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Universitetet i Stavanger

Recruiting and retaining teachers in kindergarten and school - a

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Preface

This knowledge base is the result of a project awarded to Høgskulen på Vestlandet (HVL). In a conversation between HVL and the Knowledge Center for Education (KSU), it was decided that HVL should partly finance the work with a knowledge base together with KSU.

KSU contacted a research group at the University of Durham who have previously been concerned with similar issues, and entered into a collaboration with them regarding the international part of the study. The research group leader, Beng Huat See, is a co-author of this report, while her research team of three people has made important contributions throughout the process. At KSU, there are also two people in addition to the first author who have contributed information to the knowledge base .

We thank HVL for contacting us and co-financing the assignment. We hope that the research basis presented here can be useful in further work to develop policy and practice for recruiting and retaining teachers in kindergartens and schools in Norway, and that the knowledge base can also contribute to the development of necessary research.

Stavanger, 30 June 2022

Elaine Munthe

Center leader, Knowledge center for education

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Summary

Fewer students apply for teacher education today compared to before, and the number of applicants for kindergarten teacher education had a drastic decline in 2022. At the same time, we know that there have previously been approx. 20% of the newly qualified teachers who have not gone to work in the education sector, and there is a need for qualified teachers in the school. We also see that there are fewer men who apply for teacher education, especially for teacher education for the youngest children, and there are proportionally more men who complete their education before they have received a diploma. There are relatively fewer students and employees with an immigrant background compared with the child and student base, and there is a desire for a good representation of the population in the education sector.

This knowledge base is intended to help answer the following questions:

- Who is applying for the teaching profession?
- Is it possible to influence more people to apply for the teaching profession?
- What does it take to retain more teachers?

Method

We have conducted systematic searches and narrative syntheses of quality-assessed international research related to what characterizes those who apply for teacher education, what it takes to increase the number of applicants for work in schools and what turns out to be important for teachers to stay in school.
This work has been done in accordance with guidelines for systematic summary of knowledge. We reproduce the process, with inclusion and exclusion criteria, assessment of quality and short summaries from the included studies in the Appendix to the report. The appendix is written in English in collaboration with researchers from the University of Durham.

In order to identify Norwegian-language studies, we have relied on several search methods. We have searched in Oria in addition to searches in journals such as *Acta Didactica Norden* and *Norsk Pedagogisk Tidsskrift,* we have searched in open databases for master's theses and PhD dissertations, and we have searched using Google and Google Scholar to identify reports. We have also made direct contact with people to obtain information. The Norwegian material is referred to in the reference list without there being a separate overview of all with quality assessments as we have done for the English-language literature.

Who applies for the teaching profession?

Based on data obtained from the national database DBH, we can see that the grade point average from upper secondary school for teacher students to kindergarten teacher education, both primary school teacher educations and associate professor education has increased from 2017–2021 and for primary and secondary school students who all attend master's degree programs, the average for the total population of students in UH.

The highest ranked motivations for choosing teaching among teacher students were a positive perception of their own teaching abilities, how they saw the value of teaching (innate interest in teaching: sharing knowledge, ability to teach and professional interest), altruistic reasons (the desire to provide a social contribution, shaping the future), and the desire to work with children /
youth. Job security is also important. Good salary prospects are important for students who do not primarily think about the teaching profession, and it also seems to be more important for men.

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Pupils' own positive experiences with school can have an impact on the choice of teaching profession, and parents seem to be important advisors. Fathers can be very important for whether boys choose the teaching profession, and their own positive experiences also seem to be especially important for boys. For boys, it also turns out to be important if they have experience of working with children.

About. 19% of the teacher students in kindergarten teacher education are men, just over 19% of the teacher students in primary school teacher education for 1-7. steps are men, and approx. 12% of kindergarten employees are men (all job categories). In 2004, the stated national goal was for the percentage of men employed in day care to rise to 20% by 2007. There is still a long way to go. Part of the problem is that in addition to fewer men applying for teacher education, there is also a tendency for proportionately more men than women to complete their education before they have completed it.

Is it possible to influence more people to apply for the teaching profession?

Men who apply for teacher education tend to have experience of working with children before, and it may also be that there are fewer men with previous experience who complete their studies before they have received a diploma. For that reason, giving more young men / boys experience opportunities may be a way to go, but there are no studies that can document effects.

It is possible that parents have a greater impact on students' choice of studies, and this is also the case for different ethnic groups. In this sense, it may be important to work with parents 'perceptions and understanding of the teaching profession, but there are no studies that can document parents' significance or whether changes in parenting attitudes can increase the number of applicants.

There are some studies that indicate that it is possible to change students' perceptions of the teaching profession, for example by working with realistic descriptions, scenarios and giving students opportunities to try their hand at whether they are suitable for the profession. What we do not know is whether these students change their minds enough to apply for the teaching profession.

Alternative teacher education programs can also recruit groups that would not otherwise intend to apply for teacher education, e.g. students who have specific subjects needed in school or different ethnic groups. Alternative programs that are researched are often also linked to financial incentives. Teach First is an example of an alternative program in Norway that seems to have recruited a few more students in science. It is possible that alternative programs with or without scholarship schemes may be relevant for recruiting specific groups of students to the teaching profession.

There are no studies that can confirm that major communication strategies increase the number of applicants for teacher education. One study on "nudging" or "dulting" in teacher education finds no effects of three different nudging measures, and an overview of knowledge about nudging in education shows mixed results.

Financial incentives such as increased wages may contribute to more people applying to the regions or schools that have this offer, but it is uncertain how long the effect of increased wages will last.

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What does it take to retain more teachers?

The most important work of retaining teachers in kindergarten and school takes place in kindergarten and school. Work environment, experience of communication with and support from management, good fellowship, experience of mastery and joy in being with children and students are all factors that make teachers stay in the job. When the work tasks become too much to handle and both the experience of meaning and benefit and to be valued decreases, then the risk of dismissals is greater. The daily, continuous work of developing good relationships and environments is therefore of great importance for retaining skilled teachers.

Mentoring schemes for new graduates are experienced positively by new graduates, and they may experience that the first year as a teacher is more positive than new graduates who do not receive guidance. What we do not know is whether supervision schemes lead to fewer new graduates leaving work. We also do not know which elements in guidance schemes (some include reduced reading obligation, both guidance and training and there are various forms of guidance) that may have an impact on the experience of benefit.

Both in teacher education and in kindergartens and schools, it can be important to be aware of risk factors for quitting, and to put in place measures to investigate and support those who are at risk of quitting.

It is not possible to conclude that performance pay has an effect on teachers' choice to stay in work. Results in the strongest studies are mixed. Some of the studies in our sample indicate that performance pay may be more important for men than women. Teachers highlight difficulties in coming up with good ways to assess achievement.

Salary can thus be a factor that can contribute to retaining more teachers, but salary cannot compensate for a poor working environment.

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Further research

The fewest motivational studies include studies of motivation in groups other than those who have already decided to become teachers. Then it is difficult to say whether teacher students differ from others in any way, or whether there are other factors to keep in mind if you want to try to get other groups than those who already know that they will become a teacher to apply for teacher education.

In our assessment of quality in the international research we identified, few are highly valued. The questions we have asked here depend on a type of design that can say something about effects or consequences, but very many of the studies are descriptive, not causal or prospective. It is therefore important that further research attempts to answer some of the questions related to consequences.

Then we need studies that can e.g. say something about what experiences of working with children have to say for boys' choices - that it is possible to test hypotheses that are presented here. Will a change in parents 'attitudes towards teacher education be able to influence students' choices?

There is also a need to know more about induction programs and what can be more or less effective for different graduates at different times. If it is the case that new graduates do not necessarily experience that the supervision scheme gives them an increased feeling of mastery, why? And what does it take?

Researchers in the evaluation research of major campaigns point out the need for formative research that may have a bearing on the development of both the content and design of studies. It may be possible to develop more targeted campaigns with realistic goals, and to study any consequences or non-consequences of these.

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1 Background and problem

Those who choose the teaching profession have observed what teachers do every single day through their own upbringing and everyday school life. They have interacted with teachers in kindergartens, elementary school and high school. There are no other professions that are in such a situation. Few people choose to become a nurse or plumber, master painter or economist have observed people in these professions day in and day out for many years.

About. 30,000 students complete upper secondary school with study qualifications each year1 . Some of these students choose to stay in the education sector and apply for admission to teacher education. In addition, there are others who choose teacher education each year who have either been in other professions, who have changed their minds about study choices, who want to build on an education with PPU, or who for other reasons choose teacher education without coming straight from high school.

Figure 1 shows an overview of the number of students who are admitted to five of the teacher educations each year in the period 2017–2021. In total there are approx. 9,000 new teacher students are admitted each year to these programs, and the admission numbers are fairly stable. We see a fairly large fall for PPU students from 2018 to 2019 (from 3000 to 2000), and this is probably due to the introduction of requirements for a master's degree. For the other educations, there are approx. 3000 kindergarten teacher students who are admitted every year, approx. 1200–1300 primary school teacher students for 1. – 7. steps, approx. 1400–1500 primary school teacher students for 5. – 10. steps, and approx. 1200 associate professor students for 8. – 13. step.

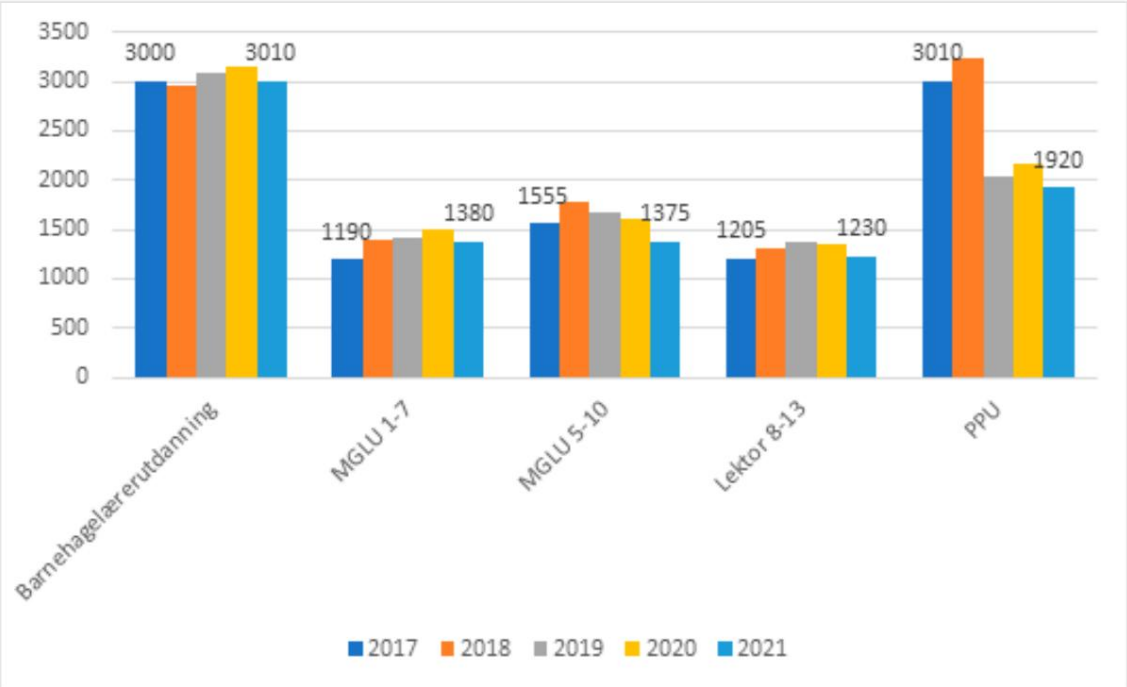

Figure 1 Number of students admitted to five different teacher education programs 2017–2021

Compared with applications for all educations in the university and college sector (UH), there was a noticeable decrease in the number of applicants for teacher educations in 2021 (see Figure 2). Tourism experienced a larger percentage decline, and we can see that law (including a new, 3-year customs education) had the greatest real and percentage progress.

1 Completion in upper secondary education (ssb.no)

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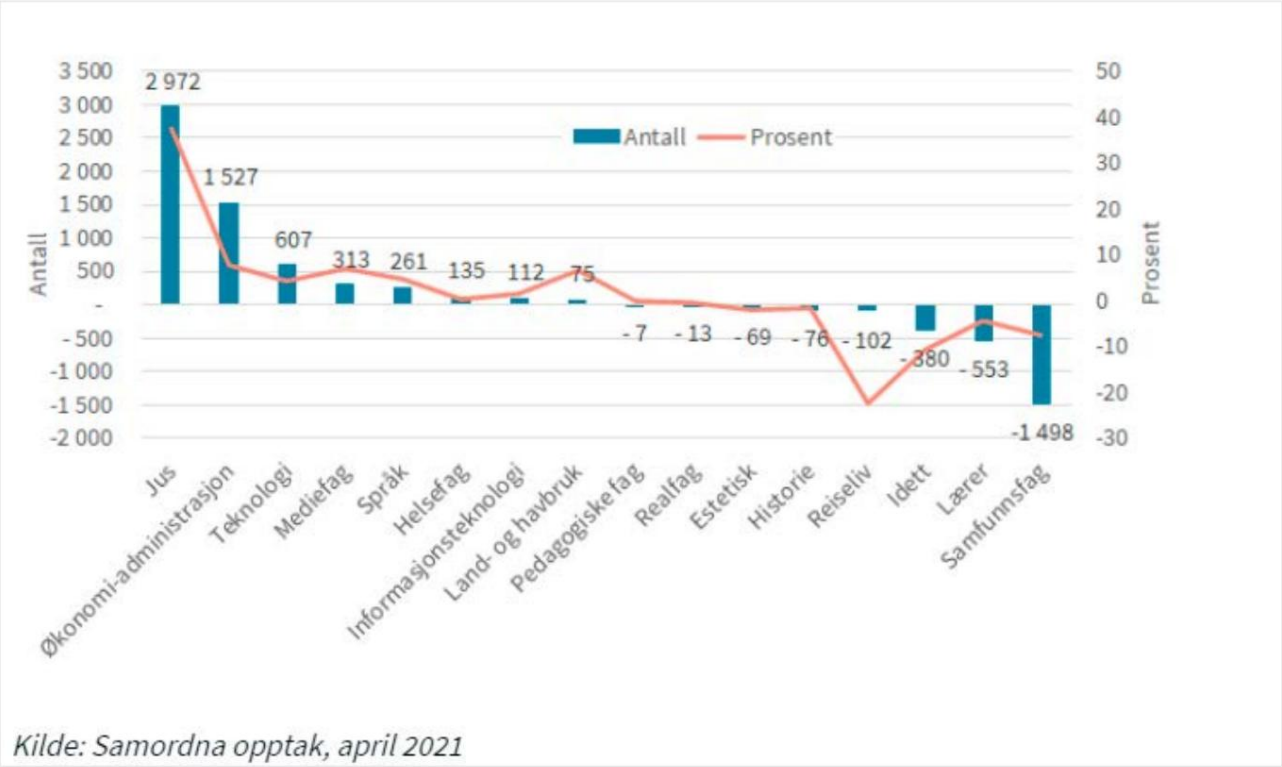

Figure 2 First-choice applicants for higher education. Absolute and relative growth in the number of first-choice applicants by field of study. 2021. Retrieved from: Research Council (2021, updated 14.03.33)

By the application deadline in April 2022, 3061 applicants had set kindergarten teacher education as the first priority (to 2730 planned study places), there were 2419 first-choice applicants for primary school teacher education 1-7 (to 1579 planned study places), 1925 first-choice applicants for primary school teacher education 5-10 (to 1642 planned study places), and 1998 first-choice applicants for associate professor education 8–13 (to 1284 planned study places) (Directorate for Higher Education and Competence (HK-Dir), 2022).

The number of applicants for kindergarten teacher education has decreased in 2022 by as much as 25.6%. The overview prepared by HK-Dir (2022) clearly shows how the corresponding increase in the number of applicants to MGLU 1–7 and the decrease in the number of applicants for kindergarten teacher education coincides with the introduction (in 2016) and phasing out (in 2022) of requirements for grade 4 in mathematics for primary school teacher students (see Figure 3). It is not unreasonable to assume that applicants who were concerned with working with younger children opted out of GLU / MGLU 1–7 during the period in which the requirement for grade 4 was applicable.

