

## SUMMARY

# THE EFFECT OF ADMISSION INTERVIEWS ON THE DANISH TEACHER TRAINING PROGRAMME

Since 2013, the Danish teacher training programme has held admission interviews with all applicants with a grade point average (GPA) from upper secondary education below 7.0. The introduction of admission interviews was part of a more comprehensive reform of the programme. The aim of the reform was to enhance the academic profile of the programme, make it more attractive and to reduce the dropout rate, which was at 33% in 2013 (Ministry of Higher Education and Science, 2015:5). The admission interviews are based on the so-called multiple mini interviews (MMI) concept, with two consecutive admission interviews. The applicants are assessed qualitatively within six different content domains: motivation, ethical capacity, interpersonal skills and integrity, communication skills, cognitive capacity<sup>1</sup>, and text comprehension and management.

The MMI concept was introduced to test whether applicants possess the competences considered to be important in order to be a good student in the programme and subsequently a good teacher. The test result was then used as an admission criterion in combination with the applicant's GPA from upper secondary education, primarily measuring general academic competences (ibid.: 11). This study examines whether the changed admission system has contributed to reducing the dropout rate for the teacher training programme.

The study is primarily aimed at decision makers at a political level and educational institutions organising admissions to the teacher training programme or other programmes. Secondly, the memorandum can contribute to a broader education policy debate.

## The three main conclusions of the study

1. The results indicate that admission interviews have contributed to reducing the dropout rate for the teacher training programme among students admitted through quota 2.
2. Out of the six content domains, according to which applicants are assessed qualitatively in the interviews, only the domain "motivation" indicates with some level of certainty whether a student is likely to drop out.
3. Following the introduction of admission interviews as part of the new admission procedure for quota 2 in 2013, students with a high GPA have increasingly been attracted to, and retained in the teacher training programme.

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<sup>1</sup> In the first years (2013-2015), this domain was referred to as analytical capacity.

## Admission interviews contribute to reducing the dropout rate for the teacher training programme

Overall, the analyses show that admission interviews are likely to have contributed to reducing the dropout rate for the teacher training programme. A comparison of the dropout rate for students with a GPA just above and just below 7.0 with a regression discontinuity design (RDD) inspired design (see box below), and a comparison of the dropout rate before the introduction of admission interviews with the dropout rate for students admitted after 2013 consistently show that the introduction of admission interviews has resulted in a reduced dropout rate<sup>2</sup>.

The RDD inspired design compares students with a GPA just below 7.0 with students with a GPA just above 7.0. The two groups are assumed to be similar in all parameters, except that everyone in the group with a GPA just below 7.0 has participated in an admission interview. Therefore, the difference between the two groups can be interpreted as the effect of an admission interview. The RDD-inspired effect design provides the most solid design with regard to identifying an effect of the admission interviews. Read more about the design in the box below.

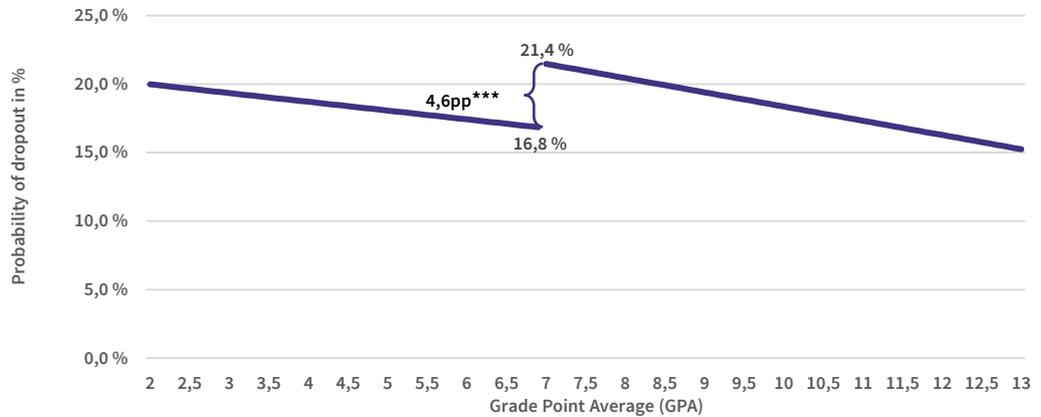
The probability of dropout for students with a GPA just above 7.0 is estimated to be 21.4%, whereas the probability of dropout for students with a GPA just below 7.0 is estimated to be 16.8%, corresponding to an effect of -4.6 percentage points. This means that for students with approximately the same GPA (i.e. around 7), the dropout rate for students who have participated in an admission interview is 20% lower than for students who were admitted through quota 1 (admission based on the GPA alone). A comparison of the entire group of students with a GPA below 7 before and after 2013 shows a difference in the dropout rates that more or less corresponds to the identified effect for the group of students with a GPA close to 7. The before-after comparison thus indicates a similar effect for the entire group of students with a GPA below 7. Figure 1.1 illustrates how the overall effect of the various mechanisms has been examined in the RDD-inspired analysis.

