



Professional Aspirations: How Do They Influence the Choice of a Non-Traditional Field of Study?

Summary of research paper 10

The number of women on the labour market has doubled since 1950 and women account today for 45 to 48% of the labour force in the United States, Canada, Australia and the United Kingdom. Nevertheless, we need to admit that an equal gender distribution does not hold true in all professions. Indeed, there are fewer women in technical and scientific spheres of and fewer men in spheres linked to children's education and the care of individuals.

How can we explain that though more women than men are enrolled at the undergraduate level (58% in 2004-05 in Canada) and obtain a degree, women are still under-represented in spheres of activity that offer more prestige and better job opportunities? Why is it that, despite incentives to encourage women to choose "non-traditional" programs, they continue to opt for traditionally female fields of study? How should we interpret the fact that men still do not seek jobs pertaining to children's education and the care of individuals?

Research published to date indicates that many factors can influence the choice of a traditional or non-traditional field of study, including social representations, social and cultural origins, motivation, family, peers, previous and current academic experiences, and the individual's gender. At the same time, some studies have examined the influence of professional aspirations on academic and career choices or have analyzed men's and women's realities in this context. With this in mind, we will endeavour to answer the following questions: what are the professional aspirations of men and women who are pursuing a post-secondary education in a non-traditional field of study? How do these aspirations evolve over the years? How do professional aspirations influence the choice of a non-traditional field of study and an individual's persistence in such a program? In order to understand the influence of men and women's professional aspirations within the context of non-traditional fields of study, we elected to define as "non-traditional" programs where the student base has 20% or less women or men.

First, we look at how supporters of sociocultural, developmental and academic approaches have tried to explain this enduring inequality, be it with respect to professional aspirations, choice of or persistence in fields of study, and this, for both men and women. Following this, we will present a brief summary of research on professional aspirations and their influence on men and women choosing non-traditional programs. We will then analyze the influence of professional aspirations on the choice of a non-traditional field of study by using data from the Youth in Transition Survey (YITS). The issue of persistence in a non-traditional field will also be briefly treated. Finally, the results obtained will be discussed in light of earlier research and the implications for future research on the subject.

Theoretical signposts

The issue of gender and academic orientation has been studied from a number of different angles in the past decades. Feminist writings, in particular those adopting an "egalitarian" position, have strongly influenced education policies with respect to equality between boys and girls in school, by revealing the impact of gender-differentiated socialization processes on student's academic future. A

quick look at psychosocial works enabled us to recognize the existence of two models to explain academic orientations: a) Eccles' Expectancy Value Model (1983), which stresses the individual's values and expectations towards certain subjects and his or her chances of success, and b) Eccles' Parent Socialization Model (PSM), which focuses more specifically on the influence of parental socialization on children's education choices. This brief review is not exhaustive; the issue of gender and academic and professional orientation was also studied from other viewpoints, including from a biological perspective. That said, given the controversy around this research and the sociological orientation of this research note, we chose to forgo this theoretical perspective.

Given that this research note specifically concerns the educational pathways of men and women in post-secondary education, we formulated a brief summary of factors that have an influence on academic and professional choices. This enabled us to see that these factors are numerous. Families, peers, close relations certainly have a role to play in students' academic and professional choices, but these choices are also influenced by the students' own professional interests, their expectations and values, and their academic performance as well. These last factors highlight the importance of a professional objective in the academic orientation process. Studies on professional aspirations show that the majority of girls and boys have "traditional" aspirations and that these aspirations are not static, but that they evolve over time. However, we did not find studies that dealt specifically with the influence of aspirations on the choice of non-traditional fields of study for young men and women pursuing a post-secondary education. We will therefore attempt to explore this issue more in depth in the rest of this note.

Methodology

We use data collected in the first four cycles of the Youth in Transition Survey (YITS), a Canadian-wide survey carried out by Statistics Canada since 2000 on behalf of Human Resource and Skills Development Canada (HRSDC).¹ More specifically, we use data from cohort A. This cohort is composed of youth aged 15 on December 31, 1999, and has an initial sample of 38,000 respondents. The second cohort (called B) initially regrouped 29,000 individuals aged between 18 and 20 at the end of December 1999. To achieve our objectives, we worked with the sample of youth in cohort A that were in the survey during the first four cycles and that had undertaken a post-secondary education before the end of cycle 4. This population is estimated at 11,612 subjects in cycle 4.

YITS lends itself well to analyzing the effects of gender differences on the choice of a non-traditional field of post-secondary education and on persistence within that field. We find in this survey specific and recurring questions on professional aspirations and self-assessment of skills in various disciplines, two dimensions found in Eccles' Expectancy Model. In addition to the social anchorage variables (parents' socio-professional status, parents' level of education, family income, respondents' cultural capital), YITS also pertains to career orientation initiatives taken by students aged 15 to 17.