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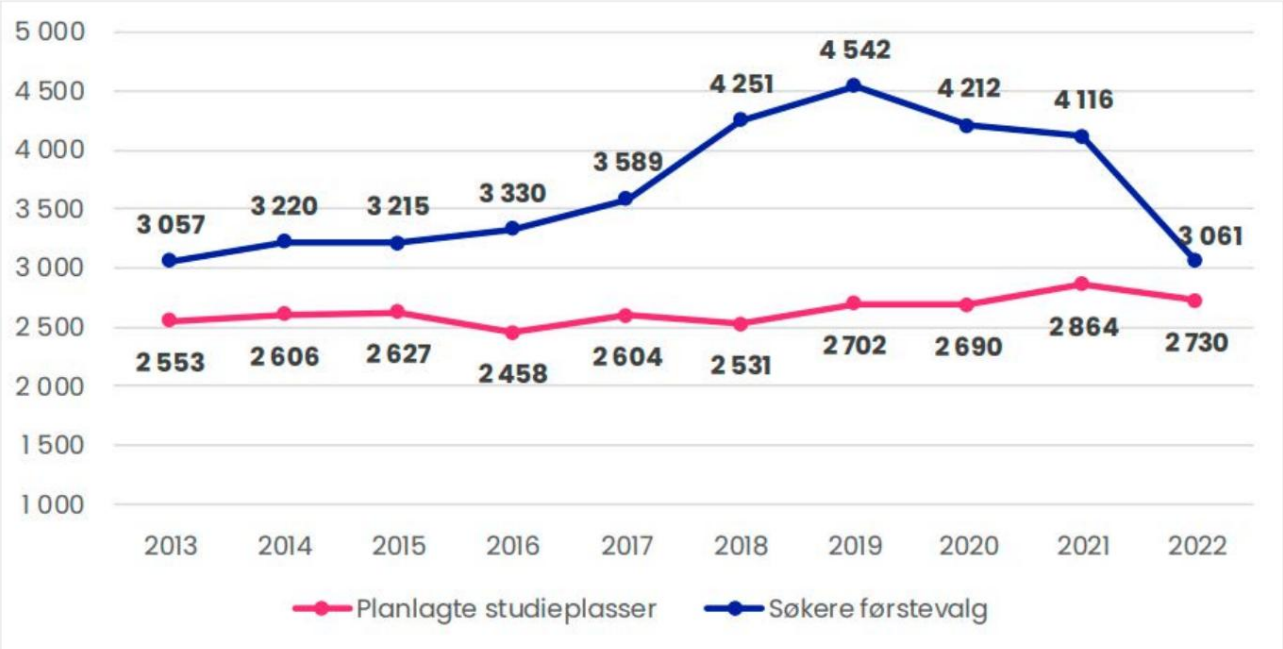

Figure 3 Primary applicants and the number of planned study places in kindergarten teacher education 2013–2022. (Source: Directorate for Higher Education and Competence (HK-Dir), 2022: 29)

For the other educations, the applicant statistics from HK-Dir (2022) show that from 2021 to 2022 only MGLU 1–7 experienced growth in the number of applicants. All other teacher educations experienced a sharp decline, and in total there was a decrease in the proportion of applicants who had one or another teacher education as their first choice of 11.4% (see Table 4, HK-Dir, 2022: 24). Table 1, below, shows that the decrease in applicants for vocational teacher education is as much as 46.7%, but it may be that applicants have chosen the new teacher education, Teacher in practical and aesthetic subjects for levels 1–13 (LUPE1–13), rather than vocational teacher education. We see from table 1 that this new teacher education has 571 applicants for 312 places.

	Planned study places			Applicants first choice		
Education area and type	**2021**	**2022**	**Change**	**2021**	**2022**	**Change**
Teacher - Other	125	135	8,0 %	559	444	-20,6 %
Teacher - BHGTeacher	2 864	2 730	-4,7 %	4 116	3 061	-25,6 %
Teacher - Subject teacher	607	355	-41,5 %	1 102	587	-46,7 %
Teacher - GRL 1–7	1 539	1 579	2,6 %	2 272	2 419	6,5 %
Teacher - GRL 5–10	1 642	1 642	0,0 %	1 999	1 925	-3,7 %
Teacher - Associate Professor 8–13	1 305	1 284	-1,6 %	2 152	1 998	-7,2 %
Teacher - Lupe 1–13	40	312	680,0 %	221	571	158,4 %
In total	**8 122**	**8 034**	**-1,0 %**	**12 421**	**11 005**	**-11,4 %**

Table 1 Application for teacher education 2021–2022 divided into the different types of education (source: HK-DIr, 2022: 24)

The proportion of applicants who have chosen teacher education as the first choice in Coordinated Admissions is between 8–10% in the period 2013–2022 (HK-Dir, 2022). What can be a little worrying is that the total percentage of primary applicants for teacher education has a downward trend in recent years. In the period 2013–2019, between 9–10% of the applicants had teacher education as their first choice. In 2020, 2021 and 2022, it is 8.6%, 8.1% and 8.2% (respectively).

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A downward trend in the application, admission and completion of teacher education does not have to be a problem if the need for teachers decreases in the years to come. The TEACHER COURT reports prepared by Statistics Norway (SSB) attempt to outline different scenarios for teacher needs.
In the latest report (Gunnes, Perlic & Ekren, 2021), several of the models show that it may be that given the current situation with teacher candidates, there will not be a greater need in the future. However, in a debate post published in the online newspaper Khrono, one author (Gunnes, 2021) explains that a projection is not a forecast of what is a probable development in the years and decades to come. She writes that the model indicates future teaching offers given that current candidate production and retirement behavior *are kept constant.* "The model thus tells us whether the current number of students, completion rate and graduation due to age are sustainable in the long term," she expl

This assumption may already be "wrong" given the lower number of applicants, but we will not know until we have admission figures and completion figures. The authors of LÆRERMOD are clear that the results are uncertain because they are based on assumptions about either stability or change in some factors. Rogne (2016: 73) explains that "… in the past it was especially the fertility of the future that was difficult to estimate, but in the projections from the last two decades, net immigration has been a far greater source of uncertainty." At the time of writing, a new refugee situation has arisen in Europe and Norway is accepting new refugees from Ukraine. How long this crisis will last and what kind of consequences it will have is not known. At the same time, we see that compared with the fourth quarter of 2020 (the population growth rate that was the basis for LÆRERMOD21), there were 751 more births in the fourth quarter of 2021. This increase in births makes a difference of 6.3% 2.

In the model that LÆRERMOD (Gunnes, Perlic & Ekren, 2021) has prepared for primary school teachers, they changed the completion rate from 67% to 60% because they assumed that there may be fewer who manage to complete the master's degree in the standard time. This is also a figure for which we do not yet have a historical basis .

2 https:// www.ssb.no/ befolkning/ folketall/ statistikk/ befolkning

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Another aspect that LÆRERMOD also mentions is that their models are national models, not municipal or regional. There can be large variations in coverage in different regions of Norway or between urban and rural areas. According to the Directorate of Education3 , there is a need for 300 new teacher man-years today (school year 2021–2022) to meet the adopted teacher norm. 13% of schools have too few teachers. The Directorate of Education writes that the need is greatest in municipalities with more than 20,000 inhabitants. These municipalities need close to 200 man-years to meet the standard requirements. The Norwegian Directorate for Education and Training also reports that a total of 3.7% of teaching hours in primary and lower secondary school are given by persons without approved teacher education. The problem is greatest in Troms and Finnmark, Nordland and Os

What is considered "teacher competence" differs in the statistics from the Directorate of Education and from Statistics Norway (SSB). The Directorate of Education is based on figures from GSI4 and then «other pedagogical education» and education from abroad that is approved by NOKUT is counted as teacher competence. Statistics Norway distinguishes between those who have a teacher education as a basis and those who have «other pedagogical education», and their figures also include substitute teachers. In both cases , the conclusion is that there is a shortage of qualified teachers, but the size of the need varies according to definition and inclusion.

For teachers who teach Norwegian, mathematics, English, Sami and Norwegian sign language, there is a competence requirement of 30 credits at the primary level and 60 credits at the lower secondary level. 14 per cent of Norwegian teachers, 19 per cent of mathematics teachers and 31 per cent of English teachers do not meet the competence requirement for the subjects they teach in5. The first years of primary school are important, basic years for learning English, but are the steps that most teachers lack with teaching competence in English. There is also a shortage of teachers with subject competence in other subjects, e.g. music (Fredriksen, 2018).

In upper secondary school, (in 2020) 33.5% of the teachers had a higher university / college education (at master's degree level) with teacher education and 43.1% of the teachers had a lower degree education (bachelor degree) with teacher education from university or college. The "lecturer" is in the minority6. About. 10% of the teachers have an education from a university / college without pedagogical competence , and 4.7% have upper secondary school or lower without pedagogical competence.

11.1% of leaders in kindergartens have upper secondary school with a certificate in child and youth work , and 88.6% have a kindergarten-relevant education from a university / college5. Of those who are employed as kindergarten teachers, 84.8% have a kindergarten education from a college / university tet.

Another factor that makes calculations of needs uncertain is how many teachers choose to leave and how many graduates do not enter the teaching profession at all. Exactly what this number is, there has been uncertainty associated with7, but if we base ourselves on Statistics Norway's (SSB)'s calculation in 20198, their main conclusion is that there are more teachers who quit than those who return, and of those who return back are most women. In the period 2008 - 2018, it was approx. 20% of the teachers who left. 5% went to jobs in other teaching industries, while most (12%) went to other industries. The statistics from Statistics Norway also show that approx. 20% of recent graduates do not work in the education sector during a 6-year period. About. 73% are employed in the school system.

3 Status of the teacher norm (udir.no)

4 Information (udir.no)

5 Information from Facts about primary school (udir.no)

6 Employees in kindergarten and school (ssb.no)

7 How many teachers actually drop out of school ?. Actual.

8 More common to disappear from the teaching profession than to return there - Statistics Norway

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Summary

- Fewer students apply for teacher education now than before
- There is a need for more qualified teachers in kindergarten and school today
- There is a need for more qualified teachers in more subjects offered in the school
- It is approx. 1/5 of the new graduates who do not start work in the school system
- Projections are uncertain

1.2 Issues and methods for this knowledge base

In addition to concerns about general application for teacher education, there is also concern that too few men apply for teacher education and that those who apply for teacher education do not represent the ethnic diversity in Norway.

In this knowledge base, we will therefore try to answer the following questions:

- Who is applying for the teaching profession?
- Is it possible to influence more people to apply for the teaching profession?
- What does it take to retain more teachers?

We have conducted systematic searches and syntheses of international research related to what characterizes those who apply for teacher education, what it takes to increase the number of applicants for work in schools and what turns out to be important for teachers to stay in school. This work has been done in accordance with guidelines for systematic summary of knowledge (see, for example, Munthe et al., 2022). We reproduce the process, with inclusion and exclusion criteria, assessment of quality and short minutes from the included studies in Appendix. The appendix is written in English in collaboration with researchers from the University of Durham.

In order to identify Norwegian-language studies, we have relied on several search methods. We have searched Oria in addition to search journals such as *Acta Didactica Norden* and *Norsk Pedagogisk Tidsskrift,* we have searched open databases for master's theses and PhD dissertations, and we have searched using Google and Google Scholar to identify reports. We have also made direct contact with people to obtain information. The Norwegian material is referred to in the reference list without there being a separate overview of all with quality assessments as we have done for the English-language literature.

Even if the search is carried out in a systematic and comprehensive manner, there will always be some studies that - unfortunately - are missed. The material should nevertheless be so large, comprehensive and diverse that studies that may not have been captured will not overturn conclusions.

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2 Who is applying for the teaching profession?

Knowledge of who is applying for the teaching profession, and why, is important for both empirical and practical reasons. By knowing more about who usually applies for teacher education, it may also be possible to target information and have a greater basis for adapting education. It can also be important to know who is being recruited and not recruited to assess any measures that may change or challenge the pattern.

In this chapter, we will look at research on who teacher students are. We will present both international and Norwegian research on students' background variables (such as grades for admission and gender) and research on motivation to become a teacher.

2.1 Grades for admission to studies

Hanushek & Pace (1995) is the first study published in English that was based on a longitudinal data set. They used cohort data from the 1980s (USA) and could look at who chose to study to become a teacher and how they managed through the study. There was a fear that those who chose teacher education did not have such good academic skills, and that it was far too easy to get through teacher education. The study showed that it is true that a smaller proportion of students with top grades went to teacher education compared to other college educations, but it also showed that it was those with the best grades who completed. By and large, it was students with lower "intake quality" who did not complete their education. In this sense, teacher education contributed to quality assurance related to academic competence.

Mastekaasa (2008) finds that from 2005, general teacher students have a higher average grade than college students in general. The average for general teacher students is approx. 4.2 and college students remain at approx. 4. University students' average is approx. 4.4–4.6 during this period.

The fourth article in With (2016)'s dissertation takes a closer look at what happened when stricter admission requirements were introduced for general teacher education and she looks at figures right up to 2013. She finds that after the introduction of admission requirements, the grade point average for ALU students increased by 0, 2 grade points and was approximately in the middle between the average for college students and university students for the rest of the period (until 2013) (see page 62). Teacher students with an average grade of 5 or higher made up a very small part of the teacher students both before and after the admission requirements were introduced. Persons with an average grade below 3 made up a small part of the student body even before In this sense, the admission requirement led to fewer students with relatively weak admission grades, especially among students with an average between 3 and 4, but little change in the number of students with high grades from upper secondary school. With concludes that «… the secondary goal of raising the status of education was not achieved, as there has been no increase in the recruitment of people in higher grade intervals compared to before 2005» (With, 2016: 63).

With regard to PPU students, With (2016) finds that both lower (bachelor) and higher (master degree) degree candidates with a high grade point average (upper quartile) have a lower probability of taking PPU than candidates with a lower grade point average (see page 58) . Candidates with the second highest grade point average are also more likely not to choose PPU than those with the weakest grade point average. But With fin ner that this picture changes over time and varies between disciplines when it comes to candidates with lower degree education. Here, the differences gradually disappear so that there is no particular difference between candidates with a higher grade point average and those with a lower grade - there is an equal tendency to choose PPU. For candidates with higher degree education who are in the highest grade segment

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towards the end of this time period (ie the last part of the period 1975–2010) the propensity to take PPU decreases.

Figure 4 is based on information from DBH and shows the average grade for admission to studies in 2017–2021 for kindergarten teacher education, MGLU 1–7, MGLU 5–10 and Associate Professor education for grades 8–13, as well as the average for all studies in UH (blue transverse line).

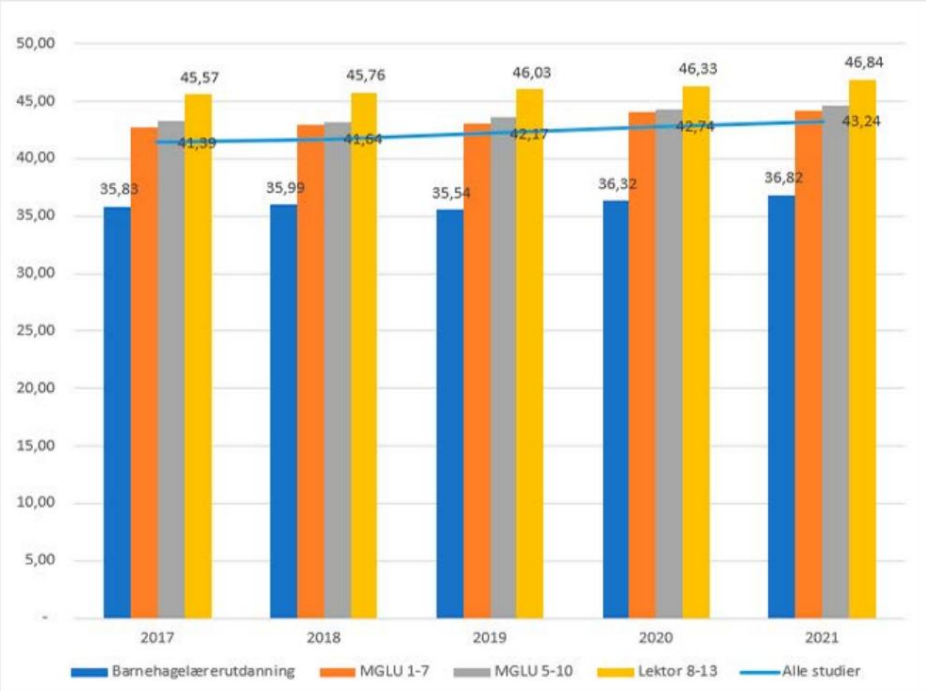

Figure 4 Average grade points for admission to teacher education and average for all students for admission 2017–2021

Information about the grade point average for this year's (2022) admission will be ready after the admission has been completed.

We see here that all the educations that are at master's level have applicants with above -average grades, and we also see that the grade point average for all has shown an increasing trend.

2.2 Motivation

In our research overview of motivation for applying for teacher education (see Appendix), we have identified 161 studies. The studies have been quality assessed, and we have compared those that were assessed to have 3-5 stars (see explanation in Appendix).

Motivations to become a teacher are often grouped into three categories: inner, altruistic and outer:

- Internal motivations include factors such as being happy to teach, personal ambition, job satisfaction and professional interest.

- Altruistic motivations are those that relate to an understanding of the teaching profession as a socially important and valuable profession. They include reasons such as wanting to contribute to society and the community, and to want to work with and help children and young adults.

- External factors are external factors such as salary, status, job security, working conditions and job flexibility or transferability.

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However, there are some other influential factors that have been identified that often fall outside the categories above: assumptions about teaching and learning, previous teaching and learning experiences, influence from others (such as family and friends) and the influence of socio-cultural factors. Some researchers categorize these as separate motivations, while other researchers place them within one of the three main categories. For example, influence from others is often categorized as an external motivation, but this is a completely different type of external motivation compared to, for example, salary or job security.