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<sup>2</sup> The overall strength of the analysis of effects is assessed to be moderate. Even though the two designs each hold potential weaknesses, the overall result is a strong indication that the admission interviews have contributed to reducing the dropout rate.

FIGUR 1.1

## The effect of admission interviews on dropout rates: RDD-inspired analysis



Source: Statistics Denmark, the Danish Ministry of Higher Education and Science, and own calculations.

Note: The figures indicate how much the probability of drop out changes in percentage points if the student has an upper secondary school GPA just below 7.0 compared with just above 7.0. The estimation of the effect on dropout rates for first year students is based on students admitted in the period 2013-2015. The analysis was carried out using RDD in a model that includes dummies for year and place of education. \*\*\*indicates that the estimated effect is significant at 1% level. N = 7.127.

### Effect design in the analysis

The analysis examines the effect of admission interviews based on two different designs: an RDD-inspired design and a before-after comparison.

The question of whether a causal effect of introducing admission interviews can be proven is primarily examined using a design inspired by a regression discontinuity design (RDD). This design exploits the fact that the new admission system uses a fixed limit GPA of 7.0, defining that all applicants with a GPA below 7.0 have to be admitted through quota 2. The key assumption is that it is virtually random whether a student achieves a GPA just above or just below 7.0, which is why students with a GPA just below or just above 7.0 are assumed to be similar in all relevant background variables, and therefore comparable.

Thus, the effect of the admission interviews is estimated as the difference in probability of dropout between students with a GPA just above (the control group) and just below (the intervention group) 7.0. If the assumptions underpinning RDD are accepted, this design can be assumed to provide results that are as true as the results from a random experiment. Chapter 2 describes in more detail how the design in this study deviates from a classic RDD, and the consequences of this.

Whereas the results from the RDD analysis only apply to students with a GPA close to 7.0, the more simple before-after comparison is the best possible indication of whether there is a general effect for all students with a GPA below 7. The before-after comparison is generally not considered suitable to isolate the effect of selected factors, such as the change in admission procedures, as several things may have changed between the two periods being compared (e.g.

the simultaneous reform of the teacher training programme and the conflict between the Confederation of Teachers Unions and Local Government Denmark in 2013). However, the consistency between the RDD-inspired design and the before-after analysis contributes to answering the question of whether the admission interviews have had an effect.

It is important to keep in mind that the results reflect an overall effect of the change in the admission system, which includes the entire process from potential applicants applying for admission to actual admission. The effect thus reflects three aspects: a) who applies for the programme, b) who is admitted to the programme, and c) a possible consequence of the interview itself.

Thus, part of the effect that admission interviews have on the dropout rate may be attributed to a change in the student population. Firstly, some students do not apply for admission to the programme at all (aspect a), e.g. less motivated students who would have been interviewed had they applied. Secondly, some of the students who have applied for admission do not show up for their interview (aspect b). Thirdly, about every tenth applicant is disqualified as a result of their interview (aspect b). Finally, the interview itself can have a motivating effect on those who do well at the interview, e.g. due to reflections inspired by the interview (aspect c). It is not possible in the analyses to distinguish between the various mechanisms.

