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First year experiences and academic success in higher education

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Abstract

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Using data from the 2018 Norwegian student survey, we analyse the relationship between students' early experiences in higher education and their academic achievement, level of involvement in their studies and their overall satisfaction with their study programme. We use multivariate regression models controlling for relevant background variables including grades from upper secondary education, age and gender. We find that students who feel that the contents of the study programme corresponded well with their expectations receive higher grades and report a higher level of involvement in, and satisfaction with, their study programme. We also find that students who experienced high levels of academic and social integration, report higher levels of involvement and satisfaction with their study programme.

Presentation

First year experiences and academic success in higher education

Introduction

There has been a substantial growth in the number of students in higher education in many European countries in the last decades (OECD 2018 and EAU 2017). This expansion of the higher education sector implies both expanding costs and increasing heterogeneity among students. These factors (among others) makes it important for HEIs to secure students' academic success. Previous research also indicates that dropout rates are high in the first year of study. A positive experience of the transition to higher education is related to higher academic performance (Wintre et. al. 2011).

We use data from the Norwegian student survey ('Studiebarometeret') to explore these matters. In 2018 the survey included questions on the transition between upper secondary and higher education. The students were asked about their experience with the transition, as well as their early experiences in higher education. We also use data on academic performance (grades in higher education) and background data on the students (e.g. grades from upper secondary education) to explore the relationship between the students' early experiences in higher education and their success in higher education.

The paper starts with an elaboration of the background of the paper's topics. We describe how student success (e.g. dropout), is high on the agenda in many countries, and that diversity in the student population may influence on student success. We also describe the importance of the transition to higher education and the students' perception of integration in their first year of study. We then describe the research questions and the methodology in further details. The results are briefly presented, followed by a discussion. The aim of this paper is to identify factors that are related to higher academic performance and motivation for studying.

Background

The expansion of the higher education sector, described above, implies expanding costs, which in many European countries means a growth in public funding (EAU 2017). In many countries, the government has linked student performance to the funding of the HEIs. A relatively new report (Elken, Frølich and Reymert 2016) describes the governance of higher education in Norway, Sweden, Finland, the Netherlands and England. The report demonstrates that public funding is linked to performance indicators in various degree in these countries. Data from EURYDICE supports the findings in that report: In all but one (Sweden) of the countries at least one of these indicators are being used: retention, Bachelor's and Master's degrees produced, and the production of study credits. There is focus on the issue also on top European level: Reducing dropout and increasing completion rates in higher education are highlighted in the EU's 'Europe 2020 strategy', and study success is considered as an important issue in most European countries.

An EU report (Vossensteyn et. al. 2015), shows that study success is an important issue in most European countries, and that student success is defined as completion, time-to-degree and retention or dropout. Regarding the last definition, some countries focus on retention and (or dropout) during the first year in higher education.

An implication of increasing participation rates is an increasing heterogeneity among students in higher education; the larger portion of an age cohort who enters higher education, the more variation can be expected to occur among the students / in the student mass. Individual factors like socio-economic (family) background, ethnic origin, gender, previous grades and motivation may influence study success, according to a report by Vossensteyn et. al. (2015). The report mentions

several studies which claims that these factors influence dropout and completion. These findings are in line with other studies. Hovdhaugen and Aamodt (2005) highlights individual factors like parents' educational level, previous grades, gender, age and the students' motivation as important for dropout.

Another literature review Hovdhaugen (2019), finds that social integration in academia may have impact on dropout, and students' first year experiences may be of particular concern. The author lists many Norwegian studies, which show that students who leave their university early has experienced less social integration than other students.

Vossensteyn et al (2015) claims that both academic and social integration of students are possible factors (among others) that may reduce dropout. Wintre et. al. (2011) states that a positive experience of the transition to higher education is related to higher academic performance. It is therefore relevant to analyze whether students' perceptions of the integration in the first year of study is linked to academic success.

Research questions

Concerns about student success and the importance of a smooth transition into higher education makes it relevant to ask students about their first year experience and explore potential benefits of a positive first-year experience. In this paper we explore five questions from the 2018 student survey in Norway about early experiences in the study programme, and we seek to answer the following research questions:

- Will early experiences correlate with academic success, measured by the grades achieved in higher education?
- Will early experiences correlate with involvement/motivation?
- Will early experiences correlate with overall satisfaction with the study programme?

The research questions will be analyzed using multivariate regression models, with one model for each of the research questions / dependent variables. Based on the literature we have outlined around the issue of heterogeneity and social background, we include control variables for previous academic performance, age and gender, in addition to institution and field of study. The aim of the paper is to explore whether there is a link between positive experiences early on in the study programme and students' achievement, involvement and satisfaction with their study programme. If such a link exists, this could be an area where HEIs can apply measures to ensure a smooth transition to higher education for new students.