The broad categorization of motivations for choosing the teaching profession has been criticized by Richardson and Watt (2006) as each categorization does not have a precise definition, resulting in inconsistent conceptualization of concepts. For example, a desire to work with children has been categorized as an intrinsic motivation in some studies, while in others it has been classified as an altruistic motivation.

Given that the categorizations are broad across the literature, it is important to ensure that within this study there is a clear understanding of the various factors that can influence people to choose teaching. To ensure consistency in the labeling of factors across studies, we have classified the influencing factors under broad categories:

Table 2 Motivational factors for choosing the teaching profession

Factor	Examples of content
Social mandate	Being a teacher will give me the opportunity to help vulnerable children Teachers contribute positively to society
Work with children	I want a job that includes working with children / youth I like working with children / youth
Interest in teaching I am good at teaching	I like to teach Share knowledge with others Interest in the subject
Positive school experiences	I have had inspiring teachers I have had positive learning experiences
Economic benefits, e.g. job security, income, social status	Being a teacher is a safe job Being a teacher will give me a good salary
Social influence (eg from family, friends, teachers)	My friends think I should become a teacher People I have worked with think I should become a teacher
Family-friendly work	Working hours are well suited to having family obligations Holidays are well suited to having family obligations
Something to "fall back on"	I did not get into the study that was my first choice I was unsure what I wanted to be
Job transferability	Being a teacher will give me the opportunity to work abroad Being a teacher will enable me to work in many places in the country

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In the text that follows, we will refer to research from countries in Europe, North America and Australia (see Appendix for a more detailed description). The research on motivations for becoming a teacher will be summarized according to which group has been studied - students in 8–13 class, students in college / university and teacher students / teachers.

2.2.1 Students in 8. – 13. grade

Among the studies that looked at students' interest in the teaching profession as a career, less than 20% of students indicated that they would consider teaching as a career. Hunter's (1998) survey of 510 (no response rate reported) high school students in North Carolina, USA found that less than 20% answered that they would probably consider teaching or will teach. 60% of the respondents said that it was unlikely that they would teach, while 20% answered that they would not consider teaching at all. In another survey of 262 high school students in Virginia, USA (70% response rate), only 13% of students indicated that their career plans were in the field of education, with schooling as their choice (Judge 2004). Of these, 26.5% said that they prefer to teach Kindergarten to 5th grade (ie about 5-10 year old children), and no one would teach pre-Kindergarten (children younger than 5). In Christensen et al. (2019) survey of 264 high school students in the United States said only 22% would consider teaching, and only 4% thought teaching was the best career for them.

When it comes to what would encourage school students to choose the teaching profession, the common factors among the studies with medium quality (2 * and above) are interest in the subject, perceived ability to teach, job satisfaction and desire to work with children. Christensen (2019) found that self-efficacy, ie the belief in one's own abilities, was the variable that could best predict (predict) who would consider becoming a teacher. Encouragement from family and friends were also strong predictors. Gender and academic success also predict which students choose teaching. Girls and students who thought they were average students were more likely to want a teaching career. Mangieri's (1984) study of over 4,000 students found that the student's innate interest in the subject and their acquired knowledge and skills in a subject area was a motivating factor in their decision to become teachers. The desire to work with children / young people is also an important factor. However, prestige (or status), sense of order and working conditions were not important for those who were interested in teaching, but were seen as very important for those who were not interested in teaching. There is also another gender difference: Boys have a greater tendency (56%) to consider working conditions as very important compared to girls (28%). This was a large study involving over 4,000 (87% response rate) high school students in six states in the United States. This study was rated at 3 * due to the scope and inclusion of a comparison group.

Male students in Switzerland also reported that their perceived ability was an important factor in their decision (Keck et al. 2017). Regression analyzes, however, indicate that key motivating factors were interest in working with children and young people, the importance of having free time for other things and having relevant experience from working with children. These are factors that influence boys' decision. Having time off for other things and having work experience from working with children / young people increases the probability of taking teacher education by 8.9 times. Furthermore, several international studies show that fathers can be important for boys' choice of teacher education (Brookhart & Freemann 1992; Fokkens-Bruinsma & Canrinus 2012; Watt & Richardson 2008; Thomson, Turner & Nietfeld 2012; Woolfolk Hoy 2008).

An important finding is that the majority of male teacher students made the decision while they were students in the school . This was also the case among German students (Faulstich-Wieland, Niehaus & Scholand 2010) and students in England (Gorard et al. 2021). Opportunity for professional advancement was not considered an important factor for those who decided on teacher education. But for those who did not want to become teachers,

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Professional advancement, status and financial security are important in the choice of profession. This study was rated at 2 * due to the low response rate in the follow-up and the small sample (612 men in the first survey and only 226 in the follow-up). Christensen's (2019) study also indicated that the participants found it important to be encouraged by family and others to consider teaching, so the social influence factor seems to have an influence.

Another study conducted in the United States among African-American, Asian-American and Latin American students (Wong 1994, 646 students in 7th and 8th grade from eight schools in California) showed that students' experience of their own schooling is an important factor, especially for male students. . The study found that those with negative perceptions of the school / classroom environment were less likely to express interest in teaching, while those who felt belonging to the school were more likely candidates to consider teaching as a career choice. It was also found that Asian students had a more positive perception of school / the classroom environment than African American and Latin American students. European-American students were no more likely to consider teaching as a career choice than other groups. The desire to teach and work with children / young people were key factors that influenced the students' interest in teaching . Those who expressed interest in teaching have a positive perception of teachers' salaries, even if they are not motivated by money. They also have a positive school experience and feel that the teachers are respected by the students. Family is also another factor. These students believe that their families want them to be teachers. The study was rated at 2 * due to ambiguity in the sample strategy and response rate.

Summary

- Pupils' own positive experiences with school can have an impact on the choice of teaching profession.
- Parents seem to be important advisors, and fathers can be of great importance to boys choose the teaching profession.
- Belief in one's own abilities as a teacher can influence choices, and having some experience from kindergarten / school can influence future choices.
- What makes the job as a teacher attractive may be different, but perceptions of attractiveness can also influence choices.

2.2.2 Students in higher education

Among the studies that examined students' motivation to choose teaching as a profession, about half of the students stated that they had considered teaching at some point. In one of the largest studies from England with approx. 4,500 students across a wide range of disciplines and universities, over 59% of the students answered that they had considered teaching as a career (Gorard et al. 2021). Of these, 20% had serious intentions of becoming teachers. The figures are the same in Norway (Kyriacou et al. 2002a) where 55% of the 84 first-year students who were asked stated that they had considered becoming a teacher, and 14% who said that they had seriously considered becoming a teacher. A previous study by See (2004) involving 1,845 students and student teachers in Wales and the South West of England found that 64% of respondents had considered becoming a teacher. Of these, 30% said they had concrete plans to become teachers. The figures in See's study from 2004 are slightly higher because they also included teacher stude Elfers et al. (2008) survey of 718 students from all cohorts in Washington, USA, reported the lowest number of students willing to consider a career in teaching: 40%, with only 6% seriously considering it. However, this study focused only on students in mathematics, science, computer science and engineering degrees. Students on these courses are traditionally on

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a career path that is not teaching-oriented, which may explain the low interest in teaching among this group.

Women are slightly more likely to indicate an interest in teaching than male students. For example, Gorard et al. (2021) that 62% of the female students assessed the teaching profession, while 55% of the male students stated this. Furthermore, 24% of the women seriously considered the teaching profession, while 14% of the men seriously considered this. White students stated that they were most interested in general, while students of South Asian descent were most likely to take it seriously. Students with dark skin color (classified as "black" in the study) and students of mixed ethnic origin expressed the least interest in the teaching profession.

There are ten studies that examined students' motivations for choosing teaching as a career.

A number of studies also examined factors that influence career choices in general. In a survey among 84 Norwegian students at one university (Kyriacou et al. 2002a), almost all students (98%) answered that they looked for jobs that are pleasant, with a pleasant working environment and pleasant colleagues. All this emphasizes the importance of a positive work environment and ethos. The problem that is highlighted here is that only 9% of the respondents consider teaching to be a very pleasant job, and only 27% believe that being a teacher means that you are part of a pleasant working environment.

Students in England also considered job satisfaction and well-being as very important in what they look for in a career (Gorard et al. 2021). Across the entire range, job satisfaction, salary, job security, career prospects and an opportunity to develop new skills and interest in the study subject were the most influential factors that influenced career choices. These are generally marked as external factors in most of the research in this area. Interestingly, Norwegian students (Kyriacou et al. 2002a) were more concerned about wage development over time in their careers than the starting salary.

Kyriacou et al. (2002a), Elfers et al. (2008) See (2004) and Gorard et al. (2021) are the few studies in this overview that compared the motivation of three groups of people: those who had not considered the teaching profession, those who had considered becoming a teacher but still did not want to apply and those who seriously considered becoming a teacher. When the views of those who have considered becoming a teacher are compared with those who did not want to become a teacher, the results are different. For example, students in Norway who did not show interest in teaching tended to value external factors such as salary and promotion prospects highly (Kyriacou et al. 2002a). Similarly, See (2004) also found that non-teachers were more likely to value factors such as pay, promotion opportunities, job status and good working conditions as important for career choice.

Elfers et al. (2008) noted that students who seriously considered becoming a teacher were more attracted to a starting salary comparable to that in STEM professions (Science, Technology, Engineering and Mathematics - ie a science education) than students who were not interested in teaching (71% versus 48%). There is also a gender difference in that men are more motivated by economic factors, such as loan forgiveness than women. Almost half of the students (44%) state that opportunities for advancement and leadership tasks beyond the classroom will definitely encourage them to consider teaching. More than half of students who stated that they were colored answered that they were definitely encouraged by such incentives compared to white students (41%). Among those who seriously consider the teaching profession, positive school experience, especially the positive experience they had with their own teacher, is an important influence on their decision.

Among those who did not want a teaching career, the biggest perceived obstacle is the relatively low salary (Gorard et al., 2021). Elfers et al. (2008) also found teachers' salaries were something that made students

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would not consider the teaching profession. It must be noted that Elfer's study was conducted among STEM subject students who are more likely to expect higher salaries in other positions than in school.

Almost all of the studies so far are cross-sectional studies that have used questionnaire surveys to identify factors that are most likely to attract people to the teaching profession based on participants ' self-reporting. We have found few experimental studies that test which of the motivational factors identified in cross-sectional studies will encourage people to become teachers.

One of the few experimental studies was performed by Giersch (2016). 238 students at a University of North Carolina who do not plan to take teacher education or try out as teachers were included in this study. The researcher developed a list of 10 reasons to teach. These were divided into two categories: a list emphasizing "social benefits". These are often classified as "altruistic motivations", such as the chance to contribute to society, the opportunity to influence children's lives. The second list contains elements that emphasize "personal utility". These include factors such as the ability to use teacher qualifications in other contexts or to work anywhere in the country and family-friendly working days. Participants were then randomly assigned either "personal benefit" values, "social benefit" values or no treatment. The treatment consisted of the participants in group 1 being presented with situations that showed the teaching profession as a profession that had social benefit, the participants in group 2 were shown situations that showed that the teaching profession had personal value, and the control group had no measures.

Participants were then asked how attractive teaching was to them. The results showed that students who received treatment with "personal benefit" were more likely to find the teaching profession attractive (66%) or very attractive (21%) than those who were exposed to social benefit treatment (58%). The control group (those who were not given any treatment) were least likely to find the teaching profession appealing (46%). Logistic regression analysis indicated that subjects who received either social or personal benefit treatment were 2.3 times more likely to rate the teaching profession as attractive compared to the control group. The findings suggest that exposure to the personal and social benefits of the teaching profession can potentially increase students' interest in the profession (for both men and women).

In a recent experiment, Giersch (2021) tested 10 motivating factors (taken from Watt & Richards ' 2007 FIT-choice questionnaire instrument) on 597 students at one University of North Carolina. These students did not intend to become teachers. The students were randomly divided into three treatment groups (one group exposed to inherent rewards, one for external rewards or personal benefit and the third group for altruistic rewards or social benefit) and a control group without treatment. They were then asked how likely it was that they would choose the teaching profession as a career. The results show that the probability of choosing teacher education increased for all students who were exposed to the three treatments, but not for the control group. This suggests that all of these factors (intrinsic, external, and altruistic) were influential, but internal rewards were more important to non-teachers, followed by altruism (social benefit) and ultimately external reward (personal benefit). There was a small gender difference, with men being more easily attracted to the teaching profession by external rewards (salary, etc.). As with Gorard et al. In his study (2021), Griersch also found that students with lower academic performance were more receptive to the three treatments or motivators. The results are different when the participants were teachers or student teachers. They tend to rank altruism more important than the other factors. This underscores the need to include those who are not in teacher education or the teaching profession, but who may be attracted to it.

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To test the findings that suggest that people who have considered becoming a teacher are more likely to want to become teachers if they perceive the teaching profession as attractive (eg Gorard et al. 2021; Kyriacou et al. 2002a), performed Klassen m.fl. (2021) a psychological experiment using theories of person job-fit among 111 students studying STEM-based subjects in England. Several psychological studies have shown a strong connection between person-job-fit and job satisfaction, commitment and staying in the job (eg Vogel & Feldman 2009). Uggerslev, Fassina and Kraichy's (2012) meta-analysis showed that the strongest predictor of attraction to a career is the extent to which an individual feels that it is suitable for the job, which suggests that perceived "fit" plays a key role in the individual's career decisions . . By combining realistic job descriptions (where the respondents are presented with a realistic presentation of the job / teacher work) with feedback on person-job-fit, the study is able to measure the perceived similarity between the participants' own attributes (how to respond to real classroom scenarios) and the characteristics required of a teacher (as experienced teachers have described them). This not only gives the participants feedback on their identity as a teacher, but also avoids them choosing themselves out of the teaching profession based on a misunderstood preconceived notion that they may not be suitable to be a teacher. While the results did not show an association between the participant's own characteristics (eg skills, knowledge and abilities) and those required by teachers, their scenario points (how they would react to the scenarios) could predict whether they were more likely to explore a teaching career. Interviews with a subgroup of participants suggest that the exercise enables participants to reflect on their abilities and increase interest in the teaching profession.

Summary

- The studies indicate that it is possible to influence how positively the teaching profession is experienced, and that this may be especially possible for people who have assessed the teaching profession, but have not applied.
- There are indications that external conditions in the profession (salary, career opportunities) may be more important in attracting groups that have not chosen teacher education in the first place and in attracting more men.
- In studies of motivation, it is important to also include people who have not chosen teacher education, but it must be emphasized that none of the studies can say anything about any of the participants actually changing their mind and choosing teacher education.

2.2.3 Teacher students and teachers

The vast majority of studies on motivation to become a teacher have been carried out among those who have already chosen to become a teacher. In addition, the respondents are asked to answer questions about choices that are behind in time. When decisions are behind time and the answers are given well after the choices were made, it can be difficult to know whether it was actually the reasons given that were important for the decision. Therefore, the vast majority of studies that report on teacher students 'and teachers' choices have been assessed with a quality score of 2 *.

Han & Rossmiller (2004) are among the few who have a prospective study (quality assessment 3 *). They analyzed data from the National Longitudinal Study of High School Class and five follow-up studies to find out whether factors such as students 'background (family education and professional background), their level of education, subject choice, teachers' pay, work experience, cognitive abilities and individual characteristics are related to their career choice. The respondents were tracked over time to see who entered the teaching profession and who remained in the teaching profession. The committees were divided into three groups: those who completed teacher education but did not enter the teaching profession; teachers who are currently teaching and former

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teachers. A total of 1,038 students with complete data were included in the analysis (response rate 84%). The study revealed that men were more concerned with the pay differences that exist between the teaching profession and other job opportunities. Wage differences, on the other hand, were not an important deterrent for women. The authors reckoned that it was not the salary itself, but the teachers' lower financial status compared to other professions that was significant. This supports the findings from other studies that practicing teachers and those who reported interest in the teaching profession are more likely to be motivated by the teaching profession's intrinsic value. Most teachers also say that they do not go into the profession for the money. Job satisfaction was an important factor in their decision to stay in the profession. The more satisfied the teachers were with the profession, the less likely they were to drop out of school.

The study for Savage et al. (2021) is also a prospective study with quality assessment 3 * which includes data from ninth graders in Germany and their later choice of education (N = 3623). The purpose was to test the significance of four factors that they assumed would be able to predict (predict) the choice of teacher education. The four factors are: student / family background, academic results / competencies, personality and motivation.

The results indicate differences between students who chose teacher education and those who chose other educations (eg whether they liked mathematics, gender, income), but the researchers do not find that these factors are of great importance in predicting the choice of education. The variables that best predict whether a student in ninth grade chooses teacher education a few years later (in the German dataset), is:

- one of the parents is a teacher (p = 0.020)
- it is important to have children (p = 0.002)
- it is possible to advance professionally (p = 0.000)
- high job security (p = 0.031)
- perceptual speed (p = 0.021)
- parents want them to become teachers (p = 0.000)

Argentina (2013) used data from 3,369 teachers in Italy collected in a national survey using a stratified random sample. The focus of their study was to look at differences in motivation to become teachers among men and women. In general, men and women were motivated by altruistic and inherent factors: the most important motivations are work with children, social contribution and professional interest. But compared to women, men were less motivated by inherent / altruistic values. They were more attracted to the benefits associated with the teaching profession, such as working hours. Analyzes suggest that this may be due to the fact that men are more likely to have another job in addition to being a teacher, a phenomenon that is less common among female teachers. Good working hours are more compatible with an extra job for male teachers. Stability at work is another motivating factor for men. Men were also more likely to say that they chose the teaching profession as a reserve alternative due to a lack of alternative opportunities or that they ended up in the teaching profession by chance. This is probably due to the choice of subjects at the university - that there was less demand for the subjects outside school, and especially for male teachers in primary school.

