g. Polachek, 1981). According to this theory, men and women have the same basic value or preference (maximization of life time income), but the opportunity situations in which they find themselves lead them to make different choices. A third type of explanation assumes that men and women are exposed to different external factors, including possible gender discrimination. An example of this strand of theory is the 'social control perspective' suggested by Jacobs (1989). Jacobs argues that women are exposed to a lifelong system of social control. External social pressures rather than internalized values or calculation of costs and benefits push women in the direction of making traditional choices at all life stages. Thomas (1990) focuses on the social construction of gender in higher education. She emphasises that higher education does not reproduce inequality by actively discriminating against women, but culturally ingrained ideas of masculinity and femininity are used in such a way that women are marginalised and to some extent alienated.

There is a huge literature addressing the gendered nature of science and engineering. Consistent with the socialization perspective, a prevalent claim found in the research in this area is that the roots of gender segregation in higher education lie in the earlier stages of the student's career (Ma, 1999; Oakes, 1990). Several studies have also documented the existence of cultural beliefs that males are more competent than females at mathematics (Correll, 2001; Hyde, Fennema, Ryan, Frost, & Hopp, 1990; Seymour & Hewitt, 1997; Wagner & Berger, 1997), even though the empirical support for actual gender differences in mathematical competence is weak (Baker & Jones, 1993; Finn, 1980). Furthermore, males tend to overestimate their mathematical competence relative to females and are therefore more likely to pursue activities leading toward a career in science and engineering (Correll, 2001).

The family and the peer group have been found to be important influences on educational choices (Moogan, Baron, & Harris, 1999). Parents play an early role in helping students develop postsecondary aspirations (Somers, Cofer, VanderPutten,

2002). Girls have been found to favour a collaborative approach to the choice process towards their parents, especially mothers, while boys tend to be more resistant to parental involvement (David, Ball, Davies, & Reay, 2003). Girls are also more likely than boys to be influenced by peers and perhaps to consult more with others more generally (Reay, 1998). The implication of these differences for students' choice of field of study has not been examined. It may, however, be hypothesised that these patterns play an important role in the reproduction of gender segregation in higher education. Moreover, irrespective of whether or not men and women differ in the overall level of support or influence from parents and friends, the specific direction or content of this influence may often follow traditional, gender-typical choices.

A focus on family and peer influences is consistent with both socialization and social control theories, depending on whether these influences are assumed to be internalized or not. Research on student dropout has focussed more clearly on the impact of factors external to the individual. In particular, the emphasis has been on student integration (Astin, 1993; Braxton, Sullivan, & Johnson Jr. 1997; Read, Archer, & Leathwood, 2003; Tinto, 1993, 1997). Tinto focuses on the role of social structure in the persistence process. Students enter higher education with a set of background characteristics, intentions and expectations and the way these variables interact and are modified in a social and academic integration process are decisive for students' decisions to persist or depart. In terms of this theory, higher dropout of students in educational fields dominated by the opposite gender could be understood as a result of these students feeling less integrated. Differences between male and female-dominated fields have not been a central topic in this research tradition, however.

Moving beyond studies of student persistence to more general theories, several authors have suggested that the numerical strength of a minority group has important consequences for the degree to which it is exposed to discrimination or more generally experience difficulties in various social settings. Particularly influential has been Kanter's (1977a, 1977b) theory of 'tokenism'. Kanter suggests that small minorities, like women in predominantly male settings, are faced with special problems. The basic issue is that members of small minorities are not perceived and treated as individuals but rather as representatives or 'tokens' of their category. A related albeit different idea is that traditionally privileged majorities may feel that their advantaged position is threatened by the minority, and that the minority is therefore subject to various kinds of hostile behaviour (Blalock, 1967). Kanter's and Blalock's theories give rise to different hypotheses. According to Kanter, the situation of the minority is more difficult the smaller it is. Blalock, on the other hand, argues that the majority is more likely to tolerate a very small minority group; when the relative size of the minority group increases, it is perceived to be a greater threat, and the majorities' hostility increases.