Data and methodology

We use data from Studiebarometeret (the Norwegian student survey). Studiebarometeret is a cross-sectional survey that is conducted annually by the Norwegian Agency for Quality Assurance in Education (NOKUT). The survey measures students' perception of various aspects of educational quality. In 2018 the survey included questions about early experiences from the time just after the respondents started their current study programme. All second-year bachelor and master students at all the higher education institutions (HEIs) in Norway are invited to participate. The 2018 survey contains 31 256 respondents (48 percent response rate) representing approximately 1800 study programmes. The data also contain some background information about the respondents, including age, gender, grade point average (GPA), institution and study programme.

We use data from the questions on early experiences from the time just after the respondents started their current study programme. Only bachelor students are included in our analyses, because we want the data to reflect respondents who are relatively new to higher education. In this way, questions about early experiences in the study programme will also mean early experiences in higher

education for most of the respondents. The final sample in the regression analysis consists of 7424 respondents. In addition to excluding master students, the sample size is reduced by listwise deletion of missing data. The largest reduction in sample size from listwise deletion is due to missing data on background variables like GPA from upper secondary education and GPA in the current study programme.

Three dependent variables are used to measure different positive outcomes. The first dependent variable is grade point average (GPA) for the respondents current study programme. GPA ranges from 0 (grade F) to 5 (grade A) and is based on grades achieved during the respondents first year (two semesters) of study, which consists of 60 ECTS for the majority of our sample. The second dependent variable is a Likert scale ranging from 1 to 5 based on four questions that measure the respondents' involvement in, and motivation for, their studies. The respondents were asked to what extent they agree with the following statements, ranging from 1 (do not agree) to 5 (completely agree): 'I am motivated for working on my studies', 'I participate in the organized learning activities that are offered', 'I show up well prepared for organized learning' and 'I consider myself a hard-working student'. This scale has a Cronbach's Alpha of 0,8 and factor analysis indicates that the four questions all measure the same factor (unidimensionality). The third dependent variable is a measure of the respondents' overall satisfaction with their study programme. The respondents were asked to what extent they agree with the following statement, ranging from 1 (do not agree) to 5 (completely agree): 'I am, overall, satisfied with my current study programme'. Because this is an ordinal variable and because very few respondents answered 1 or 2, we have recoded this variable into a dichotomous variable where the value 0 represents those who answered 1-3 and the value 1 represents those who answered 4 or 5. This dependent variable is analysed using a logistic regression model while the first two dependent variables (GPA and involvement) are analysed using OLS regression.

The regression models consists of five independent variables from the 'start of studies' part of the questionnaire, where the respondents are asked to consider the time period just after they started their current study programme when answering the questions. Respondents were asked to what extent they agree with the following statements, ranging from 1 (do not agree) to 5 (completely agree): 'The content of the study programme corresponded well with the expectations I had before the start of my studies', 'the academic staff clearly communicated what they expected of me academically early on in the study programme', 'I was academically integrated with my fellow students early on in the study programme', 'I was socially integrated with my fellow students early on in the study programme' and 'I was academically integrated with the academic staff early on in the study programme'. These five independent variables have been recoded from the 1-5 scale into dichotomous variables where those who answered 1, 2 or 3 have been given the value 0 and those who answered 4 or 5 (in other words, those who agree somewhat or completely with the statement) have been given the value 1.

We use five control variables in all the regression models. These control variables are gender, age, GPA from upper secondary school, field of education and HEI. Because one of the dependent variables are GPA in the respondents' current study programme, it is especially important to control for previous academic performance. We also tested a model which included the education level of the students' parents, but decided to not include this variable in the final models. Parents education level was not statistically significant because it is highly correlated with grades from upper secondary education, which is already included in the models. Field of education consists of 33 categories, such as 'chemistry', 'psychology', 'engineering', 'political science', etc. HEI consists of 24 categories (institutions). Because field of education and HEI represent a total of 57 categories, the results for these two control variables are not shown in the regression table, but they are included as dummy variables in the analysis.

Results

Table 1 contains the results of our regression analyses. There are three separate models, one for each of the dependent variables. The independent variables and control variables are the same for all three models. The first two models use linear regression (ordinary least squares) while the third model use logistic regression with the results displayed as odds ratio. Two of the control variables, field of education and HEI, are categorical variables with a high number of categories. They are included in the analysis as dummy variables but the results are not shown, and will not be included when discussing the results of the models.

Table 1: Regression models (OLS and logistic) for each of the three dependent variables.