The study by Munthe and Malmo (2011) also includes other variables that we do not find in the international literature. Their study is a sub-report from the Follow-up Group for primary and lower secondary teacher education

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the reform based on a survey among a national sample of first-year GLU students (N = 968). They have asked the students in the first semester to answer questions about why they chose teacher education, and the categories used are: professional reasons = interest in working with children / young people and subjects, educational reason = interest in the study itself, practical and financial reasons = f. ex. holidays suitable for family, good pay. A fourth category is "coincidences". The results indicate that the students state professional reasons as a main reason why they chose the education. In second place is the education itself and interest in it, followed by practical and financial reasons. It is the fewest students who state more coincidences as a reason for choosing the study. Munthe and Malmo (2011: 20) look at the covariance between different reasons for choosing the education and study habits in the education. They find a moderate and positive connection between being professionally motivated and having an interest in the education itself (r = .269 **) and a moderate and negative connection between being concerned with working with children and subjects and that it is coincidental that they has chosen teacher education. That it is more or less coincidental that they have chosen teacher education only correlates positively (and weakly) with practical / economic reasons for choosing education (r = .111 **). More random choice of education correlates negatively (and weakly) with study habits (r = -. 101 **). That is, there is a certain tendency for those who state to a greater extent that teacher education is more randomly chosen, also state to a greater extent that they are motivated by practical (long holidays) and financial (salary) reasons and they also state in to a greater extent lower s

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The pedagogy students 'motivation survey9 (Why choose teacher education?) Among teacher students (2019) examined students' motivation to choose teacher education and how satisfied they were with their choice. The three most stated statements about why the respondents have chosen teacher education are:

- I wanted a job that gave me the opportunity to influence / make a difference - 55%
- I wanted a meaningful job - 53%
- I wanted to work with children and / or young people - 52%

The three most stated counter-arguments for not starting teacher education (Pedagogstudente nes motivational survey from 2019):

- Wages were too low - 29%
- I experienced that there was too much work pressure in the profession
- I think the education was long

73% of the associate professor students stated that they were satisfied or very satisfied with having chosen teacher education. Students were asked to consider a number of types of motivation and indicate how important these had been for their own choice. The types of motivation the associate professor students most often considered important or very important were:

- I wanted a meaningful job (84%)
- I wanted a job that gave me the opportunity to influence / make a difference (81%)
- I liked to teach (80%)
- I wanted to work with the subject I immerse myself in (78%)
- I felt confident that it would always be possible to get a job as a teacher (72%)

Summary

- Across all studies (see also Appendix), the highest ranked motivations for choosing teaching among teacher students preparing for kindergarten, primary and secondary school were: perception of their own teaching abilities, how they saw the value of teaching (innate interest in teaching: sharing knowledge, ability to teach and professional interest), altruistic reasons (the desire to make a social contribution, shape the future), and to work with children / youth.

- Positive previous experience with teaching and learning (ie positive school experience, work experience) was also an important factor.

9 https:// www.pedagogstudentene.no/ globalassets/ _pedagogstudentene/ studiehverdag/ hvorfor-velge-larerutdanning/ motivasjonsundersokelse-bland-larerstudenter.pdf

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- Several studies point to the parents' importance for choosing a profession.
- Job security is also important, but wages are not ranked as highly as a motivator to apply for the teaching profession.
- Economic prospects are important for students who do not primarily think about the teaching profession, and it seems to have greater significance for men.
- Most studies identified 3 main sources of motivation: intrinsic motivation, external to invasion, and altruistic motivation. These themes are repeated in almost all studies across countries. This is not surprising as the majority of studies used some versions of Watt & Richardson's FIT-Choice instrument, which easily classifies the teacher's motivation into these three groups.
- Analysis of data is often simple frequency counts such as the average scores for each factor, and almost all were focused on those who were already in the process of teaching or training.

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We included 55 studies from the international database searches that identified studies on strategies to ensure more qualified teachers in the school (see appendix). It is *school* that is the object of these studies, not kindergarten. In the vast majority of cases, "kindergarten" or "pre-kindergarten" teachers can also be included in the studies, as these teachers are also employed in schools (not in kindergartens).

Strategies that are researched internationally are financial strategies, alternative career paths, and mentoring schemes. In chapters 3.1 - 3.3 we will provide insight into some of these studies and otherwise refer to the Appendix for a complete overview.

3.1 Financial incentives

A total of 40 studies on financial incentives to increase recruitment were included. The overall results are mixed. Ten of the studies that were considered to be of higher quality (2 * or higher) showed that the use of financial incentives could increase access to applicants. Six of the studies had mixed results, while four showed no effects. The strongest studies (3 *) indicate that financial incentives can be promising, but often with conditions.

The strongest studies also indicate that it may be appropriate to provide higher salaries or bonuses to compensate for a tougher working environment in schools where it is difficult to recruit teachers (see e.g. Hough & Loeb, 2013; Cowan & Goldhaber, 2018; Glazerman et al. 2013; Defeo et al., 2016). What we do not know is whether the willingness to continue working at these schools continues after financial incentives may be withdrawn or are no longer available.

Hough & Loeb (2013) found that by increasing salaries between $ 500- $ 6300 and giving a bonus of $ 2000, only the San Francisco school district can increase the number of teachers in disadvantaged schools by between 27% - 37%. Cowan & Goldhaber (2018) found similar results in the Washington district. The proportion of new employees increased by 38%. Also in this case, only those teachers who were willing to work in disadvantaged schools were allowed to take part in increased pay.

Glazerman et al. (2013) conducted a randomized experiment. Teachers in a district were first "matched" to find pairs that were comparable. Then they were randomly drawn to either participate in being offered a financial incentive or not. The experiment consisted of 85 pairs of teachers across 114 schools. The proportion of vacancies that were filled increased from 44% the year before to 88% in the intervention group compared with 71% in the control group. They also found that the new employees were to a greater extent highly qualified. This incentive included a $ 20,000 bonus scheme for high-achieving teachers, and teachers working in low-scoring schools also received a $ 10,000 scholarship to commit to stay in school for two years.

Steele et al. (2010) also found positive effects of a financial incentive to attract teachers to schools that had previously underperformed in California. Teachers received $ 20,000 in return for committing to teaching at the school for four years. There were twice as many teachers employed during the period this measure lasted compared with the years before and after.

The North Carolina Teaching Scheme (NCT) (Henry, Bastian & Smith, 2012) is really both an economic incentive and an alternative teacher education program. It aimed to attract the best students to the teaching profession. Students who were considered to be very talented received

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$ 6,500 per year to take teacher training at a university in North Carolina and then have to commit to four years of work. If they quit or withdrew from this before the four years, they had to pay back with 10% interest. The evaluation that Henry et al. (2012), shows that "..the offer of competitive, merit-based scholarships was sufficient to recruit rising college freshman with top academic qualifications into the teaching profession," they write on page 88. The researchers found that there was a tendency to that teachers who had received scholarships during their student years were employed in high-performing schools where there was little poverty. Furthermore, analyzes showed that «competitive scholarship recipients teach in classrooms with students who had performed significantly higher on their prior year exams; in 9 out of 15 comparisons scholarship recipients teach in classrooms with significantly fewer students who are eligible for free or reduced-price lunch »(p. 88). The researchers also conclude that these teachers are skilled and get good results among the students compared to other teachers. It may also seem that teachers stay in the profession to a greater extent than others. Results show that more than 90% of teachers take a third year as a teacher and 75% take a fifth year (beyond what is required). Results for other groups of teachers are that 80% take a third year and 68% take a fifth year.

Another study, this time from England, analyzed the effects of increased pay on recruitment and that teachers stayed in work in mathematics and science (Sims, 2017). Results from this study indicate that a 5% salary increase for five years (2010–2015) for teachers of mathematics and science increased the proportion of teachers who remained in the profession. But the measure had nothing to do with increasing the number of people who wanted to become teachers.

The international search also identified several studies from Norway. Falch (2011) has used a natural experiment that took place in Norway. In the period 1993–2003, newly employed teachers in Nordland, Troms and Finnmark received 10% extra salary upon employment. This was a recruitment attempt to attract more teachers to places where it was difficult to recruit qualified teachers. In this study , Falch analyzes data at the individual level to see if the measure has an effect on the extent to which teachers quit their jobs. Among other things, he finds that an increase in salary reduces the probability of leaving school by 4.8–5.8 percentage points (different models).

In 2017, Falch published a new study on the same data (Falch, 2017). Here he reports that a 10% increase in salary increases recruitment by about 30%. Wage increases seem to have more to do with the recruitment of younger teachers than older teachers, while wage increases may have more to do with older teachers staying in the job than younger teachers becoming. There are also indications that wage increases may have more bearing on the recruitment of women, and on retaining men.

Gjefsen (2020) reports on a measure introduced in Oslo schools from 2009 where teachers who applied to schools that were considered difficult to hire qualified teachers could receive 5% higher salary in addition to being able to be part of a mentoring scheme or get study to qualify as a teacher. Whether teachers participated in the mentoring scheme or took teacher training varied. She finds that the measure increased the number of teachers with a master's degree, and there are also indications that it had a positive effect on student results.
Although only new employees were allowed to take part in this scheme, it did not lead to other teachers moving away from schools that were part of the scheme or resigning their positions.

There is a systematic overview of knowledge in our selection of studies. See et al. (2020) have synthesized results from high-quality studies and conclude that financial incentives can contribute to recruiting for the teaching profession, but they are most important for people who have already considered becoming teachers, and when they can get a job at schools that they graduates experience as attractive.

Liu et al. (2004) have interviewed recipients of bonus incentives in Massachusetts, and find that it is not the bonus itself that influences their choice to become a teacher. It is the alternative certification pro

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the program that was developed together with the bonus scheme which is attractive. Although the measure was intended to attract people who had not previously considered becoming a teacher, the interviews showed that those interviewed had already considered becoming a teacher and had also taken steps towards the profession. In addition, the intention of the program was to get teachers to work in more disadvantaged schools, but only 45% of the first cohort and 36% of the fourth and last cohort did so.

Summary

- Increased salaries and other financial incentives can affect teachers' choices, and e.g. increase recruitment call to areas or subjects where it is difficult to recruit teachers.
- There is no research that shows that people who have not already considered becoming a teacher will consider becoming a teacher given increased pay or other financial incentives.
- Although increased salaries (eg 5% supplement) may increase the likelihood of recruiting highly qualified teachers, there are no indications that this will lead to an increase in the number of teachers in total.
- Financial incentives seem to contribute to schools that already have good results recruiting more skilled teachers, but not to schools that perform poorly recruiting highly qualified teachers.

3.2 Alternative programmer

Cochran-Smith and Villegas (2016) wrote a review of alternative teacher education programs in the book *Handbook of Research on Teaching* (5th edition). Alternative programs emerged in the United States in the 1980s and 1990s, and were initiated without any particular knowledge of possible effects or consequences. What is in the term "alternative programs" also varies greatly, but as the authors point out, "traditional programs" also vary greatly in the United States. What may nevertheless seem to characterize the traditional programs is that they are "front-heavy" when it comes to academic learning and provide a gradual introduction to the practical profession, while alternative programs are more "back-heavy" when it comes to academic learning. Alternative programs quickly put students to work with a mentor and eventually introduce academic courses. Reasons for creating alternative programs are often a perceived need to recruit more teachers and preferably specific teachers: teachers who do not only represent the white middle class, teachers who are willing to work in schools in more vulnerable regions or in the inner core of large cities with a good deal of poverty and social problems, or teachers who have a master's degree in specific subjects that are needed in school. Much of the early research was concerned with being able to say whether one form of qualification was better than the other - measured as teachers 'effect on students' results. Cochran-Smith & Villegas (2016: 453) write that this research is «inconclusive». Being a qualified teacher is important throughout all studies, but there are studies that find no differences between the type of qualification, small differences and some differences when it comes to different programs.

Fourteen studies in our sample take a closer look at alternative programs and their effect on increasing the number of newly qualified teachers (see Appendix). Several of the programs combine financial support and alternative education.

The study by Zumwalt et al. (2017) find an increase in the number of teachers recruited through the alternative track they study. There are several teachers who work in inner city schools and who represent a greater diversity of ethnicities who choose the alternative education, but this

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the program has not contributed to more teachers staying in the job compared to the traditional program.

Papay et al. (2012)'s evaluation of the Boston Teacher Residency (BTR) program showed that the BTR program was more successful in recruiting and educating math / science teachers than others, it recruited a greater diversity of teachers, and several of the teachers continued to work in the school. However, results showed that BTR teachers were no more effective (measured as students' results) than non-BTR teachers, and were much less effective in mathematics. This changed after four to five years when the BTR teachers achieved better results than other teachers (note that the comparison group was small).

The BTR program has been developed with the "residence" of medics as a model. It emphasizes classroom practice and students work a full year with a mentor teacher. In addition, they must attend classes and must complete a master's degree before they can be employed in Boston schools. The newly qualified teachers undertake to teach in Boston for three years after completing the education, and they receive a scholarship of 25% of a regular teacher's salary in Boston the year they are in residence. They are not guaranteed a job afterwards, but must apply for vacancies. This study also has weaknesses; blue. there are few people in the comparison group.

Harrell and Harris (2006) compared the recruitment of teachers who took an online education program with those who took a traditional teacher education program. The program was designed to recruit 8-12 teachers and includes a semester of supervised practice. It is designed to be flexible and less expensive than other programs. The aim was to recruit people who wanted to change careers, who represented ethnic minority groups, and people who had a professional background

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in subjects in which it was difficult to get teachers. The analyzes are based on data from 632 students (191 online and 441 in traditional programs) in the years 2002/03 and 2003/04. The results indicate that the online program was more successful in recruiting men (49% online based, 32% traditional) and ethnic minorities (32% vs 22%). There were also several who wanted to change careers who chose the online program and people with specific subjects that were needed. This study was of short duration, and it is uncertain how recruitment continued and it is also uncertain how the teachers differed in other areas (eg knowledge and competence). We also do not know how it went with the teachers in terms of how long they stayed in the teaching profession.

In the study by Clewell & Villegas (2001), they summarize the results of an evaluation that took place over six years where the purpose was to evaluate the four different tracks that it was possible to follow in the Pathways to Teaching Careers program. Each of the four tracks was targeted at a specific population group (eg minority groups). In this article, they address the two tracks that were aimed at recruiting (1) paraprofessional and unqualified teachers and (2) people who enlisted in the Peace Corps. In the first track, people who were already working in schools but who were not formally qualified for the work were identified. Track 2 identified peacekeepers returning to the United States. The current candidates in these tracks were placed in schools and received salaries while studying to become teachers. The analyzes showed that several of the students in the alternative tracks completed the education (75% versus 60%), and a larger number of teachers from the alternative tracks took jobs in schools where it was difficult to recruit teachers. What we do not know is how much larger the number was and whether there are significant differences. Three years later, more Pathways teachers were still working in schools compared to the national average (81% versus 71%).

In Norway, teacher students have opportunities to study in online, group-based or "regular" programs, and this is done to be able to adapt education to different needs and to increase opportunities for recruitment. It is an intention, without us necessarily knowing how great the effect is.

A Norwegian alternative to "Teach First" has also been developed. The program recruits candidates who have a master's degree or PhD in science. There is a selection of applicants who then receive a two-year management education with PPU at the same time as they work at one of the schools in Oslo. On the programme's website10 we can read that it is value-based and demanding and that the program "is about your students' learning and goal achievement through your development as a teacher and leader." The goal of the program is described as: to develop yourself into an exceptionally good teacher and leader.

Nesje (2016) has studied motivation for applying for «Teach First Norway» among first cohort students (N = 13). The sample consisted of three women and ten men, 12 with a master's degree and one with a PhD. The results are complex, and Nesje describes different motivational groups: (1) Four men: not interested in teaching primarily, but attracted to other components of the program - not least the opportunity for leadership development. (2) Three women and two men: High interest in teaching and in particular teaching in professional interests. (3) Four men: Altruistically oriented towards the teaching profession, but also with a tendency to view the teaching profession as a «fallback career». The various motivations and justifications indicate that the program may recruit people who would not necessarily have considered becoming a teacher in the first place, but it is not the intention of this study to assess it and thus the study can not answer such questions explicitly.

10 Teach First Norway

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Summary

- The strongest studies indicate that alternative programs can potentially help recruit more teachers (men, ethnic groups, different subjects that are needed), but no one can demonstrate causality.
- The programs are very varied, and methods and designs for studying effects also vary and are partly weak.
- Most programs combine economics, alternative education and mentors, and it is not possible to assess what has the most effect.

