

SUMMARY

The significance of study start for dropout rates in higher education

Around 30% of students who embark on higher education drop out without finishing, and the majority of those who drop out do so as early as during their first year. The high dropout rates are costly for both students, educational institutions and society in general. Large gaps in our knowledge of what causes students to drop out mean that the conditions for reducing dropout rates are not good. The most reliable knowledge available is based on register data, which tells us only little about the factors that are likely to have the greatest significance for dropout rates. For example, only few studies have examined the significance of social and academic integration, and what promotes these factors.

According to previous research, study start in higher education is one of the most important factors for retention. Students' initial experiences seem very often to be important in determining whether they achieve a good start to their studies.¹ However, we lack specific knowledge about which aspects of study start influence the probability of dropout, and to what extent.

On the basis of survey data and register data from all higher education programmes in Denmark, this memorandum presents new general knowledge about the significance of study start on the short-term probability of students dropping out, i.e. within the first semester.

The survey is based on data from a longitudinal study carried out by the Danish Evaluation Institute (EVA) of all students who were admitted to a higher education programme in the summer of 2016. The longitudinal study includes surveys of newly admitted students carried out in August and October 2016, and in March 2017, respectively.

This study is particularly focused on the survey of October 2016, which includes responses from 14,660 students across different types of education institutions and covers a number of questions concerning their study start. Various register data on dropout and background variables have been coupled to this data.

¹ For example, see Harvey, Drew and Smith (2006). "The first-year experience: a review of literature for the Higher Education Academy", The Higher Education Academy.

Analyses at aggregate and individual student levels

The significance of the different aspects of study start was examined at two levels: an aggregate level for education programmes, and the individual student level.

The analyses at *aggregate level* use average values for each education programme to measure the quality of different aspects of study start programmes. This is based on the assumption that the average assessment, e.g. of 'the social aspect', by students is the best available indicator of the quality of the social aspect in the individual education programme. On this basis, the significance for dropout rates of differences in study start programmes across education programmes was analysed.

Conversely, the analyses at *individual student level* concern the significance of differences across students in the same education programme. For example, on this basis they examine the significance of satisfaction with the social aspect for students in the same programme.

Results at aggregate (educational programme) level

Long induction programmes contribute to reducing dropout

There is evidence that the duration of induction programmes affects the probability of dropout. Longer induction programmes generally contribute to reducing dropout at universities and university colleges.

When the duration of induction programmes is increased by one day, the probability of dropout is reduced by an average of -0.2 percentage points at universities and by around -0.3 percentage points at university colleges. Given that the total dropout rate for university students in the period up to 1 February was 6%, these are substantial effects. Furthermore, at universities and university colleges there is a so-called ceiling effect. When the duration of the study start programme has reached approximately ten days at universities and five days at university colleges, an extension of the programme does not contribute to reducing dropout. Thus, the need for long induction programmes is particularly pronounced at the universities.

A strong social aspect during study start is linked to a lower dropout rate

For universities and university colleges where there is a strong social aspect during study start, there are also lower dropout rates. This applies even when taking into account the duration of study start programmes and other aspects of study start, which suggests that the social aspect has an important and independent effect on dropout rates.

The social aspect during study start was measured using an index, for example involving questions about whether there had been a good basis for students to get to know their fellow students and about whether social activities in the study start programme had helped bring students closer together. An increase in the quality of the social aspect by 1 index point (corresponding to the difference between "strongly agree" and "somewhat agree") corresponds to an average change of -1.9 and -1.8 percentage points in the probability of dropout at universities and university colleges, respectively.

Other factors with no significance for short-term dropout

The study also examines a large number of other aspects for which, at aggregate level, there is no evidence of correlation with the probability of dropout. This applies to academic and practical framework setting, introduction to study techniques, establishment of study groups, and alcohol consumption. There is no documentable effect of these factors on the short-term probability of dropout. However, this does not mean that these aspects cannot have significance for students' well-being and for their academic and social integration. Although there is no evidence of a correlation with short-term dropout rates, the above factors could still help create a better study start for students in relation to other parameters.

At business academies, negative study start experiences are linked to high dropout rates

The factors which influence the probability of dropout from universities and university colleges cannot be demonstrated as factors of significance for dropout rates at business academies. Business academies generally demonstrate different results in the analyses.² For example, there is no evidence of effects from differences in the durations of study start programmes at individual education programme level, nor is there any evidence of effects from differences in the social aspect during study start.

The level of negative study start experiences is the only factor that consistently has significance for dropout rates at business academies. Results could be affected by the fact that business academies generally have shorter study start programmes than the other two institution types, and that aspects of study start and study start programmes cannot be discerned due to the scope of activities being too limited. However, it is also possible that differences are due to entirely different factors than those examined in this analysis.