Kanter's theory has not been supported in previous studies of the relationship between gender segregation and the dropout of female and male student dropout (Johnes & McNabb, 2004; Rogers & Menaghan, 1991; Sax, 1996; Smith & Naylor, 2001). One reason may be that Kanter's theory of relative numbers is gender neutral and do not take into account cultural and social influences of gender in the wider social sphere. It has been argued that the theory does not reflect the impact that groups' relative status have on social processes (Chatman & O'Reilly, 2004; Teigen, 1999; Zimmer, 1988). Mills, Martino, and Lingard (2004) note that although men in a

'feminized' occupation like teaching do to some extent experience problems like suspicions of being gay or having paedophilic intentions (also see Carrington & Skelton, 2003), they are also much more likely than female teachers to be promoted. Thus, the experiences of minority men in female-dominated settings may be qualitatively different from that of women in male-dominated contexts.

It is reasonable to assume that gender stereotypes have been modified during recent decades and that they are less significant among young people in a country with strong egalitarian norms like Norway (Esping-Andersen, 1990). However, reviewing the literature it seems that the gendered patterns in choice of study field is highly resistant to increased female participation as well as egalitarian cultural norms. It has been argued that expansion of higher education implies a diversification that affects the gender distribution across programmes and fields of study in the sense that female students in these 'mass' systems are more willing to settle for lower status institutions and 'gender appropriate' fields of study (Charles & Bradley, 2002). It is therefore reasonable to expect gendered patterns in our examination of students' educational choice process. On the other hand, considering the literature on the impact of relative numbers (Kanter, 1977a), status differences (Chatman & O'Reilly, 2004) as well gender stereotypes (Thomas, 1990) it is not evident whether we will find differences between male and female students' dropout in general or related to the gender composition of the various subject fields.

Methods

Data set

As part of a large longitudinal survey programme (called StudData), a questionnaire was administered to all beginner students at Oslo University College and to selected educational programmes in four other Norwegian university colleges in September 2000. The university colleges offer a variety of mostly 3-year professional programmes in areas like teaching, nursing, social work, public administration, business administration, library science, journalism, physical therapy.

Overall, 33 different study programmes are included, 23 from Oslo University College and 10 from the other colleges. In Table 1 these are grouped into 11

Table 1 The gender and institutional composition of the sample in various educational fields

	Percent women	Percent from Oslo University College	*N*
Nursing	91	74	380
Physical therapy, etc.	78	100	185
Various health related	85	92	188
Social work	87	51	288
Education (primary school)	73	49	555
Education (pre-school)	96	87	209
Library science	86	100	74
Journalism	61	56	104
Public administration	80	100	40
Business administration	55	100	110
Engineering	22	100	289
Total	74	75	2,422

educational fields. The percentage of students coming from Oslo University College ranges from about 50 (education, social work and journalism) to one hundred (physical therapy, library science, public administration, business administration, engineering).[1]

Most of the educational fields are clearly female-dominated. Overall, 74% of the students are women. The female-domination is particularly strong in early childhood education and nursing, which are both more than 90% female. The only clearly male-dominated field is engineering, while business administration and journalism are quite gender-balanced.

Note that there is also considerable variation within many of the categories in Table 1. Within the field of engineering, e.g. percent female varies from 4 in the programme in machine engineering to 72 in chemical engineering.

The questionnaires were completed in class, and collected by the teacher or an administrative official. In a few classes with low response rates, questionnaires were mailed to students who had been absent when the questionnaires were distributed or who had not returned it for some reason. (Students who did not want to participate could return a blank questionnaire, and would not be contacted again.) The total number of completed questionnaires was 2422, yielding to a response rate of 74%.

Data on dropout were taken from the schools' computerised student registers. Such data is available only for students at Oslo University College. Along with some missing data on individual variables, this brings the number of respondents in the dropout analyses down to 1718.

Variables

The variables are presented in Table 2. Nearly half of the sample report that they made their choice of education during childhood or youth years. The amount of encouragement from mother and from friends is at about the same level, whereas somewhat less encouragement is reported for fathers. We may also note that most students report a high degree of confidence that they have made the right educational decision, with a mean of close to four on a 5-point scale. The dropout rate at Oslo University College (23%) is close to the average for Norwegian university colleges.