Lastly, in addition to this information, which is linked directly to the uncertainties and complexities of this note, the cohort that was chosen for our analysis is the "reading" sample in the 2000 PISA tests, thus giving us access to standardized reading skills results (tracking information, interpreting text and reading) for these young Canadians.

For the purpose of this note, we will use two dependent variables: 1) the choice a first non-traditional post-secondary program and 2) persistence in the non-traditional program. Professional aspiration is the main independent variable when analyzing the choice of a non-traditional field of study. Consistency of professional aspirations between the age of 17 and 21 is the main independent variable for the analysis of persistence in a non-traditional field of study. To determine this variable, we retained the main aspirations reported at the age of 17 by men and women enrolled in a non-traditional field of study and we verified if these students had held on to these aspirations.

Both descriptive and multivariate analyses were carried out symmetrically for men and women and this, because the definition of non-traditional fields of study relies on a gender-based distribution of the students in each program. It was therefore impossible to do joint, male-female analyses, insofar as the non-traditional field chosen by a woman constitutes a traditional choice for a man and vice versa.

¹ Formerly Human Resources and Social Development Canada.

Results of the analyses

The analysis of the determinants in the choice of a non-traditional field of study must first identify the programs in which we find an under-representation of students of the same sex.

Out of a total of 77 post-secondary fields of study, 10 are non-traditional for women and 11 are non-traditional for men (Table 1), which represents 30% of the sample (15% each). Overall, our results corroborate previous studies. Indeed, the traditionally female fields, where men are under-represented, are disciplines that are related to language (e.g. literature), humanities (law, social sciences), health sciences (health, nursing, social services) and education sciences (family sciences, education). In other words, we find in these disciplines the stereotypes of skills associated with women and their traditional roles: helping others, caring for people, educating children, etc. In fact, it is in the field of family sciences and nutrition that the proportion of men is the lowest compared to that of women: 3% versus 97%.

Not surprisingly, men are over-represented in the fields of natural and applied sciences, such as engineering and physics, as well as in technology (information and computer science)², disciplines that emphasize mathematical and problem-solving skills. However, the field in which the female presence is virtually non-existent and that remains exclusive to males is the construction trades, where 99% of students in our sample are male. Highly practical, requiring physical strength and short post-secondary education,³ the construction trades seem to be a sector in which social representation remains highly stereotyped.

Of all the respondents in cohort A of the YITS having pursued higher education, our results indicate that 2.1% of women and 2.5% of men chose a first post-secondary education (PSE) program in a non-traditional field. What motivates these students to defy the stereotypes associated with certain professions and to choose areas of study in which they find themselves in the minority? Are we seeing the effect of pronounced professional aspirations?

Closely tied to an individual's perception of a profession or occupation, professional aspirations symbolize an objective defined at a specific period in the course of a lifetime. Although it is possible to associate certain professions in traditionally male or female fields by using common sense, from a sociological perspective, such a classification is debatable since it is impossible to determine students' perceptions of the occupations to which they aspire.

To circumvent this problem, we focused on determining the main professional aspirations of girls and boys enrolled in a first post-secondary program of study in a non-traditional field. We established "Top 5 lists" of the more frequent aspirations at the ages of 15, 17 and 21, the three ages at which this information has been collected in the YITS.

In short, the results of our analysis models indicate, for women, that professional aspirations, especially those stated at the age of 17, are the variables that best explain the choice of a non-traditional field as a first program of post-secondary study. These aspirations (mathematics-computer science, engineering, applied sciences) also influence men's choice to pursue traditionally male fields, although to a lesser extent. Compared to women, men who choose to study in a non-traditional field are less influenced by their professional aspirations. In fact, given the explanatory significance of the global model for men, it is possible that this choice is influenced by factors which we could not take into account in our analysis, including the characteristics of the schools attended, standardized results across all disciplines, the influence of family, teachers and peers, as well as extracurricular activities.

Our analysis brings four general findings to the fore:

1. Professional aspirations have an effect on the four standard situations. There is a link between professional aspirations and the choice of a traditional or non-traditional field of study.

² The differences between general or professional fields and "technical" fields arise from differences in the structure of Canadian education systems. In Québec, students must go through the college level (technical or pre-university) before going to university, which is not necessarily the case in the rest of Canada. For more information on the differences in post-secondary education in Québec and Canada, see Doray, Pierre *et al.* (2009), *Educational Pathways and Transition Modes in Canadian Post-secondary Education (Projet Transitions, Note 4)*, Montréal, *Canada Millennium Scholarship Foundation* (Number 45).