Results at individual (student) level

In addition to being affected by the duration of the study start programme and the quality of the social aspect, the probability of dropout is also sensitive to how individual students experience their study start. Whereas the aggregate results focused on what matters at education programme level, the following results are based on variations between individual students within the same education programme. It is difficult to determine which differences can be attributed to actual causal effects and which differences relate to individual differences among students that existed before the students commenced their studies. It is nonetheless possible to identify a number of factors that are systematically linked to the probability of dropout.

Negative study start experiences are linked to a high probability of dropout

Students who have had negative study start experiences have a higher likelihood of dropping out. A difference of +1 in the index for negative study start experiences (corresponding to the difference between “strongly agree” and “somewhat agree”) corresponds to an average change in the probability of dropout of 1.3 and 1.5 percentage points for universities and university colleges, respectively. Given the general dropout rate in the period, these are substantial differences. Although there is no evidence of a correlation at aggregate (education programme) level, the

² At individual student level, there is also no evidence that study start has an effect on student dropout rates. Therefore, also in this respect, business academies differ from other institutions of higher education.

analyses show that negative study start experiences are nevertheless linked to the probability of dropout at individual student level.

Both a high level and a low level of alcohol consumption are linked to higher probability of dropping out

Whether students attend an education programme that is generally characterised by a high or low level of alcohol consumption does not seem to be significant for their probability of dropping out. However, the alcohol consumption of *individual* students during the first month does correlate to their probability of dropping out. At universities and university colleges, students with a medium level of alcohol consumption have on average the lowest probability of dropout, while a high level as well as a low level of alcohol consumption are linked to a higher probability of dropout.

There may be a number of different reasons for this. A high level of alcohol consumption could have health implications that are not conducive to a good study start experience. A low level of alcohol consumption could have social implications, as alcohol consumption often serves a social function during study start, and students with a low level of alcohol consumption may be excluded from this. Finally, students who drink a lot of alcohol or who do not drink alcohol at all could also be special types of student.

Satisfaction with academic and practical introduction is linked to a lower probability of dropout at universities

Students who are satisfied with the academic and practical introduction during study start are less likely to drop out from universities. The questions relating to academic and practical introduction include questions about whether students have felt they received a good introduction to the academic content of their programme; that they have received clear information about requirements and expectations; that they have received all the information they need, etc. The results show that a difference of +1 point in the index for academic and practical introduction (corresponding to the difference between “strongly agree” and “somewhat agree”) corresponds to an average change in the probability of dropout of -3.2 percentage points.

Satisfaction with the social aspect of the study-start is linked to a lower probability of dropout from universities

Students who are satisfied with the social aspect during study start are less likely to drop out from universities. This relates, for example, to whether there has been a good basis for students to get to know their fellow students. The results show that a difference in student satisfaction with the social aspect during study start of +1 point in the index for the social aspect (corresponding to the difference between “strongly agree” and “somewhat agree”) corresponds to an average change in the probability of dropout of 3.1 percentage points. Subjective (individual) satisfaction with the social aspect, therefore, seems to be more strongly linked to the probability of dropout than the aggregate results for the quality of this aspect at education programme level.

Perspectives

The fact that the duration of study start programmes contributes to reducing dropout rates at universities and university colleges generally indicates the importance of educational institutions prioritising study start programmes.

It is particularly difficult for students at universities to get a good start

In general, the analyses suggest that students are having more difficulties achieving a good start at universities than at other institutions of higher education. While the ideal duration of study start

programmes at university colleges is around five days, it is around ten days at universities. This particular significance of long study start programmes at universities could be partly due to university students having greater difficulties understanding the 'academic code', and partly because university students are presented with more self-directed learning.

Furthermore, universities are the only institutions where satisfaction with academic and practical introduction and the social aspect during study start has significance for the probability of dropout at individual student level. A possible explanation for this is the fact that universities generally have a strong academic self-perception, which students may have difficulties understanding. Combined with very competitive study environments, this could mean that differences in satisfaction with the academic introduction and the social aspect have a greater significance at universities than at the other institutions.

The social aspect includes both formal and informal activities during the study start period

The better they perceive the quality of the social aspect during study start, the less likely students are to drop out. The social aspect covers the non-academic elements of a more or less formal nature, the objective of which is to help bring students closer together socially. That these informal activities are also significant is further confirmed by evidence that both student alcohol consumption and negative study start experiences affect the short-term probability of dropout.