We distinguish between three categories of programmes according to their gender composition, female-dominated with more than 75% women, male-dominated with more than 75% men, and balanced if the percentage of both women and men exceeds 25%. Ideally, a more fine-grained scheme would have been desirable, but reasonably large categories are necessary to achieve an acceptable level of statistical power. Note also that the 'balanced' category is not balanced in the strict sense of the word, since none of the 10 programmes in this category has more than 50% men, and only 2 more than 40%. Thus, it may equally well be considered as weakly female-dominated. This is not a major problem in the present study, however, since

[1] A reviewer raised the issue of whether institutional differences in culture might have biased the results. To address this issue, we have repeated all analyses using data from Oslo University College only. The results were substantively very similar. Complete results are available upon request.

Table 2 Variable definitions and descriptive statistics

Early decision	Having made the decision during childhood or youth years = 1; made the decision in connection with the application = 0 (Mean = .47)
Encouragement mother	Mother's degree of encouragement for chosen education; not at all = 1, to a very high degree = 5 (Mean = 3.12; SD = 1.43)
Encouragement father	Father's degree of encouragement for chosen education ; not at all = 1, to a very high degree = 5 (Mean = 2.82; SD = 1.45)
Encouragement friends	Friends' degree of encouragement for chosen education; not at all = 1, to a very high degree = 5 (Mean = 3.08; SD = 1.35)
Confidence	Average of two 5-point items: "I am confident that I have made the right choice" and "I might as well have chosen another education" (reversed); low certainty = 1, high certainty = 5 (Mean = 3.93; SD = 1.00)
Dropout	Registered as having left the educational programme = 1; else = 0 (Mean = .23)
Gender	Woman = 0; Man = 1 (Mean = .26)
Proportion men	Proportion men among students in educational program, dummy variables for .25 to .75 (34% of sample) and more than .75 (11%), with less than .25 as reference (55%)

we are primarily interested in what happens to women in strongly male-dominated surroundings and to men in strongly female-dominated ones.[2]

Statistical methods

The data are analyzed by means of linear and logistic regression. The respondents are clustered within classes and cannot be considered as independent observations. If this clustering is neglected, standard errors may be seriously underestimated. This is taken into account by estimating multi-level (random intercept) regression models (Snijders & Bosker, 1999).

The central issue in this paper is whether the impact of gender is different in male and female-dominated educations, or, equivalently, whether male/female domination has different implications for men and women. We address this issue by estimating regression models in which gender, the gender composition of the programme, and the interaction of gender and gender composition are included. In the analysis of dropout, we also estimate models in which encouragement from friends and peers, timing of the educational decision and the students confidence in the choice are included as explanatory variables.

We also performed analyses controlling for background factors like parents' education and ethnic background. These controls had no impact on the estimated effects of gender or gender composition, and are therefore not included in the analyses presented here.

[2] A reviewer suggested that it would be more appropriate to include only the female-dominated and male-dominated categories in the analyses. We believe it is more informative to analyze the entire sample. If the mid-category were omitted, we would not know, e.g. whether higher dropout in male- than in female-dominated fields were due to either (1) a particularly high dropout in male-dominated fields, (2) a particularly low dropout in female-dominated fields, or (3) both (1) and (2). (Actually, pattern (2) is what we find in the empirical analyses below, see Fig. 3.)

Table 3 Regression analyses of some aspects of the educational choice on gender and the gender composition of the chosen programme

	Encouragement from mother	Encouragement from father	Encouragement from friends	Early decision	Confidence in choice
Constant	3.194***	2.773***	3.145***	−0.235**	3.957***
Gender	−0.669***	−0.533*** [a]	−0.481***	−0.633**	−0.014
Gender composition (omitted: <25% male)					
25–75% male	0.026	0.314*	−0.010	−0.019	−0.038
>75% male	−0.233	0.487	−0.429	−0.371 [b]	−0.293
Interaction gender comp. with gender					
25–75% male * Gender	0.371*	0.177	0.193	0.448	−0.161
>75% male * Gender	0.136	0.032	0.310	1.115**	0.241