³ Note that in Québec, unlike the rest of Canada, training related to construction trades is given at the secondary level and allows student to obtain a vocational diploma.

2. The perception of competence in various disciplines as well as language skills acquired both have an affect on the choice of field of study for men and women, yet are differentiated according to gender or field of study.
3. The province of residence influences, in some cases, the choice of a non-traditional field of study.
4. The social anchorage variables only influence the choice of a traditional field of study.

The next question bears on persistence in a non-traditional field of study. About 2% of women in our sample chose a non-traditional field of study as their first post-secondary program (N = 115). Of this proportion, in December 2005, 64% had continued studying in a non-traditional field or had obtained a diploma in a related discipline. Thus, although few women initially choose to pursue a non-traditional sector, two thirds will maintain their choice once they start their program.

The proportion of men in our sample who chose a non-traditional field as their first program of post-secondary study is slightly higher than that of women: 2.5% (N=109) versus 2%. Of this group, in December 2005, 77% continued studying in a non-traditional program or had continued until graduation. Thus, once they have entered a non-traditional program of study, men are more likely to persevere than women in a similar situation.

Finally, we should note that the majority of women and men persist in their respective non-traditional fields and that the maintenance of professional aspirations is higher among those who continued in the field; however, professional aspirations changed during the study.

Conclusion

A first observation reaffirms the continuing compartmentalization in the choices of fields of study. Thus, despite the existence of many programs and frequent government interventions to encourage women to enter non-traditional professional fields and non-traditional fields of study, women continue to orient their careers toward traditionally female sectors.

Overall, our results confirm the findings of studies documented in our review of the literature. Our analysis indicates that professional aspirations (notably those formulated at age 17) have a strong influence on the choice of a non-traditional field for men, but even more so for women, demonstrating the importance of having an interest in a profession in the choice of a future career.

Similarly, the influence of aspirations persists once we take into account other factors such as social and cultural affiliation, geographic area, academic guidance and approaches to vocational guidance or psychosocial dimensions. Among these variables, it appears that geographic area and self-assessment of skills have the greatest impact on choosing a field of study. Explaining the influence of the province of origin on the choice of a non-traditional field of study requires further exploration of the educational and professional opportunities in these provinces, a task that, unfortunately, could not be accomplished as part of this study. However, regarding the perception of abilities, the findings in the literature show that this factor is a determinant of academic success (Eccles' Expectancy Value Model), which has an impact on the professional aspirations of students, whether female or male.

Self-assessment of skills proved to be a significant variable for women who have chosen a non-traditional field of study, but even more so for men and women oriented toward traditional fields. We may hypothesize that the feeling of competence in a discipline is reinforced when the gender of the individual corresponds with the gender stereotype associated with it (e.g., girls are good in literature, boys in mathematics). It should be noted, however, that the YITS data does not allow us to take into account other factors that may affect the choice of a field of study, such as the influence of family, teachers and peers as well as extracurricular activities.

With regard to persistence in non-traditional fields, we observe a low dropout rate. On the other hand, as suggested in the, it seems that aspirations evolve over time. Indeed, few individuals with non-traditional professional aspirations at the secondary level maintain them over time. Thus, our results indicate that aspirations are formed and transformed over the course of an individual's school experience.

This research note is a first step towards a better understanding of the determining factors in the choice of non-traditional paths for men and women. The continuation of our approach requires further

analysis to understand better the process involved in the development and transformation of professional goals as well as their effect on the choice of a non-traditional field of study and their persistence on that path.

Furthermore, this work limited itself to examining the selection of and persistence in a non-traditional field of study. However, there is not necessarily a correlation between the field of study and the occupation undertaken afterward: an individual who chooses to study in a field does not necessarily end up working in that field. There is a big difference between wanting to work in a non-traditional field and the opportunity to do so. Do we know if women and men enrolled in a non-traditional field of study are able to fulfill their aspirations? A logical extension of this work would be to check whether respondents enrolled in non-traditional fields of study continued on this path once they entered the labour market.

Reference :

Jake MURDOCH, Amélie Groleau, Louise Ménard, Élise Comoe, Céline Blanchard, Simon Larose, Pierre Doray, Bayero Diallo, Nahila Haouili (2010). *Professional Aspirations: How Do They Influence the Choice of a Non-Traditional Field of Study?* (Projet Transitions, Research Paper 10). Montreal, Centre interuniversitaire de recherche sur la science et la technologie (CIRST).

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For more information about this research, contact us : cirst@ugam.ca