3.3 Induction with guidance

Offering guidance to new graduates is a strategy that has - as a rule - a goal to facilitate the transition and contribute to fewer graduates choosing to quit as a teacher. We still found three studies where the mentor scheme was meant to be a recruitment strategy. The study, which was considered to have the highest quality and which was based on large amounts of register data, shows that induction and guidance had no clear effect on recruitment (You, 2012). That is, it was not possible to see an increase in recruitment after induction was introduced in New York City. Another study that was considered weak as it is based on teachers' assumptions, not their actual choices, finds that teachers (N = 278) consider guidance as a good recruitment strategy, and this is considered higher than financial incentives and alternative programs (Kane, 2010). The third study (Wood 2008) evaluated a measure with the guidance of recent graduates (Rodel), but based on the results presented, it is not possible to say whether this had a recruitment effect.

Summary

- There is no research that can show that the guidance of new graduates has a recruitment effect.

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We explain the method and selection of studies in Appendix. We searched for studies from the period 2015–2022 and of 2179 studies that were identified, we included 178 studies that are about keeping teachers in school. All studies were quality assessed according to a method developed by Gorard (Gorard, See & Siddiqui, 2017).

Strategies that have been researched regarding how to contribute to teachers staying in school can be grouped into the following five main groups:

- Financial incentives (performance pay, financial compensation, scholarships, etc.)
- Mentoring scheme, induction program or professional development measures
- Alternative paths into the teaching profession
- Support from management and the working environment
- Accountability

4.1 Use of financial incentives

Appendices to this report provide an overview of how many studies have been assessed to what level in the quality assessment we have used, as well as what kind of results they have (positive, unclear or mixed, and negative). Five studies have been rated at 3 * (4 * is the highest score) and 19 have been rated at either quality score 0 * or 1 *. We emphasize studies that are rated at 2 * or higher. The strongest studies are able to say something about measures using at least one control group or they have a longitudinal design so that it is possible to assess change over time or say something about what happens first. We will describe some of the studies here, and our conclusion, and refer to the Appendix for information about all the studies.

4.1.1 Performance pay

One of the studies that is rated highest in terms of quality (Fryer, 2011), used a randomized control design where teachers who were calculated to have the greatest impact on students' increase in results received $ 3000. The teachers were employed at 396 public schools (primary schools, secondary schools and upper secondary schools). 233 schools were in the intervention group and 163 were in the control group. Analyzes showed that performance pay did not matter whether teachers stayed in the profession or not. The authors discuss that a possible reason may have been that the compensation was so small that it had no financial significance for the teachers.

Berlinski & Ramos (2020) studied the effects of a 6% increase in salaries for teachers in Chile that were considered to be "excellent". Teachers would receive this salary increase for up to ten years plus public recognition. The incentive did not have consequences for whether teachers stayed in school, but it did increase teachers ' mobility between schools (those who received the increase moved more often). 12,000 teachers were part of the population that was followed over five years.

A possible gender difference was pointed out in the study by Hill & Jones (2020) based on analysis of data over 2.5 years from 4930 teachers in upper secondary school. Some of these teachers received $ 12,000 more per year based

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on student outcomes in classes they taught. The study finds that there may be a tendency for men to choose to stay in the profession more than women with such an incentive scheme.

Ryu & Jinnai (2021) find a U-shaped result of a performance pay system that was introduced in North Carolina, USA in terms of effect on teachers with much or little experience. In this measure, all teachers in a school should be able to receive a maximum bonus of $ 1500 per year per teacher based on the average growth result of the students in the whole school. This was a collective initiative that all teachers would "enjoy". They find a positive connection between the incentive and that teachers stayed at work at the school, but the effect of the incentive varied depending on the starting point of the teachers' salaries and their experience. They found that teachers with higher salaries were more likely to drop out of school than teachers with lower salaries. A 1% increase in wages increased the probability of quitting by 1%. The results further indicate that it is those with the longest experience and least experience who move away from the school they are at, and they do not necessarily move to another school in the same district. This study is based on registry data on individual teachers in North Carolina over six years.

The study by Jones (2013) is concerned with performance pay that is given to teachers at schools that have teachers in mathematics and English who do a good job of raising student results. The intention was that this would help keep the teachers in mathematics and English, but everyone at the school got to take part in the incentive. In this study, they actually earned less than teachers in other districts, so the incentive was really just a way to compensate for their salaries. Performance pay was not considered an important factor in staying in work (teachers responded to a survey), but only 64 teachers responded to this sample. It is also discussed that the performance pay was given at school level, may have led to an experience that others were "free passengers" who were allowed to join due to the work of mathematics and a gel teachers. Although there are some indications that teachers stayed in school, it is not clear whether it is the incentive that has contributed to it. Researchers warn against generalizing, also because performance pay varies from place to place. They believe that performance pay has a greater effect when it is introduced for entire schools than individuals, and there are also indications that it has a greater effect for men than women.

We have identified two master's theses from Norway that look at the importance of performance pay among Norwegian teachers. Qvale & Stenersen (2015) conducted interviews among teacher students in GLU 5–10 (N = 19) and teachers in upper secondary school (N = 4) and a survey among upper secondary school students (N = 180) to investigate how young people make educational and vocational choices , what attitudes they have to salary, performance pay and to the teaching profession. The survey was conducted in upper secondary schools in Bergen (N = 33), Stavanger (N = 23), Oslo (N = 102) and Haugesund (N = 22). 8% of the total sample (or 15 students) stated that they wanted to become a teacher (only 6% of respondents from Oslo who make up the largest group).

Those who want to become a teacher stand out somewhat from the rest of the sample in the survey when it comes to questions about whether career opportunities are important for choosing a profession. 0% of those who want to become a teacher believe that this is important, while 35% of other girls and 23% of other boys state that career opportunities are important. They also stand out when it comes to emphasizing the opportunity to work with children and young people. The boys in the sample seem to be more concerned with high salaries (63% state that this is important) than the girls (30%) and those who want to become teachers (20%).

The teachers in the committee are not concerned with differentiated salaries and problematize opportunities to be able to assess the effects of teachers' efforts. They do not think it will be recruiting, but rather claim that increased basic salary and longer ladder may be something to consider.

Neteland and Tønnessen (2014) investigated the question of performance pay the year before in an interview study of twenty teachers and two principals. They also found that teachers were largely driven by an inner self

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motivation and interest in children and young people and professional communication. The teachers had a negative attitude towards performance pay, and also believed that it would not have a recruitment effect to the profession. The master's students also find that it is difficult to design a performance pay system for teachers because it is difficult to find good performance targets for this occupational group.

In a research report from BI (Kuvaas and Birkeland, 2018), we gain insight into two studies that were conducted to examine views on local wage supplements through local negotiations (which may be performance-oriented). The teacher survey contains data from approximately 1950 teachers in kindergarten and school, and the leadership survey includes data from approximately 750 leaders (51% primary school and 42% kindergarten).

Kuvaas and Birkeland describe that the main purpose of the teacher survey was to investigate whether there is any connection between the size of the local wage supplements, experiences of justice, direct incentive effect, internal motivation, affective organizational commitment and turnover intention from the profession. The authors 'conclusion is that it is very unlikely that local individual wage supplements affect teachers' motivation and working environment in a positive way. They believe that local wage supplements can lead to negative consequences for motivation and the working environment due to low average levels of what is called procedural fairness. Procedural justice is about having an understanding of the procedures chosen in local negotiations and it is an experience that they are fair. The authors point to three reasons why procedural fairness is important: (1) Satisfaction with both favorable and unfavorable outcomes increases. (2) trust and loyalty to those responsible for the criteria and procedures increases. (3) Procedural fairness is positively related to both work performance and extra role behavior. Extra role behavior is about the extent to which the employees show up and contribute beyond what the employment contract dictates. Low levels of procedural fairness thus mean that there is no common understanding of the possibilities for fair distribution of wages based on local negotiations.

A main conclusion from the management study is (p. 12):

> The managers
> between their input and
> discussions
> well-used lead time. to a
> large extent made it
> If the leaders have given input to the local wage supplements, the various ones
> of have to a small extent basis
> concerned individual performance results and that need for large
> with must the context of small proportion of local wage supplement
> as «Management tools».

The authors recommend that if it is desirable to use local wage supplements, procedural fairness should be increased. Then one should focus on a few, objective goals that it is possible for everyone to understand and assess without too much work on the part of the leader.

Summary

- It is not possible to conclude that performance pay has an effect on teachers' choice to stay in work. Results in the strongest studies are mixed.
- Teachers highlight difficulties in finding good ways to assess achievement.
- Some of the studies in our sample indicate that performance pay may be more important for men than women.

In addition, leaders do not experience that involvement in the is

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4.1.2 Strategic use of salary to recruit within subjects or to specific districts / schools

Salary can also be an incentive, regardless of how well the teacher performs. It can be used to attract teachers and to retain teachers in subjects in which it is difficult to get teachers, or to regions or schools to which it is difficult to recruit qualified teachers. Others may be concerned about whether an experience of poor pay at all is the reason why teachers drop out of school.

Gilpin (2011) investigated whether higher pay would lead to teachers staying in work. He followed 5,000 teachers in public schools in the United States over 5 years and compared their salaries in school with salaries outside the school for teachers who had chosen to quit. He found that only teachers with less than six years' experience left school to receive a higher salary. What mattered most about whether teachers stayed or left school was their experience of the work environment.

You (2012)'s study was concerned with newly qualified teachers in New York City. They could follow several cohorts of first-year teachers and study the effect of a $ 1,000 salary increase for graduates. This study finds that such an increase in salaries for graduates could lead to 1% more staying in work (but we do not know how many years the effect lasted), but if it was possible for graduates to get $ 1000 more in salaries in other positions, increased the tendency to opt out of the teaching profession by 0.5%.

A study from San Francisco (Hough & Loeb, 2013) found no indication that salary had any bearing on teachers' decisions to stay in school. San Francisco had introduced higher salaries for teachers who taught subjects in which it was difficult to recruit teachers and who also chose to teach at schools where there was a higher degree of poverty among students and greater ethnic diversity. These teachers also received a "retention bonus" if they chose to stay after four years, and even more if they chose to stay at school after eight years. The results show an increase in the proportion of teachers who were qualified in the subjects in which it was difficult to recruit (increase from 27% to 37%), and there was also an increase in the proportion of newly recruited (from 49% to 54%). However, there was no statistically significant difference in whether teachers remained in school between teachers who received increased pay and those who did not receive increased pay. More than 90% of the teachers remained in the district and more than 85% remained at the school they attended, regardless of whether they received a wage incentive or not.

Smith (2014) found what is described as marginal evidence that teachers who received more in pay were more likely to stay in the profession (Texas, USA). But the results were mixed: In larger cities, the researchers found correlations between large class sizes and departure from the profession or from school, while in areas around the cities it was the school's finances and resources that were related to departure / mobility. The researchers found that being in schools with greater challenges in urban areas was actually related to teachers staying in school. Whether teachers remained in school or not varied with different factors across the different districts. What the researchers draw as a conclusion is that it is not the pay conditions, but the working conditions that are important for whether teachers become: student composition , resources at school, the composition of the peer group, etc. The study is not considered particularly strong as it is based on correlation and is not able to preach. But it joins the ranks of studies with similar results.

There is a study in our sample (Sims & Benhenda, 2022) from England that finds that mathematics and physics teachers who are qualified to get approx. £ 2000 more per year in salary (applies to some districts in England) is more likely to be. The increase in the proportion of teachers who stayed in school was 23% in this study. However, as the year of publication of this study indicates, this is a new study and the authors have no insight into how long this lasts.

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In the period 1993–2003, newly employed teachers in Nordland, Troms and Finnmark received 10% extra salary upon employment. The studies of Falch (2010, 2011, 2017) are based on data on teachers in these counties. The Ministry of Education and Research initiated a recruitment attempt to attract more teachers to places where it was difficult to recruit qualified teachers, and was thus a natural experiment. The schools themselves could not decide whether they wanted to participate in the measure, it was decided centrally on the basis of certain criteria. Schools that were included had at least 20% teacher shortages. Only persons with approved teacher education and a minimum of 50% position were qualified to receive a 10% salary increase, and the scheme applied to new hires. It also meant that a school could "go out" of the measure if the situation with recruitment improved. The data base consists of 79135 teachers. 10868 of these were employed in one of the counties with «initiative schools», and 2034 of the teachers were employed at an initiative school during this period. On average, 15.5% of the teachers were new employees. An important result that Falch emphasizes is that the salary increase of approx. 10%, led to the number of dropouts as teachers in the instrument schools being reduced by about 35% on average. This implies that the number who want to work at the school increased by about 12.5%. There are also indications that wage increases may have more bearing on the recruitment of women, and on retaining men.

In our overview in the Appendix, we also refer to twelve other studies, mostly from the United States, which find mixed results in the use of wage incentives to recruit and retain teachers. Several of the studies are considered to be of good quality, but the results are mixed. It is not possible to draw any unambiguous conclusions from these studies, other than that it is probably too easy to assess only wages as a tool, or that the wage resources given are not high enough (see eg Clotfelter et al., 2007 , 2008).

Summary

- The studies we have identified give mixed results - both partly positive or neutral when it concerns the use of wage incentives to keep teachers in work.
- There are indications that a 10% increase in salaries for new employees may contribute to more people choosing the schools that provide this, but we can not say how long they will stay or whether only salaries play a role.
- Based on the totality of studies included (see Appendix), some of the stronger studies indicate that salaries may be an incentive especially for recruitment to schools that are more characterized by students coming from homes with low socio-economic conditions, but they show also that there may still be some mobility between schools within the same district. Others show that the effect is short-lived.
- There are several studies that indicate that it is not necessarily the financial incentives that are important for whether teachers stay in school, but the working conditions. Increased pay cannot compensate for poor working conditions, management or the school environment.

4.2 Induction and mentoring schemes

In Norway, pilot schemes were introduced with the guidance of newly qualified teachers from 1997, and a program for the guidance of newly qualified teachers from 200311. National frameworks for the guidance of newly qualified teachers in kindergarten and school have been prepared12 and Rambøll has been tasked with

11 https:// nyutdannede.no/
12 veiledning-av-nyutdannede-nytilsatte-larere-i-barnehage-og-skole_oppdatert-2021_10.pdf (regjeringen.no)

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the measure and has submitted reports on several occasions (2015, 2016, 2021). Kindergarten and school owners can apply for grants to cover tuition expenses. The grant will contribute to newly qualified teachers in kindergarten and school receiving good guidance and making the transition from education to the teaching profession easier. The goal is for newly qualified teachers to remain in the school13. The measure will thus contribute to a better transition from student to professional, and will contribute to more new graduates staying in kindergarten and school.

In table 3, we reproduce some of the main results from the Rambøll reports, which have the most to do with recruiting and retaining teachers. The text is a direct quote from the reports or only slightly edited to produce the main result. The word "we" in Table 3 refers to the authors of the reports from Rambøll.

Table 3 Evaluations of "Supervision of newly qualified teachers" carried out by Rambøll. Year of publication, issues, design and method as well as main results related to recruitment and retaining teachers.

Year	Issues	Design & method	Results
2015	1. Does the supervision scheme contribute to ensuring a good transition between education and profession, and to recruiting, developing and retaining skilled kindergarten teachers and teachers? 2. Does the supervisor education provide competence and skills for good practice as a supervisor?	and own case study + document studies of previous research and of the educational offers, introductory interviews, as well as a pre-measurement (zero point measurement carried out before the year's cohort starts the education) among this year's cohorts in the supervisor education	We can not state that the supervision scheme contributes to more people choosing to become a kindergarten teacher or teacher. However, there is reason to assume that the marketing of this offer may affect whether new graduates choose a specific municipality / school / kindergarten (our emphasis). Guidance can be important in choosing to stay (our emphasis).
2016	1. Does the supervision scheme contribute to ensuring a good transition between education and profession, and to recruiting, developing and retaining skilled kindergarten teachers and teachers? 2. Does the supervisor education provide competence and skills for good practice as a supervisor?	The evaluation is based on document studies, case studies and four surveys. One survey was conducted for all candidates in the supervisor education in the period 2011–2015, one pre- and post-survey for candidates who completed the supervisor education 2015/2016, and one survey for newly employed newly qualified kindergarten teachers and teachers.	The newly hired graduates have positive experiences with the guidance, but less agreement that it contributes to recruitment. New graduates who have received or are receiving guidance are more positive in the assessment of their first year in work, compared with those who have not received guidance. However, we do not find the ne connection in the kindergarten. Guidance is not important for the graduates' experience of mastery. A good working environment with social support and security from colleagues and management, as well as the opportunity for professional collaboration with colleagues is more important. Supervision also does not seem to have any direct effect on the probability that the graduates will stay in the job.