[a] Hypothesis of zero coefficients for both dummies rejected at .05 level

[b] Hypothesis of zero coefficients for both interaction terms rejected at .05 level. Otherwise, significance probabilities are denoted as follows: *** for $p<.001$, ** for $p<.01$, and * for $p<.05$

Results

The educational choice process

Table 3 provides regression results on how the process of selection into the various educational programmes differs between men and women in female-dominated, balanced and male-dominated programmes. The coefficients for gender are all significantly negative, indicating that men report less encouragement than women. The relationships between the gender composition of the programme and the encouragement variables are generally weak, however. For encouragement from friends as well as from mother, there are no significant differences between male- and female-dominated programmes. Amount of encouragement from father shows a positive association with the proportion male in the programme, but there is no interaction with gender. This means that the higher degree of encouragement from fathers in male-dominated programmes applies to both men and women. This is shown in

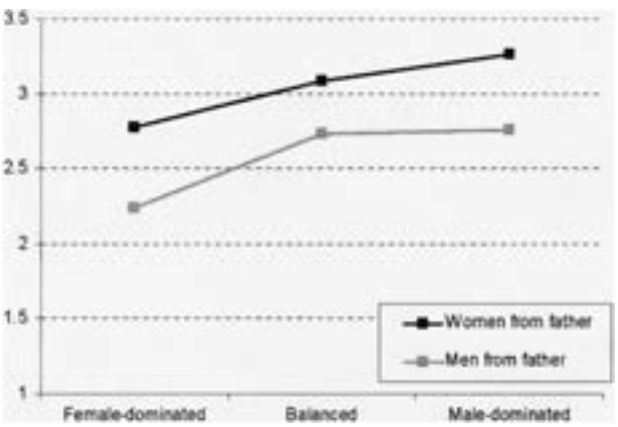

Fig. 1 Sons' and daughters' encouragement from fathers in the choice of female- and male-dominated programmes (means)

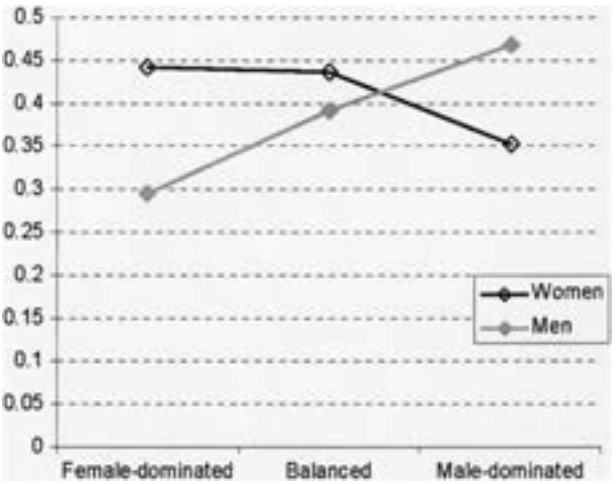

Fig. 2 Estimated probability of having made an early decision by gender and gender composition of the educational programme

Fig. 1, which presents estimated means on the encouragement from father variable as a function of gender and the gender composition of the programme.

Table 3 also contains results with regard to the timing of the educational decision, analysed by means of logistic regression. There is a very strong interaction effect of gender and the gender composition of the programme. This is shown in Fig. 2, which presents estimated probabilities based on the coefficients in Table 3. For men the probability of having made the decision early increases from .30 in female-dominated programmes to .47 in male-dominated ones. For women, there is an opposite pattern, a decline from .44 in female-dominated to .35 in male-dominated programmes. In other words, for both men and women traditional, gender typical choices have been made at an earlier age than non-traditional choices.

Although women report more encouragement from parents and friends, the last analysis in Table 3 shows no significant gender effects. Thus, men and women are equally confident that they have made the right choice of educational programme. Also, there are no differences between male- and female-dominated programmes and no interaction effect between gender composition and gender, suggesting that those who have made untraditional choices are equally confident that their decisions have been right.

Persistence in educational programmes

Analyses of how students' background characteristics relate to the probability of dropping out of the educational programme are presented in Table 4. Model 1 includes only gender, percentage male and the interaction of these variables, giving gross gender differences in dropout in female-dominated, male-dominated and balanced programmes. In model 2 we control for encouragement from parents and friends, whether the student reports that the decision was made early, and the degree of confidence in having made the right decision. Drop-out probabilities based on the estimated coefficients are presented in Fig. 3.

