

**Predictors of academic performance and education programme satisfaction in
occupational therapy students**

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Abstract

Introduction: Thriving and performing well in entry-level programmes is important to occupational therapy students, but also for the competitive status of the institutions providing their education. The literature is sparse concerning the factors of importance for occupational therapy students' academic performance in, and satisfaction with, their education programme.

Method: This cross-sectional study explored sociodemographic-, relationship-, education-, and work-related variables and their associations with the students' academic performance and satisfaction with the education programme. The data were analysed with multivariate linear regression.

Results: Participants were 123 students (mean age 24 years, 80 % female) enrolled in an undergraduate occupational therapy programme in Norway. Having prior experience of higher education was associated with better academic performance, whereas having occupational therapy as the highest priority line of study at entry, and spending fewer hours on self-studies, were associated with lower satisfaction with the education program.

Conclusion: To improve academic performance, occupational therapy educators are encouraged to help students learn about the tasks, requirements, standards, and culture that constitute higher education. To improve satisfaction, it may be most efficient to target students who initially indicate the most interest in studying occupational therapy.

Keywords: students, occupational therapy, education, achievement, academic performance, student satisfaction

Conflict of interest: The author reports no conflicts of interest.

Key findings:

- Students with prior experience from higher education performed better academically than students without previous higher education experience.
- Students who had occupational therapy as the highest priority choice at entry, and students who spent less time on self-studies, were less satisfied with the education programme than their counterparts.

What the study has added:

The study has expanded the knowledge concerning the factors of importance for occupational therapy students' academic performance and education programme satisfaction.

Introduction

All teachers in higher education institutions (HEIs) want to see their students thrive and succeed. Students' success and satisfaction are important in and of itself, but they are also related to institutional rewards with impacts far beyond the views of individual students. In Norway, a substantial part of HEIs' economy is based on the number of students that flow through the system (St.Meld. 27, 2000-2001). This type of performance-based funding is the case in many other countries as well. As the best-qualified students may have the best chances of succeeding in the education programme, and thus the lowest risk of dropping out, HEIs are involved in a continuous competition with other institutions to attract the highest quality students. A good reputation concerning students' success and satisfaction is vital for the ability to do that (Oslo and Akershus University College of Applied Sciences, 2012). The factors associated with such outcomes, however, may be diverse and may concern background characteristics, present life circumstances, as well as individual motivation for and dedication towards studying.

According to sociological theory educational success is largely determined by the individual's socioeconomic background (Bourdieu, 1986; Giddens, 1993). The theory helps to explain why students with middle-class background are overrepresented in higher education, in comparison to students with working-class background. In practical terms, socioeconomic background has often been operationalized as the parents' level of education and income. This theory of cultural reproduction suggests that those with a more privileged background feel more at home with the norms, values, and expectations they are met with in the education system, and therefore perform better (Giddens, 1993). In contrast, those students who have parents who are less well off, with less education, and less familiarity with middle-class norms will often feel more estranged in the higher education system. Such estrangement has been evidenced in a previous study of occupational therapy students with lower-class

backgrounds (Beagan, 2007), and poorer academic results have been found among lower-class students compared to middle-class students (Watson, 2013). Thus, the theory also contributes to explain students' relative success in higher education with reference to their background in a class-based social hierarchy.

As an alternative to this view, familiarity or estrangement with a particular line of study may be considered not as a function of different socioeconomic levels, but rather as a result of different fields of interest. In line with this view, students whose parents are educated within healthcare may more easily feel content and perform better in occupational therapy education than students whose parents have a background in technical or administrative work. Estrangement may also be a function of gender. Given that occupational therapy is a profession largely taught, practiced, and researched by women (Pollard and Walsh, 2000), a similar line of reasoning, emphasizing estrangement according to gender role models, may also contribute to explain poorer academic outcomes among male students compared to female students, as found in one previous study (Watson, 2013).