	GPA study programme (0-5) OLS	Involvement (scale, 1-5) OLS	Satisfied with programme (0/1) Logistic (OR)
Constant	-0,581**	1,967	
<i>Independent variables (all 0/1)</i>			
Corresponded well with expectations	0,125**	0,315**	5,222**
Clearly communicated expectations	0,000	0,138**	1,995**
Academic integration with fellow students	0,048	0,168**	1,225*
Social integration with fellow students	0,093**	0,114**	1,514**
Academic integration with academic staff	-0,003	0,189**	1,755**
<i>Control variables</i>			
Female (male=0)	0,018	0,13**	0,971
Age	0,019**	0,021**	0,99
GPA upper secondary (20-60)	0,066**	0,012**	1,005
Field of education (not shown)			
Higher education institution (not shown)			
Adj. r2 (pseudo r2 for logistic)	0,21	0,19	0,23
n	7424	7424	7424

*p<0,05 **p<0,01.

In the first model, we look at the relationship between the five independent variables and the respondents' GPA in their current study programme. We find a statistically significant and positive relationship between experiencing that the contents of the study programme corresponded well with expectations and GPA. The model predicts an average increase in the GPA of 0,125 for respondents who, at the start of their studies, felt that the program corresponded well with their expectations. We also find a statistically significant and positive relationship between experiencing social integration with fellow students early on in the study programme and GPA, with a coefficient of 0,093. Age and GPA from upper secondary education are also statistically significant and, not surprisingly, grades from upper secondary education seems to be a rather strong predictor of GPA in higher education. The model predicts, for example, that a student with a GPA of 55 from upper secondary education will have a 1,3 higher GPA in higher education than a student with a GPA of 35 from upper secondary education.

In the second model we use the same independent variables and look at their relationship with the involvement scale, which measures the respondents' involvement in, and motivation for, their studies. We find a statistically significant and positive relationship between all the independent variables and the involvement scale. In other words, respondents who feel that the contents of their study programme corresponded well with expectations, who experienced that the academic staff

clearly communicated their expectations of the students early on in their studies, and who early on experienced high levels of academic integration with both staff and other students, and social integration with other students, will on average report higher levels of involvement in their studies. Of these five independent variables, experiencing that the contents of the study programme corresponded well with expectations shows the strongest relationship with the involvement scale. The model predicts an increase of 0,315 on the involvement scale for respondents who agreed with this statement.

The third model uses a dichotomous dependent variable in a logistic regression model (results are displayed as odds ratio). The dependent variable is a measure of the respondents' overall satisfaction with their study programme. We find very similar results to the second analysis, with all five independent variables showing a statistically significant and positive relationship with overall satisfaction with the study programme. Among the independent variables we find that experiencing that the contents of the study programme corresponded well with expectations shows the strongest relationship with the dependent variable. The odds of being satisfied with the study programme is 5,2 higher for respondents who felt that the contents of their study programme corresponded well with their expectations.

Discussion

Reducing dropout rates in higher education is an important issue in many countries. Previous research have shown that factors like socio-economic background and previous academic performance might influence a student's success in higher education. With the expansion of higher education in many countries, HEIs have a responsibility to ensure that as many students as possible are successful in higher education.

In this paper we have identified several factors that are linked to students' involvement/motivation and their overall satisfaction with their study programme, such as experiencing that the contents of the study programme corresponds well with expectations, that the academic staff clearly communicates expectations early on in the study programme, a high level of academic and social integration between the students, and a high level of academic integration between the students and academic staff.

The strongest result in our analysis, as measured by the strength of the coefficient, is the importance of students experiencing that the contents of their study programme corresponds well with their expectations beforehand. We find that this is linked to both higher academic performance (higher GPA), higher levels of involvement in their studies and a higher level of satisfaction with their study programme.

Previous research (Vossensteyn et. al. 2015) finds that academic and social integration are important factors for reducing dropout, and that motivation and a positive experience of the transition to higher education, as well as a positive first-year experience, are important for student success. Our findings suggests that, in addition to these factors, matching expectations is an important factor for student success. If students feel that the study programme corresponds well with their expectations during their first year of studies, this might influence their motivation and success in higher education. It is therefore important that HEIs make sure prospective students are well aware of the contents of different study programme, so that they may make well informed choices when applying to higher education. The same report by Vossensteyn et. al. (2015) shows that some institutions have launched initiatives to familiarize students with their programme of choice before they are admitted to the institution and others have established special welcome programmes for students to facilitate social integration and student engagement.

The results indicate that the answers to the research questions presented earlier is 'yes', although

we find a stronger link between early experiences and involvement/motivation and satisfaction with the study programme, than between early experiences and academic success as measured by grades. All the independent variables, measuring different aspects of experiences early on the study programme, show a statistically significant relationship with involvement/motivation and satisfaction with the study programme. Only two of the independent variables show a statistically significant relationship with academic performance.

The data we have analyzed in this paper is cross-sectional. In other words, the data is gathered at a single point in time (during the students' third semester, second year). The questionnaire asked the respondents to think back to their early experiences in higher education when answering questions on this topic. This is a potential weakness of the data and, while we have controlled for several important background variables, we are not able to make any inference about causation. We would however argue that the results certainly indicate that a causal link might exist. Future studies should investigate the importance of matching expectations with data suited for analyzing causal factors.

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