Figure 3 shows that for men the dropout probability is about the same irrespective of the gender composition of the programme. For female students, however, the

Table 4 Logistic regression analyses of student dropout on gender, the gender composition of the chosen programme, and variables related the educational choice

	Model 1	Model 2
Constant	−1.801***	−0.810*
Gender	0.852**	0.828**
Gender composition (omitted: <25% male)	[a]	[a]
25–75% male	0.898***	1.015**
>75% male	1.170**	0.920
Interaction gender comp. with gender	[b]	[b]
25–75% male * Gender	−0.655*	−0.853*
>75% male * Gender	−1.094*	−0.745
Encouragement from mother		−0.145*
Encouragement from father		0.050
Encouragement from friends		0.070
Confidence in choice		−0.228**
Early decision		−0.224
Number of observations	1718	1435

Note: See note to Table 3

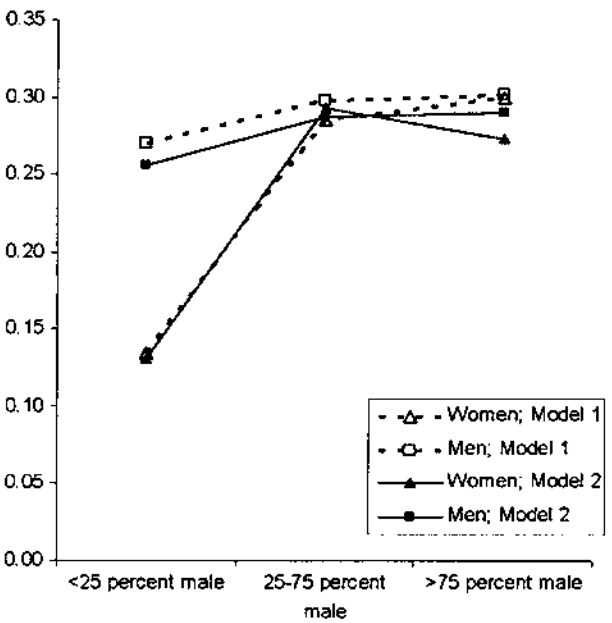

Fig. 3 Estimated probability of dropout by gender and the gender composition of the educational programme

dropout probability is much lower in female-dominated programmes than in balanced or male-dominated ones. In balanced and male-dominated programmes the probability of dropping out is also very similar for men and women, whereas in female-dominated programmes the probability of dropping out is only half as high as among men.

These patterns are virtually unaffected by inclusion of the control variables in Model 2.[3] Thus, the very low dropout probability among women in female-dominated programmes is not due to these women reporting more encouragement or greater confidence in their choices at the time of enrolment.

Discussion and conclusion

The present study confirms the gendered nature of student recruitment as well as dropout in higher education at least to some extent. However, contrary to our expectations, we did not find any relationships between the processes behind these patterns. Our results show that students who made traditional choices more often had an early preference for the study programme they enrolled in. Those who made untraditional choices had made their decision later; they were, however, equally certain that they had made the right choice. Female students reported more often than male students that they had been encouraged by their parents, especially their mothers, to choose the particular programmes they actually ended up in. This is consistent with the research literature (David et al., 2003; Somers et al., 2002). However, unlike what we expected there are no differences with regard to encouragement from mothers between students in gender traditional and non-traditional programmes. Moreover, daughters who end up in male-dominated programmes seem to have received encouragement from fathers to the same extent as sons. This partly contradicts the assumption that choice of study field is highly resistant to egalitarian culture norms (Charles & Bradley, 2002). A possible reason could be that male-dominated programmes (or the occupations that they lead to) tend to be associated with higher status than programmes dominated by women (Chatman & O'Reilly, 2004), and that fathers tend to emphasise the status of occupations when encouraging their sons as well as daughters. This may also be the reason why mothers have not encouraged daughters who have made gender traditional educational choices to a greater extent than those who have chosen male-dominated programmes.