In Norway, in recent years, there has been a significant proportion of students who experience mental health problems. A national survey on students' health and thriving (the SHoT survey), including more than 13.000 students, showed that one out of five students reported serious mental health complaints (Nedregård and Olsen, 2014). The risk of experiencing mental health problems in combination with poor coping with the student role was higher among single students than among those who lived with a partner (Nedregård and Olsen, 2014). This indicates that the possibility of social support from a partner is important, as it may function as a buffer against stress and mental health problems. However, the extent to which living with a partner may contribute to promote aspects more specific to education, like education programme satisfaction and academic performance, remains to be explored.

Students' own education-related attitudes and efforts may be related to how well they perform in the study programme, as well as to how good they feel about it. For example, it is reasonable that highly motivated students will invest more time and effort in their studying, and further, that these students – all else being equal – will experience higher satisfaction and better academic results, compared to less motivated students. A recent study found that higher motivation predicted good study strategies, which again predicted academic achievement (Kusurkar et al. 2013). Motivation for studying occupational therapy may be indicated by the students' ranking of occupational therapy education (relative to other education programmes) at the time of entry to university, whereas the time spent on self-study after acceptance to university may indicate the level of effort invested in their study. However, previous research has also indicated better academic performance among students with a previous higher education degree compared to those who have not previously studied at university level (Shanahan, 2004). Thus, education-related factors of importance may concern prior experience as well as present attitudes and behaviors.

Participation in paid work may reduce the total amount of time available for studying, and may therefore detract from the students' ability to perform well in university, which was a finding in Galbraith and Merrill's (2015) study of business and economics students in the USA. On the other hand, mature and engaged students may be well placed to translate work experiences into learning experiences relevant for their line of study. Thus, the association between work participation and academic performance may not be linear and straightforward; rather, the nature of the association may depend on a range of other factors.

To summarize, theoretical and empirical reasons suggest that occupational therapy students' academic performance and education programme satisfaction may be associated with a range of factors, including background characteristics, circumstances external to the study situation, as well as individual motivation for and dedication towards studying. There is

a need for building a research capacity for education research (Gupta and Bilics, 2014), and as recently outlined, future research on occupational therapy education needs to identify which factors are important influencers on outcomes, and examine how much of the variability in outcomes they account for (American Occupational Therapy Association, 2014). Deeper knowledge in this area will support educators in addressing the factors of importance for their students' thriving and success (Burke and Harvison, 2014).

Purpose

The study aimed to explore how sociodemographic factors, relationship factors, educational factors, and employment factors may be associated with academic performance and education programme satisfaction in occupational therapy students. An overview of the proposed range of factors influencing performance and satisfaction is provided in Figure 1.

[Figure 1 about here]

Methods

Ethics

Approval from the Norwegian Data Inspectorate for the Social Sciences was obtained as required (Project number 40314). In addition to the questionnaires, informed written consent was received from all participants. The researcher was one of the faculty members at the university, but was not involved in any of the study modules at the time of the data collection. It was stated explicitly, orally and in writing, that participation in the study was voluntary and that there would be no consequences, positive or negative, from either participation or non-participation.

Study design

In this cross-sectional design study, data related to academic performance, education programme satisfaction, sociodemographic factors, relationships, education, and work were collected by questionnaires.

Sample and data collection

All students (across three year level cohorts) enrolled in an undergraduate occupational therapy program in Norway during January 2015 were given verbal and written information about the study and invited to participate. Out of a total of 245 eligible students, 160 (65.3 %) completed the questionnaires. There were 37 persons with missing responses and these questionnaires were excluded, leaving a total sample of 123 participants for this study.

Measures

Sociodemographic background

Data for age (years) and sex (male = 1, female = 2) were collected. Open-ended questions were asked about mother's and father's occupation ("What is your mother's occupation?" and "What is your father's occupation?"). In line with the job and education descriptions provided by the Norwegian authorities (National education and career portal, 2015), responses to these questions were transformed into two categorical variables: Mother's and/or father's occupation requires higher (university/college) education (1) or not (0), and mother's and/or father's occupation requires healthcare education (1) or not (0).

Relationships

The students were asked whether they lived with a spouse or partner.