## **Dropout can be predicted to a certain extent based on the admission interviews – primarily on the basis of the motivation score**

The analyses show that using points in the interview as an admission criterion contributes to reducing the dropout rate for the teacher training programme, i.e. the better the students have performed in the interview, the lower their average probability of dropout. However, the content domain for student motivation is the primary driver in the correlation between the total point score in the interviews and the probability of student dropout. The score within the motivation domain even seems to be marginally better at predicting the dropout rate than the total point score for all the domains seen in isolation. Thus, the current use of the five domains does not contribute to the selection of applicants with a lower probability of dropping out of the programme compared with only using the motivation score.

While it is possible to detect a significant correlation between the score within the motivation domain and the applicants' probability of dropout, this is not the case for the other five domains in the admission interviews. Even though the estimates for the other five domains indicate that they are correlated with dropout, there is insufficient statistical evidence to conclude that they are, in fact, related to the probability of student dropout.

Even though a correlation between point score and probability of dropout can be proven, this does not mean that disqualification based on the score is the most important explanation for the effect of the admission interviews. It may simply be because quota 2 applicants are another group of applicants. As mentioned earlier, it is not possible to distinguish between the various mechanisms, each of which may have an effect.

## The teacher training programme has attracted and retained more students with good grades after 2013

After the introduction of admission interviews in 2013, fewer students with low grades and more students with high grades have been admitted. A larger intake of students with good upper secondary grades combined with better selection among applicants with low grades is likely to contribute to increasing the academic level of the programme. Against this background, the introduction of admission interviews also seems to have had positive effects on the intake. However, the extent to which changes can be attributed to the use of admission interviews is uncertain.

The analysis also shows that the two groups of students for whom the dropout rate seems to have been reduced the most are the outer groups on the grade scale, i.e. students with a GPA below 5 and students with a GPA above 10. These two groups also had the highest dropout rate before 2013. Therefore, the effect of admission interviews does not seem to be the same across groups with different GPAs. Again, the extent to which this is attributable to the changed admission through quota 2 is uncertain, but it seems probable that the introduction of admission interviews is a significant explanation for this development.<sup>3</sup>

The reduced dropout rate among students with good grades means that a negative correlation between the GPA and dropout rate in quota 1 can be proved following the introduction of admission interviews, i.e. the better the GPA, the lower the probability of dropout. Even though this is not a strong correlation, the results show that GPA is a relevant criterion with regard to dropout. Thus, the analyses support the current practice where GPA is the admission criterion for quota 1.

## Perspectives

### Results support the changed admission procedure for quota 2 as well as admission on the basis of grades in quota 1

Reducing the dropout rate was one of the main reasons for changing the admission system for the teacher training programme. From this perspective, the identified effects of the admission interviews on the dropout rate are a strong argument for maintaining the changed admission procedure for quota 2 applicants to the teacher training programme. Moreover, the analyses show that GPA is also a relevant admission criterion in quota 1 – again in relation to dropout. Against this background, the analyses can be said to support the overall design of the admission system for the teacher training programme, in which the combination of admission through quota 1 and quota 2 together contribute to limiting the dropout rate for the programme.

### Personal motivation towards the teaching profession is important for completing the teacher training programme

Out of the six content domains, according to which students are assessed, only the motivation domain can be proved to relate to the probability of student dropout. In this domain, the applicants are assessed on what they want to achieve with the teacher training programme, their own teacher

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<sup>3</sup> It is important to be aware of the significant limitations associated with the before-after comparison. However, if the reduction of the dropout rate for the two groups is primarily attributable to the change in the admission system, this is a significantly positive effect.

profile, and the school as a workplace in relation to teaching issues (Ministry of Higher Education and Science, 2015). The specific motivation for studying to become a teacher thus seems to play an important role in determining how susceptible to dropout the students are. This may be related to the fact that the teacher training programme is aimed at a specific profession and that, in many cases, completing the teacher training programme is a precondition for working as a teacher. If the students are not motivated for working as teachers, they will be more likely to dropout, given that this is the primary profession at which the programme is aimed. Likewise, previous research indicates that the objective of qualifying for a specific profession can contribute to reducing the dropout rate, particularly for higher education programmes (Tinto, 1993: 38).