13 Grants for guidance for newly qualified teachers (udir.no)

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Year	Issues	Design & method	Results
2021	The main objectives of the evaluation are to evaluate: 1) compliance with the principles and obligations for supervision of newly qualified newly appointed teachers in kindergarten and school, and development in terms of capture, organization and quality of supervision. 2) the extent to which the subsidy scheme leads to increased scope and better quality of the guidance provided, as well as schools and school owners' facilitation of strengthening the guidance.	Two rounds of questionnaire surveys were conducted, in 2019 and 2020, respectively. In addition, a case study consisting of eight cases was conducted. The target groups have been owners, directors and managers, newly trained the newly appointed teachers and supervisors.	The results show a tendency for a higher proportion of newly qualified teachers to receive or have received guidance in primary school, compared with new graduates in kindergarten and upper secondary education. Slightly more than a quarter of the newly trained teachers in the kindergarten and primary school state that they have not received information about the possibilities of receiving guidance. Just over 60 per cent of both owners and leaders / directors at kindergarten and school level have an overall plan that sets the framework for guidance in the simple tea kindergarten / school. Several recent graduates state that the person they are supervised by has a formal management responsibility towards them. This is contrary to one of the principles of guidance. The results from the survey indicate that there is a relatively high proportion of supervisors who do not have formal supervisor competence. The newly qualified teachers state in the survey that the guidance greatly increases the motivation to become better in the profession (professional development) and increases their motivation to stay in the profession. However, we do not have specific findings from the case studies that the new graduates state that the guidance contributes to them wanting to remain in the profession to a greater extent.

The evaluations are based on what graduates, supervisors and managers say. The design is thus not a strong design to be able to shed light on teachers' actual choice to quit. Other designs, such as includes the use of registry data, can provide better insight into actual choices made. The study can assess differences between those who receive guidance and those who do not receive, but we do not know what "those who do not receive" are otherwise involved, and since guidance is also carried out slightly differently and by people both with and without qualification, it will probably be great variety within the group of "those who receive" guidance as well. The design itself is not a strong design to answer questions about effects (does the measure contribute to teachers staying in school?), But can provide insight into experiences of usefulness and in variations in implementation between kindergartens and schools. One of the things that emerges in the evaluation is that the measure does not seem to be recruiting, and it is not perceived as having anything to say for the experience of mastery. A good working environment with social support and security from colleagues and management, as well as the opportunity for professional collaboration with colleagues is stated as more important for coping. There are mixed results when it comes to whether it can affect perceived motivation to stay in the profession (survey versus the eight cases). But there seems to be a generally positive attitude towards the measure and the newly qualified teachers appreciate the measure.

There are several doctoral theses in Norway that address questions about recent graduates, supervision and the graduates' professional development (see, for example, Jakhelln, 2011; Caspersen, 2013; Eik, 2014). Caspersen (2013) compares results from surveys among newly qualified teachers with answers from newly graduated in other professions, and finds no basis for saying that the "practice shock" is greater for teachers than for others. The transition from student to a complicated and responsible profession where you stand a lot alone, is great. As Jakhelln (2011: 91) points out:

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beginning is characterized by a professional and of demanding learning as an individual looking involves social side. both relational engagement. (...) All learning processes confrontation between what

and The start is one the new teacher brings between one with him adaptation to the workplace requirements, and necessary individual framework, working communities. and cultural learning depends on previous experience and knowledge. workplace of

and new and first time when it is characterized by a combination of professional and personal insecurity, The to thereby be able to recognize themselves own person and themselves as to get to get a teacher.

In this situation, support is at the same time contributing, colleagues, and crucial to the development of professional identity.

Eik (2014)'s study is with newly qualified kindergarten teachers and how they experience and master their first time in the profession. She finds that the transition itself is going relatively well. After a few months, the new graduates experience that they master the pedagogical work and they are able to improvise. What she finds more difficult is their ability to describe, analyze and evaluate their own work.

Newly qualified kindergarten teachers are also given major management tasks and often have personnel responsibilities as graduates. New graduates find this challenging. They were also only to a small extent involved in joint learning processes in the workplace. Eik sums up by pointing out three challenges for newly qualified kindergarten teachers: (1) pedagogical responsibility towards both children and other employees, (2) competence to act professionally and (3) competence to be able to describe, analyze and evaluate one 's own work.

The field of research on recent graduates is large, and this knowledge base does not include such a systematic review. We just want to point out that we are now beginning to gain insight into what are areas that are often perceived as problematic. One of the more recent studies is e.g. Antonsen et al. (2020) which is part of the research project «Relevant master's education for primary school teachers» (RELEMAST) at UiT. In this article (2020), they show, like several of the international studies in our sample, that newly qualified teachers experienced that they lacked the knowledge and skills to work with more special education issues such as behavioral problems and specific diagnostic groups and adapted teaching. The researchers also found that they lacked knowledge about how the external special education support apparatus works, and how and when to report measures. The authors write (p. 11):

The newly qualified teachers expressed the they experienced that acquired knowledge of opportunities in what and various action tools about the daily work at the school and took place in with colleagues management the learning out as This

effort to meet that and counselors with special education, the more they experienced that the students with special needs. Several of the teachers also expressed they spent time to that much effects this both to see and that but of was peda school or in external support structures. L13 silent also

the individual students for facilitation management for more than one class as organize the teaching measure.

difficult to thus described challenges with success with the various measures. The graduates

The problem that the researchers highlight in this study is that the experiential learning approach used strengthens established and criticized thinking about special education and continues a system that does not work.

In studies that we present in Chapter 4, it appears that lack of mastery of teaching tasks, and experience of demanding work is often a reason for quitting work.

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The question of whether induction programs and supervision are important for whether newly qualified teachers stay in work over time is a major field of research internationally. The problem is that the vast majority of studies are based on covariation - they are correlation studies that look at the connections between participating in guidance and motivation to stay at the same time. They are based on self-reporting, not actual choices. When there are no longitudinal studies, studies based on register data that show how teachers who have participated in supervision actually move in the years to come, or other studies that can shed light on causality, it is difficult to know whether supervision has an effect on the choice of to become. In Totterdale et al. (2004)'s systematic knowledge overview, they did not find support that guidance helps to retain teachers, but it is after all a few years old. We conducted new searches to investigate research in the field internationally (see Appendix).

As stated in the Appendix, we found more than 70 studies. The appendix provides a more detailed description of all.

Thirty of the studies report positive results for teachers staying at work and 26 find no effect. The studies that have the best basis for saying something about the effects of the measure are randomized studies with control groups, and they find no clear effect of guidance on staying in school.

There were 1009 teachers from 418 schools who participated in the largest study (Glazerman et al. 2010). The initiative was a three-year comprehensive induction program in Princeton, New Jersey (USA) where schools were randomly drawn by lot to receive the induction program or not. The induction program included supervision in the first year, plus supervisors organized observation lessons so that graduates could observe other teachers. In the second year, the new graduates also received monthly "teaching and learning communities" where supervisors and new graduates met to discuss teaching and learning and both learn and support each other. The newly qualified teachers also received between 35-42 hours of continuing education in the second year. The researchers found no effect of the measure on the variables "staying in school", "staying in the district", and "staying in the teaching profession" compared with teachers who did not receive the measure within a four-year period.

The two smaller studies that are considered to be of high quality (Ault, 2017 and Helms-Lorenz et al., 2016), both found positive results, but they were not statistically significant (ie the differences may be due to coincidences). The study by Helm-Lorenz et al. is from the Netherlands and the intention was for newly qualified teachers to experience an induction phase with less workload, more professional support, and the development of more effective classroom practice. 71 schools and 338 teachers in upper secondary school were randomly assigned (randomized) to measures or non-measures. In the Netherlands, it is common for new teachers to receive some support anyway, and therefore all teachers would receive some support the first year. Those who were in the experiment group were given three years of extra measures. The two groups of teachers were comparable in terms of background characteristics (education, experience). The study showed no clear effects on retaining teachers. 14% of the control group and 12% of the intervention group left school within three years of the program. The researchers found that the best predictor of dropout from the profession was lack of qualification and lack of teaching skills and competence.

The majority of the studies that are assessed at quality level 2 * find positive connections between induction programs / supervision and that teachers stay in the work. However, for the vast majority of studies, the comparative groups are not completely similar, so there are problems in drawing conclusions based on the two groups.

The study by Donaldson & Johnson (2010) is a longitudinal retrospective study that compares teachers who qualified through the Teach for America program with teachers who qualified through the Career Education program. The researchers found similar results for both teacher groups

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nice, but found that Career Education teachers with tutoring had a much lower tendency to quit the profession than those who did not receive tutoring. What is also interesting is that they find that what can predict that teachers quit work are demanding tasks, having to teach several steps at the same time, having to teach many subjects, and teaching subjects that the teacher has not studied.

Ronfeldt & McQueen (2017) used register data for three cohorts of newly qualified teachers (N = 2340 of a total of more than 13,000 teachers) and were able to group the new graduates according to whether they received strong support in the induction year (4 to 6 different measures to support teachers) or weak support (0 to 3 measures). Degree of support was correlated with leaving school and leaving the profession. They found positive correlations between the level of support and staying in school and staying in the profession. Simply explained: the more support measures, the more the teachers became. The measure that co-varied most with the choice to stay was supportive communication with the school management. The problem with the study is that we do not know what the teachers put in the wording "supportive communication with the school management" because it was not explained in the survey either. However, the study as a whole shows the importance of support measures in an induction phase.

Summary

- Results from international studies are mixed. Many have weak designs, and it is therefore not possible to draw more solid conclusions. Very many of the studies' designs make it impossible to say anything about causality.

- There are a good number of studies that are considered to be of medium quality that find connections between induction programs and the desire to stay in the profession and to stay at school. Exactly what it is about the induction programs that provide these connections is not as easy to answer. But there are indications that supportive leadership is important, and that guidance made by teachers who teach the same subject and step is also important.

- The international studies include studies of many different forms of induction programs more with different supporting elements. Some of these also highlight other factors that are important for newly qualified teachers to choose to leave - such as not mastering the work requirements, being assigned tasks that are too demanding.

- Several studies point out the importance of newly qualified teachers having the opportunity to develop competence in teaching and classroom management and that they experience support from the management. Several induction programs include both supervision and continuing education or collaborative learning in peer communities.

- Evaluation of "Guidance for new graduates" in Norway finds that new graduates appreciate the scheme and they experience support through the scheme. The evaluation cannot say anything about whether the scheme contributes to more people staying in work. Based on the evaluations, there are also no indications that the scheme contributes to increased mastery or competence.

4.3 Alternative teacher education programs

In the Appendix, we provide an overview of studies we have identified that look at whether teachers with qualifications from alternative teacher education programs have a greater tendency to stay in the profession. We do not have many alternatives in Norway other than Teach First Norway14 which recruits candidates with a master's degree or doctorate in science and gives them opportunities to take a one-year PPU and a management education of t

14 https:// www.teachfirstnorway.no/

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year. This program has been evaluated, and results indicate that the program may have contributed to some more people applying for teacher education due to this opportunity. Whether they have a greater tendency to stay in work afterwards, we do not have the opportunity to say. An evaluation of the program15 has been made.

In our review of alternative programs internationally, we do not find support that such programs can lead to better recruitment or that teachers from such programs tend to stay in the profession more than other teachers. Only one study (rated at 2 *) finds positive effects (Papay et al., 2012), but this program also requires graduates to work in the district for three years after completing their studies.

These studies also find that job satisfaction and working conditions at the school can have more to say about whether the teachers stay at work.

4.4 Working conditions and teachers' choice to stay in school

Teachers' working conditions include workload, working hours, support from management and colleagues, degree of autonomy and school resources. In addition, characteristics of student intake (eg socio-economic status and competence level, proportion of students with special educational needs) will be part of the employment relationship. In some cases, the school's geographical location can also be an obstacle and become part of an overall assessment of working conditions (eg long distances to travel to get to work).

15 Blandford, S., Burkey, S. (2021) Teach First Norway: 10 Year Evaluation - Stage 2. Horsham (UK): Stefan Burkey Consultancy Services.

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Falch & Strøm (2005) investigate teacher mobility using register data in Norway that matches the employee - employer in Norwegian primary and lower secondary schools (primary and lower secondary school). They are interested in finding out how characteristics of the school can influence teachers' choice to leave school. The researchers outline three possible choices that teachers can make: (1) continue working at the same school, (2) quit their jobs to work at another school, and (3) leave the teaching profession in favor of another job outside the school sector. In Norway, there are centrally controlled salaries for teachers, and thus it is assumed that salaries will not be something that "entices" at another school, nor be a reason to stay (teachers will not get more salaries by staying than by move to another school). Precisely for this reason, the researchers look at other types of factors that can influence the choice.

School characteristics that are included are the ethnic composition of the student group and the proportion of students with special educational needs as well as the proportion of unqualified teachers who are employed at the school. School size and school type are also included. Other variables are: cost of living, whether the teacher is on leave, age, gender, level of education and position size (part-time or full-time).

Evenly, it is approx. 8% of the teachers who left the school they were employed by during the first three years for which this study has data, but the proportion began to increase from 1995. In 1997 and 1998 the proportion was 12%. The increase coincides with a greater need for work capacity in the country, and the authors estimate that more teachers took the opportunity to try their hand at new work.

Furthermore, they find that teachers are more likely to drop out of the largest and smallest schools, and that the youngest teachers are more likely to drop out (25% of 24-year-olds) than the oldest to drop out (about 7% of 60 -year-olds). Pupil composition also seems to be important for teachers' mobility out of school, but the researchers write that it is difficult to draw causal conclusions based on their analyzes. Teacher composition can also have an effect on qualified teachers leaving a school. 10.4% of teachers at schools that employ people without teacher education chose to leave, while it was 8.7% at other schools. Results indicate that women are more affected by these factors than men. Analyzes also show that school composition affects relocation out of the school sector.

Teachers with a high level of education are more likely to quit (5–6 years), and slightly more likely to see men quit than women. School leaders, part-time teachers, and teachers on leave are less likely to quit. Mobility at other schools is also greater in larger municipalities than in small ones, probably due to greater job opportunities at other schools.

We have also identified 34 other studies that deal with working conditions and whether teachers stay at work or at school (see Appendix). Eleven of the studies have been rated as quality 2 *, and none were rated higher than that. The reason is that the studies are mostly correlation studies that are based on the teachers' perceptions of the work environment. There are eight studies rated at 2 * that find positive correlations between a negative work environment and the desire to leave school / profession, one that finds mixed results and two that do not find correlations. Of those who are assessed as quality 1 * (low quality), 15 find a positive connection between the experience of a poor working environment and the desire to quit.

The problem with these studies is that we only get to know something about desire or intention, and there are more studies that show that more people report intentions to quit than those who actually quit (Lynch et al., 2016). Nevertheless, these studies can provide an insight into how teachers experience and think about their own situation, and after all, some of those who report intentions also quit. We summarize factors that are elucidated in the eleven studies with the highest quality assessment in Table 4.

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Table 4 Studies assessed at 2 * on the connection between school factors and leaving school / profession

The study (authors) Factors that teachers experience as negative		Factors that teachers experience as positive
Stuit & Smith (2009) Working more than 60 hours / week		
Sims (2017) and Sims & Jerrim (2020)		Experience of positive school management had the strongest correlation with job satisfaction, and an increase in experience of positive school management of 1 st.d. was associated with a 64% decrease in reported probability of quitting the job. To experience the workload as manageable.
Ingersoll & May (2012)		Math teachers: Classroom autonomy and organizational factors Science teachers: Good salary to stay
Ingersoll, Merrill & May (2016)		Good leadership support Autonomous
Bueno & Sass (2018) Poor working and living conditions Lack of commitment in the local community		
Goldhaber, Destler & Player (2010)		Less demanding schools (student base) and better working conditions
Torres (2016)	Experience of workload. Unmanageable workload (3.7 times more likely to quit than teachers who do not experience the workload as unmanageable).	Good school management - good support and good communication - can compensate for the workload.
Jacob m.fl. (2015)		School leaders' participation in leadership development courses (even if teachers did not report experienced changes in practice). One possible explanation is that school leaders had a greater tendency not to quit, and this may have had a "contagious effect" on teachers.
Boyd m.fl. (2011)	High proportion of students with a minority background. Lack of influence (may lead to mobility)	Positive experience of administration, by colleagues, of students, of resources. But a positive experience of the administration is the one that weighs heaviest.
Ladd (2011)	Poor management	Good management
Johnson, Kraft & Papay (2012)		Good management, good relationships with colleagues, school culture

Being able to handle the workload is an aspect that Norwegian researchers have also looked at, but more in light of perceived time pressure. A Norwegian master's thesis (Ellingsen, 2016) sheds light on how time pressure is perceived as one of the most challenging aspects of the job. It's about prioritizing all the time, and

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time for reflection may disappear. Thus, there may also be little time to learn from one's own experiences, Ellingsen writes.

Requirements for documentation have increased the time pressure because it is also not enough to give feedback, one must document that feedback has been given. Thus, weekends, Easter holidays and summer holidays are experienced as "breaks", explains one of the teachers. The breaks are used to keep up to date with the work.

Stress is also experienced because plans do not go as planned. Teachers may experience a loss of control because plans are disrupted through all other activities that push into the school year and make it difficult to spend enough hours on teaching and learning. The school management's activities can also be perceived as disruptive.