Education factors

The students were asked whether occupational therapy was their first priority at the time they entered the occupational therapy programme (1) or not (2). Similarly, previous higher education experience was dichotomized with two categories: having (1) or not having (2)

prior education from university or college. The average number of weekly hours spent on self-studies was registered as a continuous variable. Students were asked to rate their general satisfaction with being a student in the occupational therapy education programme as very poor (1), poor (2), neither good nor poor (3), good (4), or very good (5). Academic performance was registered as the self-rated grade point average based on the completed exams so far in the education programme. With reference to the general grading system in higher education in Norway (The Norwegian Association of Higher Education Institutions, 2011), grades were categorized as excellent (1), very good (2), good (3), satisfactory (4), sufficient (5), and fail (6). At the time of the data collection, the first year students provided a performance rating based on one exam only. The second year students and third year students provided a performance rating based on six and ten exams, respectively.

Work factors

Paid work was registered as the average number of weekly working hours (continuous variable).

Statistical analyses

Initially, descriptive analyses were performed. Differences between men and women in the sample were examined with the Chi-square or the independent *t*-test as appropriate. Pearson's coefficient *r* was used for bivariate correlation analysis. In the subsequent hierarchical linear regression analyses, independent predictors of academic performance and education programme satisfaction were assessed. The models also assessed the amount of variance these factors accounted for by each block of hierarchically included independent variables. The regression models were structured as 1) sociodemographic background (age, sex, parents' education level, parents' type of education), 2) relationship factors (living with spouse or partner), 3) education factors (education priority, previous higher education experience, average weekly hours of self-studies), and 4) work factors (average weekly hours

of paid work). The level of statistical significance was set at $p < 0.05$ and all tests were two-tailed. Effect sizes were calculated as standardized β coefficient and as Cohen's d . Standardized $\beta > 0.30$ and Cohen's $d > 0.50$ were considered medium sized effects, and therefore important (Cohen, 1992). Data were analysed using IBM SPSS Statistics for Windows, Version 22.0 (IBM Corp., 2013).

Results

Sample characteristics

The sample is described in Table 1. Participants were 25 (20.3 %) men and 98 (79.7 %) women, and the mean age was 23.8 years. The male students spent more time in paid work, on average ($M = 10.9$, $SD = 8.2$), compared to female students ($M = 7.2$, $SD = 6.9$, $d = 0.49$, $p = 0.02$). Otherwise, no statistically significant differences between men and women were detected.

[TABLE 1 ABOUT HERE]

Bivariate associations with academic performance and programme satisfaction

The bivariate relationships between academic performance, education programme satisfaction, and each of the other included variables are shown in Table 2. Older participants, participants who lived with a spouse/partner, and participants who had previous experience in higher education reported better study performance than participants who were younger, single, and lacked higher education experience prior to entry to occupational therapy education. Satisfaction, on the other hand, was higher among students who did not have occupational therapy as their highest priority education choice and among those who spent more time on self-studies, compared to their counterparts. The association between higher

satisfaction with the study programme and not having occupational therapy as first priority remained even when controlling for study cohort ($r = 0.19, p = 0.04$), essentially meaning that this association was the same across all three cohorts of students.

[TABLE 2 ABOUT HERE]

Multivariate associations with academic performance and programme satisfaction

The results from the hierarchical regression analyses are shown in Table 3. Controlling for the effects from all other variables, having previous experience in higher education was directly associated with better academic performance. The full regression model, assessing the total outcome variance explained by the independent variables, accounted for 15.1 % of the variance in academic performance, as reported by the students.

Similarly, controlling for the effect from all variables, having occupational therapy as the highest priority education choice at the time of entry, and spending less time on self-studies, were directly associated with lower satisfaction with the education programme. The full regression model, assessing the total outcome variance explained by the independent variables, accounted for 14.1 % of the variance in education programme satisfaction.

[TABLE 3 ABOUT HERE]

Discussion

In spite of including a range of variables suggested from previous research (Graunke and Woosley, 2005), only a moderate amount of variance in the outcome measures was explained by the included independent variables. Of the included variables, those related to

education were most important for explaining academic performance and satisfaction with the education programme.