The significance of negative study start experiences is evidence of a vulnerable situation

Irrespective of whether students have otherwise assessed the social aspect to be good or bad, bad experiences mean that they are more inclined to drop out of their education programme. In this context, students were asked whether there had been social activities that they did not feel like joining. This could be because many young people feel they are in a very vulnerable situation at the beginning of their studies. Many of them have just moved away from home for the first time, perhaps to a new city, and they are faced with having to establish new friendships and being a part of a new social environment. This could contribute to explaining why young people with negative study start experiences are also at greater risk of dropping out.

Alcohol policies should focus both on those who drink a lot and on those who do not drink alcohol at all

Even though attending an education programme that is generally characterised by a high or low level of alcohol consumption has no apparent significance for students, the analysis does show a correlation between the alcohol consumption of the individual student during study start and the short-term probability of dropout. However, this should not be taken too literally. It is hardly a lack of alcohol or excessive alcohol consumption, as such, which determines whether or not students drop out. Nevertheless, this does not alter the fact that the analyses demonstrate that both groups of students are at more risk of dropping out. Educational institutions should, therefore, have an alcohol policy to deal with students who drink too much and also ensure good conditions to help those students who do not drink at all to take part in social activities on an equal footing with other students. In this context, it is also important to be aware of the importance of setting a good framework for both formal and informal activities.

Feedback from students can inform targeted interventions

Several of the factors mentioned above have been shown to matter, primarily at the individual student level. This applies to negative study start experiences and alcohol consumption, as well as, at the universities, the academic and practical introduction. This indicates a need for strong focus on the individual student with regard to these aspects. One way of addressing this could be to

incorporate feedback from students during study start, so that educational institutions can identify, on an ongoing basis, students who have negative experiences or are dissatisfied with their study start.

Four conclusions about study start and dropout rates in higher education in Denmark

- *Study start matters for dropout rates* and should, therefore, be taken seriously. It is particularly important that induction programmes are of sufficient duration and that the social aspect is prioritised in relation to both formal and informal activities.
 - *Students are having difficulties* getting a good start at universities in particular. Here the need for long study start programmes is particularly important. At the same time, student satisfaction with the social aspect as well as with the academic and practical introduction also plays an important role, perhaps because many students have difficulties understanding the 'academic code'.
 - *Negative first experiences during study start* are directly linked to the probability of dropout, and this is evidence that many students are in a vulnerable situation.
 - *There should be an alcohol policy* that takes into account the fact that students are more likely to drop out if they drink too much or if they do not drink at all during the study start period.
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Strengths and weaknesses in the design

The analysis in this study was completed as a cross-sectional study with observational data. It is often difficult to control for all relevant confounding variables with this kind of design. This makes it difficult to distinguish between selection effects and causal effects in the analyses. However, in the analyses in this survey, it was possible to take account of the most obvious selection mechanisms, thus acknowledging that which students are admitted to which education programme, and how they experience the induction programme, is far from arbitrary. Furthermore, controls have been performed for a number of important factors concerning student expectations, self-confidence and motivation before embarking on a programme. Combined with the register data, this ensures strong control for a number of factors that are otherwise often unobservable. However, the existence of unobserved confounding variables of significance cannot be ruled out.

FIGURE 1.1

The effect of different aspects of study start on the probability of dropout expressed as changes in percentage points

| | Universities | | University colleges | | Academies of professional higher education | |
|-------------------------------------------------------|--------------|------------|---------------------|------------|--------------------------------------------|------------|
| | Aggregate | Individual | Aggregate | Individual | Aggregate | Individual |
| The social aspect | -1.9 | -3.1 | -1.8 | - | - | - |
| Negative study start experiences | - | -1.3 | - | -1.5 | -2.1 | - |
| Duration of study start programmes, per day | -0.2 | - | -0.3 | - | - | - |
| Alcohol consumption (days with >5 units) | - | -2.1 | - | -3.6 | - | - |
| Alcohol consumption ² (days with >5 units) | - | 0.3 | - | 0.6 | - | - |
| Academic and practical introduction | - | -3.2 | - | - | - | - |
| Introduction to study techniques, etc. | - | - | - | - | - | - |
| Study group initiative (yes/no) | - | - | - | - | - | - |

Source: The Danish Evaluation Institute dropout panel, 2017, register data from Statistics Denmark and dropout data from Danish higher education institutions.

Note: The figures in the table state the number of percentage points by which the six-month probability of dropout falls with a change of +1 in each of the factors stated. However, the various independent variables have not been measured on the same scale. The aggregate analyses were completed using the linear probability model, taking account of autocorrelation at education programme level using random effects-models. The analyses at individual student level were completed with the linear probability model, keeping the education programme level constant by specifying a fixed-effects model. The table only reports significant effects (with an alpha level of 0.05).

N for the aggregate level: universities: 25,519; university colleges: 15,246; business academies: 6,522.

N for the individual student level: universities: 8,147; university colleges: 3,273; business academies: 1,535.