Time pressure in the profession has also been studied by Hanssen, Raaen & Østrem (2010) who write about "the hesitant sending of teacher work". They followed four newly qualified teachers every day for a whole working week and registered continuously. The teachers hurried, they were interrupted, they had to remember a lot, they were regulated, they collaborated, they planned, they organized, they realized, they caught attention, handled dilemmas, they negotiated, corrected and tackled tensions, and they had deadlines and always too little time.

Oslo Municipality (2022) is one of the municipalities that conducts surveys among its employees, and has i.a. asked teachers who quit their teaching jobs at a school about the reasons for this. They report the following reasons:

- 17 corresponds to more resources / less class
- 11 corresponds to wages / housing prices in Oslo
- 36 answer that there are no measures or factors that influenced their choice
- 14 states better management / follow-up

The project "School as a workplace: well-being, coping expectations, stress and burnout" at NTNU was supported by the Research Council of Norway and contributed greatly to knowledge about the importance of teachers' everyday lives and experience of the work environment. In Skaalvik & Skaalvik (2013), they report on a larger survey among teachers, and find that areas teachers experience uncertainty about are e.g. to motivate the students for school work, adapt the teaching so that all the students get realistic demands and to keep peace and order in the class. 18% of the teachers who responded to this survey taught two or more subjects in which they had no education. Skaalvik & Skaalvik (2013: 66) explain that they found weak but systematic tendencies to lower well-being, commitment and belonging and higher fatigue , psychosomatic disorders and negative affect in teachers who taught subjects in which they lacked education. This is also a result of the international studies and can be a particular problem in smaller schools with fewer teachers.

Kronen (2018) finds that secondary school teachers are concerned with being seen, listened to and understood by management , and that the community in the college is good. They want to spend time with the students, and they thrive with them. What is perceived as less useful is what is perceived as bureaucratic orders, and this can also contribute to teachers experiencing less autonomy.

In a doctoral dissertation on why music teachers quit their jobs, Fredriksen (2018: vi-vii) concludes as follows:

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The findings confirm previous research, and choice important causes for the informants'
of music teaching to measure of physical work, high has status. never The music subject workload, struggling with facilities, of and
lack support, largely but with the
enjoyed high status,
towards performativity, the low has been rearticulated. Increased emphasis turn status music subject, many
on core
it conveys on
increased emphasis on assessment particularly demanding.

Music teachers also have few teaching hours in one class per week, and they may find it difficult to build the good relationships they want to have with the students.

The extent to which teachers experience autonomy or influence in their work is a factor that is mentioned in several studies. WE have also applied for studies that assess "accountability" in relation to staying in the profession and found seven studies. Accountability can be understood as something positive and desirable if it is defined as being responsible for and being responsible for students' learning and development, and there are probably few principals and teachers who will disagree that the school is responsible for this. But "accountability" is often understood as "control", that test regimes and reporting regimes are introduced that enable others to assess whether schools and teachers have taken responsibility or not - more like having to account for son
The introduction of different tests is a form of "accountability" strategy, and several of the studies look at whether the introduction of tests can lead to or covariate with departure from the teaching profession. The vast majority find no connection or mixed results (see appendix).

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Summary

- Working conditions are an important factor in teachers' choice to stay in the profession and at the school where they are employed on.
- School management, communication with the leader, and support from the leader seem to be very important factor.
- Other factors that may be important are experience of school culture, relationships with colleagues , and relationships with students.
- Experience of mastering the workload is more important than experience of workload.
- Some parts of the work are particularly demanding for teachers, and reference is often made to areas such as anxiety, motivation and adapted training.
- Due to the quality of the studies, it is not possible to draw direct causal conclusions, but the results point in the same direction and have been consistent over many years: the working environment is of great importance for teachers' choices.

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5. To recruit and retain men and teachers with an immigrant background

5.1 To recruit and retain men in kindergarten and school

In 2004, the *Action Plan for Gender Equality in Kindergarten 2004–2007* (Ministry of Children and Family Affairs, 2004) was adopted with the aim of recruiting more men in kindergarten. The gender equality work was to contribute to the employment of more men, and the stated goal was to raise the percentage of men in Norwegian kindergartens at the national level to 20 per cent. The number of men employed in kindergartens (all job categories) was 9.3 per cent in 2008 (Equality Center, 2010). In the period 2003–2008, the share had increased from 7.9% to 9.3%. Opheim et al. (2014) show that this slight increase continues until 2013. In the period 2008–2013, the proportion of men (in all job categories) increases from 9.3% to 11.5%.

According to statistics from Statistics Norway, today 12.3% of men are employed in day care (all job categories) 16. The proportion has increased since 2017, but not more than by approx. 0.1% every year (2017: 11.7% - 2018: 11.8% - 2019: 11.9% - 2020: 12.0% - 2021: 12.3%). We are still far from the target of 20%, but it seems that there is an incremental development in the desired direction.

74.2% of all teachers in primary school are women and 56.1% of all teachers in upper secondary school are women (SSB17 figures are for 2021). In 1985, men accounted for 42% of primary school teachers18, and the development for upper secondary school shows that the number of men decreases in relation to the number of women13 for each year.

Male students have also been in the minority in all teacher education programs. Figure 5 shows that the proportion of men who are admitted to the various teacher educations has been stable over time, and that the proportion is clearly highest among those who train to work as teachers at the intermediate level, upper secondary school and upper secondary school (GLU 5–10, associate professor 8 –13 and PPU).

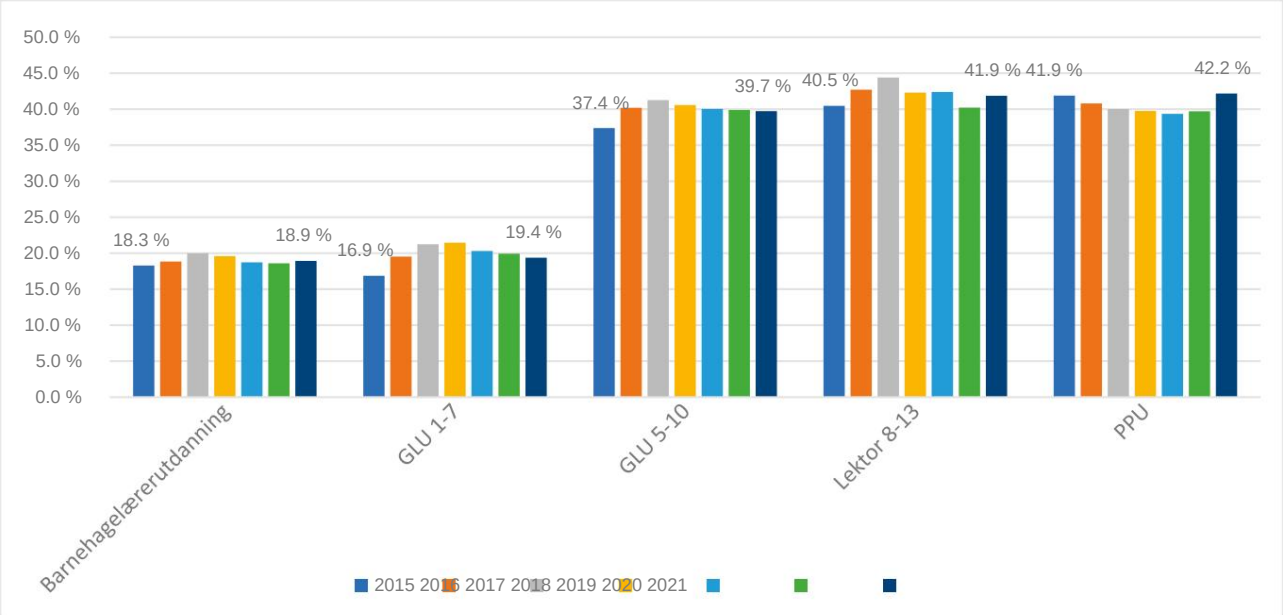

Figure 5 Percentage of men admitted to teacher education in the period 2015–2021. Based on data from DBH

16 Kindergartens (ssb.no)

17 Employees in kindergarten and school (ssb.no)

18 Employees in kindergarten and school by sex (bufdir.no)

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It is especially for kindergarten teacher education and primary school teacher education 1–7 that there is a pronounced desire to increase the recruitment of men.

But: The problem is not only that there are fewer men applying for these educations, it turns out that there is also a relatively larger proportion of men who drop out before completing their studies. Nedregård & Abrahamsen (2018) found that men in women-dominated educations had almost twice as many dropouts as women, and the highest dropout rates were found in men in nursing education, children kindergarten teacher education and primary school teacher education. Abrahamsen (2020) reports that 44% of the men in primary school teacher education and 33% of the men in kindergarten teacher education, had not completed the education six years after admission. For women, the proportion who did not complete basic teacher education within six years is 20% and for kindergarten teacher education it is 17%.

The follow-up group for the primary and lower secondary teacher education reform19 reported on statistics for admission, completion and drop-out from primary and lower secondary teacher education every year from 2010–2015, and also find that more men than women choose to drop out of primary and lower secondary teacher education (Follow the group for primary and lower secondary teacher education reform, 2014). In contrast to Abrahamsen (2020), the statistics distinguished between GLU 1–7 and GLU 5–10, and the Follow-up Group found that this tendency was most evident for GLU 1–7. (We do not find corresponding statistics in the reports from the Follow-up Group for Kindergarten Teacher Education20. In Report 4 from 2016, the number of students by gender and drop-out statistics are reported, but drop-outs for women and men are not reported separately.)

In much of the research on underrepresented groups in education, reference is made to two different explanatory models: One is based on a thinking that being in a minority position is a challenge in itself, and means that you do not become an integral part of the whole, but is seen as a group in itself rather than individuals in a peer community. The marginalized group is assigned stereotypical performances and is often given work assignments based on such performances. Kanter (1993) calls this «tokenism». Minorities have an easier time choosing themselves out of the situation, and the smaller the group , the more they can choose. Another explanation is that those in the minority groups, in this case men, are less likely to complete. There may be worse grades or something else.

In Abrahamsen's study (2020), she uses the variable «academic interest» in addition to grades.

The study by Abrahamsen (2020) is based on a survey and register data. She explains (see page 243) that it includes over 2200 students (1780 women and 450 men) at seven universities / colleges who started a female-dominated professional education (bachelor level) in the autumn of 2012. The proportion of women in nursing education and kindergarten teacher education is 90 percent. The primary school teacher education has 70 per cent women, the physiotherapy education 65 per cent and social work 60 per cent. Based on her analyzes, she concludes with the following (2020: 241):

> A surprising is findings namely, that it is not from the relationship between completed and drop
> suggests that This professional education lack of mastery do are reasons than to increase female-dominated
> completes one On the other hand, high age is likely for
> study. women age has For is of little importance, good grades clearly have a positive connection with
> completion. human in

It may be worth noting that Mastekaasa & Smeby (2008) do not find that a larger proportion of women in male-dominated studies choose to quit. In that sense, it is not just a matter of being in the minority

19 Reports from the Follow-up Group for the primary school teacher education reform | University of Stavanger (uis.no)
20 Reports from the Follow-up Group for the Kindergarten Teacher Education Reform | University of Stavanger (uis.no)

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which can be explanation. Maybe it has something to do with how the minority is treated, experienced, felt, dealt with - and that it can vary?

There are few studies in Norway that can say anything about why relatively more men drop out of female-dominated professional educations. We have a few who are examining the reasons for quitting among those who have already quit. These are retrospective studies based on self-reporting, and some of the studies state relatively broad and few categories to stop.

The follow-up group for primary school teacher education (2012) 21 is based on the study by Østrem et al. (2009) and Fauskanger & Hanssen (2011) in their development and implementation of a telephone survey in the autumn of 2011 among students who during the first year of study were registered with student status "quit" at GLU. The students were admitted to a total of six different educational institutions: Bergen University College, Finnmark, Nord-Trøndelag, Sør-Trøndelag, Telemark and the University of Stavanger. The educational institutions were chosen on the basis of variation with regard to size, age distribution in the student group and geographical spread. The sample consisted of 243 former GLU students, and the response rate was approx. 65% (see page 44).

Of those who started at GLU in the autumn of 2010, 54.2% of the students at GLU 1–7 and 63.0% of the students at GLU 5–10 stated that they had no previous work experience from kindergarten or basic education (see Følgegruppen 2011: 44). Among those who chose to leave GLU (Følgegruppen, 2012), the corresponding proportions without relevant experience were 71.4% at GLU 1–7 and 68.5% at GLU 5–10 (N = 156). In other words, a relatively larger proportion of students without experience chose to quit, but no statistical significance of the difference has been calculated.

The students who left GLU do not differ significantly from the rest of the student body in terms of perception of the start of studies as good, nor in terms of the number of hours for paid work outside studies.

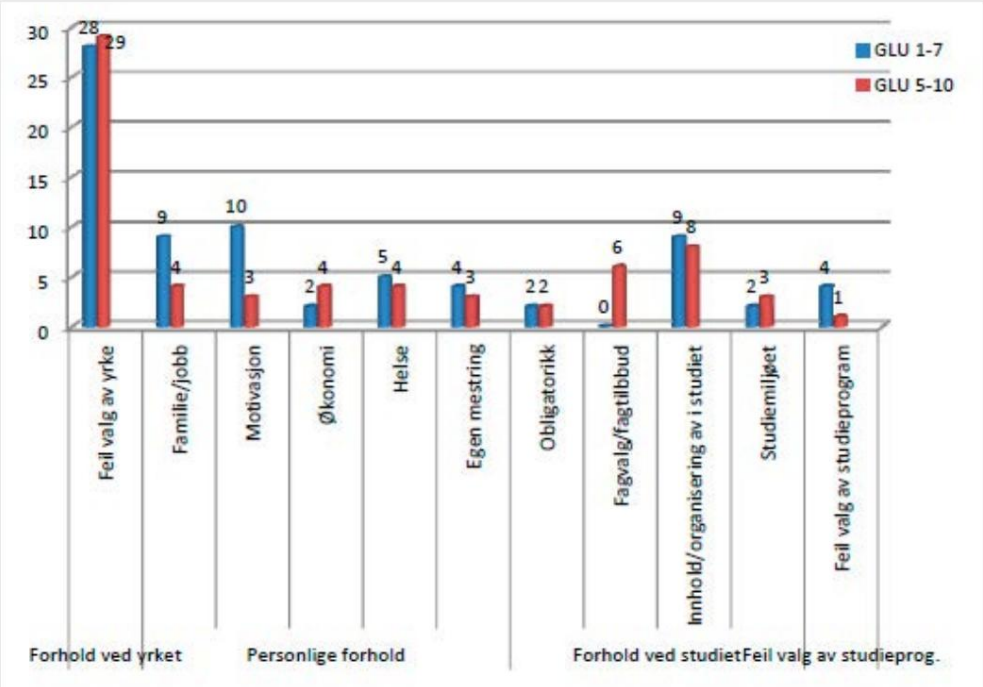

Figure 6 Reasons why students drop out of GLU 1–7 and GLU 5–10. Source: The follow-up group for primary and lower secondary teacher education (2012: 50).

21 We point out that much of the text that deals with these studies is a direct quote from the Follow-up Group's reports.

As can be seen from Figure 6, it is conditions in the profession that are most decisive for students opting out of teacher education. The follow-up group writes (2012: 50):

> 37% (58 informants) do not state the te[illegible]),
> GLU what the teaching profession entails.
>
> as awareness-raising in relation to the
>
> Seven **for "Did not want to [illegible]** informants explicitly states that they made the decision [illegible]
>
> after Most informants like stated as
>
> **me",** is also states on they have already begun that a new **not with "Was** It **was something**
>
> still someone who for[illegible] **teaching part.** specified occupation instead, or
>
> **"Found still out that I wanted to work with the**
>
> **men Would rather work on disadvantaged in**
>
> **children, has started studying again the autumn of 2011 (child welfare educator education**
>
> **children, and ning.) ».**

Furthermore, the study finds that 30% (47 informants) state personal circumstances as the reason why they left, and the majority of these (29) were students at GLU 1–7. Statements that are defined as personal relationships were, for example: *"Was more time-consuming than expected. Could not be combined with work and children "," Stroke on the exam and it became difficult to cope with not mastering things "and" Lack of motivation to become a teacher. "*

21% (33 informants) state conditions at the study as the reason why they left GLU, and most students from GLU 5–10. Factors related to the content and organization of the study are the reasons that are most often highlighted by the students in both study programs.

Emilsen et al. (2020) conducted an interview and questionnaire among three cohorts of students in kindergarten teacher education. All the students were admitted to Dronning Mauds Minne Høgskole (DMMH) which has worked seriously with the recruitment of men for kindergarten teacher education for many years. The response rate to the study was 33% in 2016, 40% in 2017 and 60% in 2018. Overall, they had a response rate of 44. The sample consisted of 51 men, 184 women and 1 trans person. Ten women and three men were interviewed. Answer options in the form are unfortunately little differentiated. There are four main categories that are stated for why they have chosen to quit: Not reported, other reasons, health reasons, wrong study choice. The male students mostly answer «wrong study choices» (also the female students, but they also answer «health reasons»). We do not know what lies behind the answer "wrong study choice". In the open answers where students who have not quit can state reasons why they are *considering quitting,* both aspects of "education" and "teaching" are merged without us gaining more insight into what lies behind this variable (which is clearly the largest).