Predictors of academic performance and education programme satisfaction

The results from the multivariate analysis showed that the education-related variables were of most importance. Three variables (age, living with spouse or partner, and prior higher education) showed bivariate (uncontrolled) relationships with academic performance, whereas the effects from age and living with spouse or partner were cancelled out in the multivariate analysis. This may indicate that these three factors are clustered together: older students formed stable relationships more often than younger students, and older students have more often been engaged in other types of higher education prior to entering the occupational therapy programme. However, when controlling for all other variables together, only prior higher education experience had a direct impact on performance. Although the impact of prior education level and prior study performance on subsequent performance is disputed in the literature (Bathje et al., 2014; Howard and Jerosch-Herold, 2000), our finding replicates Shanahan's (2004) earlier results, who also found that the effect from previous higher education cancelled out the initial effect from higher age on academic performance. With a view to educational success, this result speaks to the importance not only of motivation, but also of previous education experience. While it may not be possible to specifically target experienced students in recruitment strategies, the education programme may want to ensure that these students stay with the programme and stay motivated over time. As indicated from an Australian study of occupational therapists recently graduated at the master's degree level (Seah, Mackenzie and Gamble 2011), it may be that experienced and mature students place more value on theoretical challenge and personal growth, compared to younger and more inexperienced students. Having a preference towards challenge and growth would logically be related to success in higher education.

None of the sociodemographic variables showed any influence on the chosen outcomes. Nonetheless, for the sake of knowing our students better, it is interesting to see that more than one out of three students have one or both parents with a healthcare background. Moreover, almost two out of three students have parents with higher education. As these variables showed no association with the outcomes, the theory of cultural reproduction from one generation to the next (Bourdieu, 1986; Giddens, 1993) is not supported from our data. Similarly, and in contrast to previous research (Galbraith and Merrill, 2015), the average hours of paid work showed no relationship with academic performance or satisfaction. Thus, occupational therapy educators may have little reason to worry about students who engage in part-time work during the study programme, as work neither seems to add to, nor detract from, the students' performance and satisfaction. Rather, the students' own experience with higher education was shown to have an influence on their subsequent academic performance. This indicates that knowledge about the norms, values, and expectations intrinsic to the higher education system is important for succeeding in it, but also that such knowledge is not necessarily inherited from the previous generation.

Students who spent more hours on self-studies were more satisfied with their current education program than those who spent fewer hours on self-studies. However, the co-occurrence of these variables makes it hard to conclude about the direction of the relationship, and a cyclical pattern seems viable: in line with Bandura (1997), placing efforts into independent self-studies may give rise to a sense of mastery (self-efficacy) of study-related tasks and materials, which in turn may be translated into an increased satisfaction with the education programme itself. Higher satisfaction with the education programme may also increase the student's motivation and study efforts, for example by an increased amount of time spent on self-studies.

The most surprising result from this study was that the students who *did not* have occupational therapy as their first choice at entry were more satisfied with the education programme than the students who *did* have occupational therapy as their preferred line of study. As learning how to be a student in higher education is a demanding process in itself (Christie et al., 2008), we initially hypothesized that those who originally wanted to pursue occupational therapy as their line of study would be more prone to experience satisfaction with the education programme, compared to their counterparts. This, however, does not seem to be the case. It may be that students experience the education programme differently over time – research has shown that students do change needs, cognitions, and attitudes over the course of their education (Zaitseva et al., 2013; Mitchell, 2015). It is possible that adaptation to study content, learning methods, and the university environment can lead to higher study satisfaction among students who initially preferred other studies to occupational therapy. Conversely, students who were initially eager to study occupational therapy may, for a range of reasons, become disappointed. For example, this may concern the degree to which the education programme is perceived to be more theoretical than practical. Given the increased emphasis on theory in higher education (Molander and Terum 2008), including occupational therapy and other health-related education programmes, students who were motivated for practical training may have become disappointed with the programme for not meeting such expectations. Moreover, much of the teaching in the occupational therapy education programme is delivered in large classes, and this format may not allow for much individual guidance, supervision and feedback from teachers. This aspect of the programme may not be in line with the expectations of students who were eager to study occupational therapy in the first place.