## **The use of point scores as an admission criterion is one of several explanations for the effect**

The correlation between point scores at the interviews and the probability of dropout suggests that the use of point scores as an admission criterion can help explain why an effect of the interviews on the dropout rate can be proven. This is not an obvious truth, as theoretically it would be possible to achieve a positive effect of introducing admission interviews even if nothing relevant whatsoever was measured during the admission interviews. When a large group is forced to apply through quota 2, the increased focus on selection associated with this is likely to reduce the dropout rate. Previous studies of MMI have also suggested the possibility that the test situation alone can help explain an effect of admission interviews (O'Neill et al., 2011). The results in this study suggest that, primarily by virtue of the motivation domain, the interviews measure relevant aspects, and that the use of point scores as an admission criterion contributes to reducing the dropout rate. As mentioned above, it is, however, not possible to separate this mechanism from other mechanisms, and therefore it is not possible to assess how much of the effect can be attributed to the use of point scores as an admission criterion.

## **Interviews constitute a limited basis for assessing the competences and skills of applicants**

The point scores awarded in the admission interview (the MMI concept) are based on subjective assessments, where students are assessed within six domains in two interviews of 15 minutes each. The domains also concern competences and skills that may be difficult to measure, particularly in a key interview where the student has a lot at stake. In addition to motivation and ethical capacity, the students are assessed on interpersonal skills and integrity, communication skills, cognitive capacity, and text comprehension and management, over two periods of 15 minutes, corresponding to five minutes per domain. The interviews thus constitute a limited basis for an accurate assessment of several different and complex competences and skills.<sup>4</sup> For example, the interviews are presumably an inadequate basis for assessing the cognitive capacity of the applicants, and for this it would be logical to use more advanced validated tests that can provide a more accurate measurement. However, the analysis cannot determine whether the absence of a correlation between the five domains in the interview and dropout rates is because it is not possible to achieve

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4 Development of admission interviews is based on previous experience with the MMI concept used both in a Danish context and outside Denmark. The content has been adjusted to suit the teacher training programme and, therefore, has not been tested and validated at international level. So far, the Danish Evaluation Institute has no knowledge of such validated tools. A research team at York University is working on developing a so-called Situational Judgement Test which is to serve as an admission criterion for teacher training programmes, and which is being tested in a number of different countries. The research team is trying to develop a test that can measure personality traits relevant for working as a teacher. The test could also be used as an admission criterion in a key interview setting where the applicant has a lot at stake. Again, this tool has been thoroughly validated.

an accurate measurement of the different domains, or because the different domains are in fact not related to dropout rates.

## **The results cannot be generalised**

The results cannot be generalised for other professional bachelor programmes or higher education programmes. Furthermore, the effect of the admission interviews has not been compared with the effect of other possible admission criteria in quota 2. Previously, some institutions have operated with motivated applications for the teacher training programme. However, based on the analysis, it is not possible to prove whether the admission interviews are better or worse at reducing the dropout rates compared with other possible admission criteria that could be applied in quota 2. As mentioned above, the analysis shows that particularly the motivation domain is related to probability of student dropout. This indicates that the effect is not only attributable to the use of the quota 2 procedure. On the other hand, previous analyses have shown that, in many cases, the dropout rate is lower in quota 2 than in quota 1, and this is also the case for the largest professional bachelor programmes (see the Think Tank DEA, 2014 and the Danish Evaluation Institute, 2018 pending). Therefore, it cannot be ruled out that other admission tools could have similar or better properties.

## **About the data basis**

The analyses in this study are based on two data sources: data regarding the admission rate for the teacher training programme provided by the Ministry of Higher Education and Science, and register data from Statistics Denmark. A total of 22,240 students admitted to the teacher training programme in the period 2008-2015 are included in the analyses.

## **Recommendations**

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- On the basis of the analyses, it is recommended to maintain the requirement that all applicants with a GPA below 7 be invited to an admission interview.
- It is recommended to continue working on developing the content of the interviews, so they provide a stronger basis for assessing the qualities or competences to be measured.
- It is recommended to consider whether greater emphasis should be placed on motivation as an admission criterion, as this is the only domain that can be proved to relate to the probability of student dropout.