These results do not necessarily indicate that parents do not play an important role in the reproduction of gender stereotypical educational choices. The vast majority of students have in fact made traditional choices, and report having been supported by their parents in this. Nevertheless, it would seem reasonable to expect a strong pressure against non-traditional choices to be evident in lower support for many of those who made such choices, but there are no indications of this in our data. One possible explanation is that the reproduction mechanisms may be more complex and subtle. General gender roles and gendered stimulation of pupils' self confidence in different subjects during primary and secondary school may be more important than direct encouragement (e.g. Correll, 2001). While the literature to a great extent has focused on stereotypical educational choice among women (e.g. Bradley, 2000; Correll, 2001; Ma, 1999), some of the same mechanisms may be at work among men. Parents may act as role models and play an important role in these processes even if they encourage their children to make their own choices and are reluctant to give advice based on their own preferences. This may be one of the

[3] Due to missing data on the attitudinal variables, the number of observations included is lower for Model 2 than for Model 1. The results for Model 1 are, however, almost identical if the analysis is restricted to observations with complete data on all variables in Model 2.

reasons why gender segregation in choice of study field is so resistant to equality norms in society (Charles & Bradley, 2002).

The fact that students who choose gender non-traditional educational programmes receive as much encouragement as those who choose more traditional programmes indicate nevertheless that the norms with regard to the appropriateness for men and women of various educational fields are not very strong—at least with regard to the educational programmes included in this study. Moreover, this suggests that the proportion of men and women in the respective fields should not have significantly different impact on dropout for male and female students. Such a hypothesis is also consistent with our finding that those who made non-traditional choices were no less confident than others that they had made the right choice.

These expectations are, however, not supported; women have a much higher dropout probability in gender relatively balanced and male-dominated programmes than in female-dominated ones. Although a relationship between gender composition and dropout is found, the findings do not provide any strong support for theories assuming that women in traditionally male contexts face special problems or are exposed to special pressures, as suggested by Jacobs' (1989) social control perspective or Kanter's (1977a) theory of tokenism. Women in male-dominated programmes do not differ from women in gender balanced programmes. We may also add that although the gender balanced category is defined as 25–75% men (or women); none of the programmes in this category does in fact have more than 50% men. Thus, it seems fair to say that it is not so much a case of women dropping out of male-dominated programmes as one of women persisting to a particularly high degree in strongly female-dominated programmes.

With regard to Kanter's theory, the findings are also negative in another respect. Kanter expects minority status to be stressful for any group; that is, not only for women, but also for men. However, in the educational programmes examined in this study men's dropout is entirely unrelated to their being in either a minority or a majority situation. We note that Kanter's theory has also received little support in previous studies of student dropout (e.g. Johnes & McNabb, 2004; Rogers & Menaghan, 1991; Sax, 1996).

The present findings indicate that instead of asking why female students drop out of male-dominated programmes one should rather ask why they are so strongly attracted to the female-dominated ones. In terms of Tinto's student integration theory one might suggest that the female-dominated programmes are particularly good at fostering a positive environment for female students. In this connection it is interesting to note that there are some indications that male and female students tend to cite different reasons for withdrawal. Yorke (1999) found that men were more likely to report having made a wrong choice of programme, while women were more likely to have been unhappy with aspects of the social environment. If this is the case, it could explain why men's dropout seem to be unaffected by the gender composition whereas female students display such a high persistence in strongly female-dominated fields.

Studies indicate that the effect of some of the variables predicting student departure varies by time since enrolment (DesJardins, Ahlburg, & McCall, 1999; Ishitani, 2003; Montmarquette, Mahseredjian, & Houle, 2001). The data analysed here do not make it possible to differentiate between dropout at different stages of the college career, however. An interesting question for further research is whether the impact of gender composition on male and female students' probability of

dropping out increases or decreases over time and whether it also continues beyond graduation, leading to differential rates of leaving the occupation or the profession.

Another limitation of the present study is that we are not able to differentiate between those who drop out of higher education altogether and those who merely give up a particular programme. Information on whether students who drop out of gender atypical programmes tend more often than other dropouts to continue in other programmes would shed further light on the segregation mechanisms in higher education. This would also be an interesting topic for further research.

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