To the university, there are strong economic incentives related to having as many students as possible complete the education programme (St.Meld. 27, 2000-2001). Therefore,

occupational therapy students – and occupational therapy education programmes alike – may benefit if less satisfied students are identified and assisted in finding means to improve their situation. This study suggests that lower levels of satisfaction may be found more often among students who initially were eager to study occupational therapy, compared to students who initially planned for other studies.

Study limitations and directions for future studies

The cross-sectional design of the study is a limitation, and thus, causal or directional relationships between variables (e.g., education programme satisfaction and amount of time spent on self-studies) should not be assumed. All data were collected as self-report, and it is possible that the students have over- or underestimated their academic performance or time spent on self-study. However, the fact that academic results can be checked for correctness at least suggests that conscious over- or underestimation was not a major problem. In addition, the mean weekly hours of self-study reported for this sample was similar to the extent of self-study reported previously (mean 9.7 hours) in a large anonymous survey (NOKUT [The Norwegian Agency for Quality in Education], 2014). The study utilised a relatively small sample size, allowing for only a moderate number of independent variables to be included in the regression models. Given the relatively small proportion of the outcome variance explained by the models, future studies may employ other independent variables that may contribute more to explaining academic performance and education programme satisfaction. This may include curriculum, teaching methods, and practice placement experience, as none of these factors were assessed in the present study. Future studies may explore in more depth the processes by which new students can be more effectively socialized to the tasks, requirements, and culture of higher education. Given the lower satisfaction among the students who were initially more eager to study occupational therapy, future studies may also

examine more closely the interplay between students' expectations, the public face of the profession, and the students' experienced curriculum.

Conclusion

Students who had previously completed higher education studies and those who engaged in more independent study were more likely to perform better and be more satisfied with their studies. It appears that knowing the norms and standards of higher education is important for a good academic performance in the occupational therapy program. For students who are new to the higher education system, occupational therapy educators may be able to exert a positive influence by ensuring that these students are provided with education about the tasks, requirements, standards, and culture that constitutes higher education. Particular attention should be paid to students who are less satisfied with the education programme. Less satisfied students may more often be found among the originally eager ones, who had occupational therapy as their first choice of education, than among students who originally preferred other lines of education. Reasons for dissatisfaction may include that students may have expected a practical, skills-oriented line of study, whereas they may have experienced a more theoretically-oriented one. In addition, attention should be paid to students who invest little effort into self-studies, as these students are also at risk of experiencing less satisfaction.

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Table 1

Characteristics of the study participants (N = 123)

| Variables | Men (n = 25, 20.3 %) | Women (n = 98, 79.7 %) | ES | p |
|--|-------------------------|---------------------------|-------|------|
| <i>Sociodemographic factors</i> | Mean (SD) | Mean (SD) | | |
| Age | 23.5 (2.4) | 23.9 (4.8) | -0.11 | 0.59 |
| | n (%) | n (%) | | |
| One or both parents has higher education | 14 (56.0) | 68 (69.4) | | 0.21 |
| One or both parents has health education | 7 (28.0) | 37 (37.8) | | 0.36 |
| <i>Relationship factors</i> | n (%) | n (%) | | |
| Living with spouse or partner | 12 (38.7) | 50 (42.7) | | 0.69 |
| <i>Education factors</i> | n (%) | n (%) | | |
| Occupational therapy as first choice | 14 (56.0) | 59 (60.2) | | 0.70 |
| Previous higher education experience | 10 (40.0) | 41 (41.8) | | 0.87 |
| | Mean (SD) | Mean (SD) | | |
| Weekly hours of self-study | 8.2 (4.8) | 9.9 (5.7) | -0.32 | 0.17 |
| Satisfaction with education program | 3.9 (0.6) | 4.1 (0.7) | -0.31 | 0.22 |
| Academic performance | 3.0 (0.9) | 2.7 (0.8) | 0.35 | 0.20 |
| <i>Work factors</i> | Mean (SD) | Mean (SD) | | |
| Weekly hours of paid work | 10.9 (8.2) | 7.2 (6.9) | 0.49 | 0.02 |

Note. Differences between men and women in the sample were examined with the independent *t*-test and the Chi-Square test as appropriate. Effect sizes (*ES*) are provided as Cohen's *d*.

Table 2

Bivariate associations with academic performance and education programme satisfaction (N = 123)

| Variables | Academic performance | | Education programme satisfaction | |
|---|----------------------|----------|----------------------------------|----------|
| | <i>r</i> | <i>p</i> | <i>r</i> | <i>P</i> |
| Age | -0.22 | 0.02 | 0.05 | 0.58 |
| Sex | -0.12 | 0.20 | 0.11 | 0.22 |
| One or both parents with higher education | -0.04 | 0.70 | -0.11 | 0.25 |
| One or both parents with health education | 0.06 | 0.50 | 0.00 | 0.98 |
| Living with spouse or partner | -0.24 | < 0.01 | -0.06 | 0.54 |
| Occupational therapy as first choice | 0.11 | 0.23 | 0.20 | 0.03 |
| Previous higher education experience | 0.27 | < 0.01 | -0.09 | 0.30 |
| Weekly hours of self-study | -0.03 | 0.79 | 0.22 | 0.02 |
| Weekly hours of paid work | -0.02 | 0.82 | -0.05 | 0.61 |

Note. Table content is Pearson's correlation coefficient *r*, and corresponding probability values *p*. Male = 1, female = 2. One or both parent has higher education/health education = 1, neither has higher education/health education = 0. Living with spouse/partner = 1, not living with spouse/partner = 0. Occupational therapy as first choice = 1, not first choice = 2. Previous higher education experience = 1, not previous experience = 2. Higher satisfaction score is more satisfied, whereas higher academic performance score is worse performance.

Table 3

Multivariate hierarchical regression analysis with academic performance and education programme satisfaction as dependent variables (N = 123)

| Variables | Academic performance | | Education programme satisfaction | |
|---|----------------------|------|----------------------------------|--------|
| | β | p | β | p |
| <i>Sociodemographic</i> | | | | |
| Age | -0.12 | 0.19 | 0.08 | 0.42 |
| Sex | -0.12 | 0.20 | 0.07 | 0.43 |
| One or both parents with higher education | -0.03 | 0.70 | -0.10 | 0.29 |
| One or both parents with health education | 0.02 | 0.83 | -0.03 | 0.74 |
| Explained variance | 6.3 % | 0.10 | 2.5 % | 0.57 |
| <i>Relationships</i> | | | | |
| Living with partner | -0.17 | 0.08 | -0.16 | 0.09 |
| R² change | 3.0 % | 0.05 | 0.6 % | 0.41 |
| Explained variance | 9.4 % | 0.04 | 3.0 % | 0.60 |
| <i>Education factors</i> | | | | |
| OT as first choice | 0.11 | 0.22 | 0.24 | < 0.01 |
| Prior higher education | 0.21 | 0.02 | -0.13 | 0.15 |
| Hours of self- study | 0.02 | 0.84 | 0.23 | 0.01 |
| R² change | 5.5 % | 0.07 | 11.1 % | < 0.01 |
| Explained variance | 14.9 % | 0.02 | 14.1 % | 0.02 |
| <i>Work factors</i> | | | | |
| Hours of paid work | -0.04 | 0.65 | -0.01 | 0.89 |
| R² change | 0.2 % | 0.65 | 0.0 % | 0.89 |
| Explained variance | 15.1 % | 0.03 | 14.1 % | 0.04 |

Note. Table content is standardized β coefficients and corresponding probability values p , showing associations with the dependent variables controlling for all other variables in the model. Male = 1, female = 2. One or both parent has higher education/health education = 1, neither has higher education/health education = 0. Living with partner = 1, not living with partner = 0. Occupational therapy as first choice = 1, not first choice = 2. Prior higher

education = 1, no prior higher education = 2. Higher satisfaction score is more satisfied, whereas higher academic performance score is worse performance.

Figure 1. Proposed factors associated with academic performance and education programme satisfaction