5.1.1 Why do men choose the teaching profession?

In chapter 2.2, we referred to several studies on motivation for the teaching profession, and several of these differ by gender or look specifically at boys / men. To put it bluntly, a conclusion of it throughout is that men who apply for higher education often have an academic interest, while men who apply for kindergarten or lower primary school often have experience with children. Parents also play a role in their study choices, and it may be that fathers are especially important for boys' choices.

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Trønnes (2020) interviewed nine male kindergarten teacher students and nursing students for the master's degree at Høgskolen i Innlandet. She also finds that work experience was crucial for the men, in addition to first-time service in the ambulance battalion. This gave the men insight into the opportunities the professions offer, and they got to make positive experiences themselves. She also says that few knew anything about the professions, and they themselves thought that it could be due to their own teaching, immaturity and too little information . The men in the sample believed that the information provided was largely influenced by traditional stereotypes and that this did not affect the young boys.

Another male kindergarten teacher student in a study by Sivertsen (2019) explains the advantages of being in an educational race where he represents a sought-after minority: He knows that he can choose and reject work afterwards. But the predominant reason for the men in the sample (N = 3) is to give something back and to get a job that is meaningful even if it does not pay so well. What also characterizes this sample, and which is also not so unusual, is that they are between 25-35 years old.

These studies, if they are small, fit into a large group of studies from Norway and many other countries that seem to shed light on the same phenomena. As we have mentioned before, it is a weakness that there are so few studies that also include groups that do not choose teacher education in the committees, but the international studies that do so seem to indicate that men who do not choose the teaching profession have other ambitions and expectations. Several of those who do not choose teacher education rank salaries high.

5.1.2 Strategies used to increase the proportion of men in kindergarten and GLU 1–7

The situation is that fewer men apply for the educations, more men drop out of the educations, and there are few men who are employed in kindergartens (although there is a small increase from year to year) and in primary schools.

There are many measures that have been initiated nationally, regionally and locally - not least to recruit more men to kindergarten. One of the initiatives is Men in Kindergarten22 (MIB), a national initiative with a website that was funded until 2022 and which has worked strategically to raise awareness of gender equality in kindergarten and the role of men in kindergarten. MIB is an informal, social network for men who train as a kindergarten teacher or work in a kindergarten, and there are local groups in several parts of the country. The government will set up a new men's committee which will be tasked with investigating equal job challenges boys and men face, and during the spring of 2022 several input meetings have been arranged to ensure input for the committee's mandate23 . Some of the input has been about the fact that men's "role repertoire" is narrower than women's, and that it is important to find out why this is the case and possibly what can be done. It is possible that the work of the Men's Committee may also be important for insight into why there are few men who train for work in kindergarten and primary school.

In the report *Who will comfort Knøttet - who can change the pattern?* (Opheim et al., 2014: 35) we learn that pedagogical leaders in kindergartens self-report that the most common form of recruitment work is to write that men are encouraged to apply for job advertisements (72%). Then, that they have used their own network for recruitment purposes (57%), and that they have developed job advertisements that they believe appeal to men (39%). 30% have informed the municipality that they want more men, and 29% believe that they also carry out moderate quotas or positive special treatment of men who apply. 23% collaborate with secondary schools to recruit boys as play resources in kindergarten, and 19% say that they collaborate with colleges to recruit men as students / apprenti

22 Men in kindergarten - MIB

23 Invitation to regional input meetings on a mandate for the men's committee - regjeringen.no

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18% report participating in campaigns or education fairs for upper secondary school, and 17% have collaborated with other kindergartens on campaigns. 10% have gone out locally with ads in the local newspaper, local radio or in the store. Although the survey may give the impression that kindergartens with a higher proportion of men are more active with concrete measures to recruit men, Opheim et al. (p. 43) that there «does not seem to be general differences between kindergartens with a high or low proportion of men in this area in the interview material». When it comes to what they themselves think will be important for the recruitment of men to kindergarten, most immediately respond to "higher status, higher salary" (p.58).

The national recruitment project for recruitment to kindergarten and primary school teacher educations , *Become a teacher davel24,* also sheds light on men. On the website, there is access to films where a man in kindergarten and one in primary school tell about the profession. Both are outdoors and in activity with children in the opening sequence. The films emphasize that the job is varied, meaningful and there is a good starting salary (primary school) and a management position (kindergarten).

WE have been in contact with six educational institutions which together represent all the different teacher education programs (and which are not responsible for the national project). Based on our questions, we see that all educational institutions state a lot of work related to recruitment to teacher education in general:

- All educational institutions say that their own websites are the most important channel for recruiting new teacher students. These are called the campus' "shop window" or "hub" in the recruitment work.

- All study places also state that they use social media to reach applicants and guide them further into the studies' own websites. Digital channels such as Facebook, Instagram, TikTok, Snapchat are frequently mentioned. In addition, video clips are posted on Youtube and Vimeo. More people are also advertising on Google Ads.

- The advantage of using social media is that you can quickly measure how high user numbers different posts get, and adapt the choice of channel and content accordingly. Only a few of the educational institutions use more traditional marketing in the form of cinema advertising, traffic advertising, advertising in print media or brochures / flyers.

- All educational institutions also prioritize physical meetings with potential teacher students in the form of open day, visits to high schools and stands at education fairs.

Messages from educational institutions are about:

- «A meaningful everyday life», «opportunity to influence the children of the future», «an important role model» and «the world's most important job». These are phrases that are repeated in the campus' student portraits on websites and in social media.

- The focus on how important and crucial teachers are for the students' future is clear in several videos where teacher students remember back to their own school life and teachers who "saw them" and how much it meant to them in school life.

24 Become a teacher then - Make a difference in children's everyday life (blilaererdavel.no)

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- In addition, the teacher students in the portraits emphasize that you get a good education in a sought-after profession. According to student surveys conducted at UiT, applicants for teacher education are concerned with academic quality and job security.

- In the advertising material, the students also tell about the structure of the study, the differences between the different teacher educations and what options one has in the study.

Recruitment of men is an important topic for the recruitment work at all educational institutions, and many films with male protagonists have gradually been developed.

5.2 Teachers with an immigrant background in kindergarten and school

Statistics Norway (SSB) provides statistics on the proportion of employees in kindergartens and schools who are either immigrants to Norway themselves, or who have parents who have immigrated to Norway. All are part of the same group, regardless of national background. In this sense, the statistics include both those who immigrated from close, Scandinavian countries and those who immigrated from countries that are more distant geographically and which may also belong to language groups other than the Norwegian language.

According to Statistics Norway, in 2022 about 18.9% of the population will have an immigrant background25. People with a background from EU27 / EEA countries make up the largest group (7.1%), followed by people from Asia with Turkey (6.3%). People with an immigrant background from Africa make up 2.7% of the population and people with an immigrant background from other countries in Europe outside the EU27 / EEA make up 1.9% of the population.

In 2019, Statistics Norway wrote: Approximately 17 per cent of all children of primary school age have an immigrant background, but only 6.9 per cent of all employed teachers in primary school have the same background26. One goal is that employees in kindergarten and school are fairly representative of the student base, and that employees reflect diversity. It is not possible in this report to provide a systematic review of the research literature, but there is a good deal of research (especially from the USA) that shows that having teachers with roughly the same background can have a positive impact on children and young people in several areas. . In addition , it is emphasized as important for all children and young people that they learn to relate to and interact with a diversity of different people, languages and other cultural forms of expression.

In 2020, approximately 10% of kindergarten teachers had an immigrant background (3163 teachers with an immigrant background and 29324 other kindergarten teacher employees). 11518 of other employees in the kindergarten had an immigrant background in 2020, while 44938 did not have an immigrant background. That is approx. 25% of employees who did not have a kindergarten teacher education had an immigrant background (themselves or parents).

The number of kindergarten teachers who are Norwegian-born, but with immigrant parents, has more than doubled from 2015 to 2020 (from 141 to 339 people), while there are approx. 400 more employed kindergarten teachers who themselves have immigrated to Norway in 2020 compared to 2015. What is also interesting is that there is a steady increase every year.

The number of men born in Norway with an immigrant background increased from 14 to 49 in the same period, and the number of men with an immigrant background itself has increased from 243 to 268 (with a decrease in 2016 and 2017 before it began to rise again).

25 Immigrants and Norwegian-born with immigrant parents (ssb.no)

26 Including immigrant background teaches in primary school - Statistics Norway

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The number of teachers (collectively, both women and men) who were born in Norway with immigrant parents has also doubled when it comes to primary school in the period 2015–2020, from 423 to 958. In the same period, the number of teachers who are themselves immigrants has increased by about a thousand people (from 3870 to 4889). The rest of the population of teachers is 71712 people. In this sense, primary school teachers with an immigrant background represent about 8% of the teaching staff.

The number of Norwegian-born men with immigrant parents who work in primary school and are qualified teachers has doubled in the five years 2015–2020, from 151 to 303. In 2020, there will also be approx. 200 more men with an immigrant background who are teachers in primary school, so that the total number of teachers who are men with an immigrant background is 1593, which constitutes approximately 8% of the male population of teachers in primary school (N = 19852).

While the number of teachers without an immigrant background seems to be fairly stable in the five-year period 2015–2020 for upper secondary school, there is a certain increase for the number of teachers with an immigrant background . The difference between the number of teachers without an immigrant background in 2015 (24689) and the number in 2020 (24702) is 13. The figures from Statistics Norway show that there has been an increase in the number of teachers born in Norway with immigrant parents (from 80 to 133) and in the number of teachers has an immigrant background himself (from 1755 to 1962). There are fewer men among the new teachers who have joined during the five-year period, also when it comes to men with an immigrant background. The figures show that there are a total of 90 more men with an immigrant background in this period, and 170 more women.

The proportion of teachers with an immigrant background in upper secondary school is also close to 8%.

5.3 Students with an immigrant background in teacher education

The figures from Statistics Norway clearly show that there is a smaller proportion of employees in kindergartens and schools with an immigrant background than children and young people in kindergartens and schools. The figures from Statistics Norway nevertheless indicate an increase - if weak - from year to year for all levels of education.

Some of the explanation for this bias may be found in another report from Statistics Norway (Kirkeberg et al., 2019). There are almost 180,000 people in Norway who are children of two immigrants (one of the groups included in the population «people with an immigrant background»). But many Norwegian-born with immigrant parents are relatively young - 70 percent are under 16 years old. In this sense, there can be a natural predominance of children and young people in kindergarten and school compared with adult study applicants and professionally trained teachers.

Kirkeberg et al. (2019) find that 5.9% of Norwegian-born with immigrant parents were pursuing a bachelor's or master's degree in teacher education and education in pedagogy, and that this is approximately the same proportion as the rest of the population (see Table 5).

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Table 5 Retrieved from Kirkeberg et al. (2019: 108). Students 19–24 years in higher education after studies. 2017.

Tabell 3.16 Studenter 19-24 år[1] i høyere utdanning, etter studier[2]. 2017

	Hele befolkningen	Innvandrere 6 år eller eldre	Innvandrere 5 år eller yngre	Norskfødte med innvandrerforeldre	Den øvrige befolkning
Antall	134 317	6 712	1 813	6 733	119 059
Totalt	100,0	100,0	100,0	100,0	100,0
Bachelor, økonomiske og administrative fag	14,8	16,9	17,7	19,9	14,3
Bachelor, samfunnsfag og juridiske fag	8,0	8,6	9,0	8,1	7,9
Bachelor, naturvitenskapelige fag, håndverksfag og tekniske fag (ikke ingeniør)	6,1	8,0	7,7	7,9	5,9
Lavere nivås utdanning	9,2	8,0	8,7	7,5	9,4
Bachelor, ingeniørfag	5,8	8,7	6,8	6,9	5,6
Master, teknologifag	5,9	3,5	3,6	4,9	6,1
Bachelor, helsefagutdanning, ikke sykepleier	3,9	5,3	6,2	4,7	3,7
Bachelor, humanistiske og estetiske fag (ikke fireårig)	5,4	6,6	5,5	4,4	5,4
Bachelor, helse-, sosial- og idrettsfag (ikke sykepleier og helsefag som inngår i UH-gruppe 13B Bachelor, helsefagutdanning)	4,7	3,4	5,0	4,2	4,8
Bachelor, sykepleieutdanning	7,3	7,2	6,4	4,2	7,5
Bachelor, lærerutdanninger og utdanninger i pedagogikk (ikke allmenn-/grunnskole-, førskole-, fag- og yrkesfaglærer)	1,1	1,4	2,9	3,2	1,0
Bachelor, førskole-/barnehagelærerutdanning	3,4	3,0	2,6	2,9	3,4
Master, lærerutdanninger og utdanninger i pedagogikk	4,7	2,0	3,3	2,7	5,0
Cand.med. -utdanning	1,5	1,1	2,2	2,7	1,4
Master, rettsvitenskap	2,4	0,9	2,0	2,3	2,5
Siviløkonom-/Master-utdanning	1,5	1,0	1,2	2,3	1,5
Andre studier	14,2	14,3	9,2	11,2	14,4

[1] Alder ved utgangen av 2017.
[2] Utdanninger er gruppert etter universitet- og høgskolegrupperingen etter standarden for utdanningsgruppering (NUS). Se nærmere her: https://www.ssb.no/klass/klassifikasjoner/36/varianter/1094
Kilde: Statistisk sentralbyrå.

Furthermore, Kirkeberg et al. (2019: 50):

> Norwegian-born with immigrant parents from Somalia it is common with a nursing education. We compare with after that that for to be
> is bachelor i
> A bachelor's degree in preschool for Norwegian teacher with education is more usual
> parents from Turkey. For Norwegian-born with an immigrant for a
> older from Sri Lanka is it is common for a bachelor's degree in engineering they also have and is seen in higher
> proportion of master's degree in technology subjects than second. with
> (…).

The results may thus indicate that it is about as common to apply for teacher education in this population group as in the general population, but that it may vary which studies are most popular according to which country the parents immigrated from. It is possible that this is an indication of the importance of parents' attitudes and expectations when it comes to choosing a study, as several of the studies in Chapter 2.2 also show.

What is emphasized by recruitment measures internationally, in order to increase the proportion of teachers with an immigrant background, is

- Alternative programs that are adapted to the target group's need for flexibility
- Scholarship schemes or other financial incentives to make it financially possible for more people to take teacher education

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What we are missing are studies that can document the effects of such measures.

In Norway, for example. OsloMet has a separate alternative program for people who come to Norway with a teacher education and who need to be qualified to work in Norwegian schools. This program is a «fast track27» and is called «supplementary teacher education28». The education makes it possible to qualify as a teacher in five semesters. The first two semesters are mostly about developing professional language competence, and 40 days of supervised practical training are distributed over the next semesters together with other courses and subject choices. OsloMet reports an increasing interest in this offer (see footnote 25).

Three-year programs for people who want to become mother tongue teachers also exist, e.g. at the University site in Agder29 and at OsloMet30.

We have not been able to identify scholarship schemes or other financial incentives related to increasing the recruitment of students or teachers with an immigrant background.

5.4 Research on the effects of general recruitment strategies

5.4.1 Communication strategies and campaigns

Information in itself is reason to believe is of great importance. It is important for applicants to know where they can find information, that the information is understandable and that it is correct. Good information can create interest. Information can also be published in ways that "hit" recipients, who appeal to their interests and motives.

The GNIST partnership and *the GLØD partnership* involved cooperation between many parties with high ambitions and were to browse. five years from the start, we should have «solid and stable recruitment to the teacher education of motivated and well-qualified students who choose to stay in the profession» 31. GNIST aimed at recruitment to primary school, while GLØD aimed at recruitment to kindergarten.

The main goal number 1 for the GNIST partnership (2009 - 2014) was to increase the status of the teaching profession. Increased status was about people's attitudes to the profession, applying for the profession and salary. The main conclusion in the latest report from the partnership (GNIST Indikatorrapport, 2013: 5) was:

- The target groups' perception of the status of the professions changes little from year to year. The teaching profession scores "in the middle of the tree", and has not received a significant status boost in people's eyes since 2009, as we measure it. This is considered a bad result

- On the other hand, the education applicants' assessment of the attractiveness of the teaching profession has had a clear increase since 2009. This is considered a good result, and is shown again in the application numbers.

- We also see a similar development in the perception of the teaching profession's attractiveness in grand found.

27 In two years, 12 students have completed the fast track for teachers in Norway (utdanningsnytt.no)
28 Supplementary teacher education - OsloMet
29 Teacher education for bilingual teachers - University of Agder (uia.no)
30 Study info program plan TOSBA 2022 AUTUMN - minside (oslomet.no)
31 udir_gnist_avtale_msign.pdf (regjeringen.no)

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- Nevertheless, the leading answer is still that the teaching profession is *moderately* attractive, both among education seekers and among most people.

- Although there has been a positive development since 2009, there is still room for improvement in perceptions of the status and attractiveness of the teaching profession

Coordinated Admissions (UNIT, 2019) provides an overview of actual primary applicants for the various teacher education programs for the period 2010 - 2019. The GLØD partnership started after the GNIST partnership (starting from 2013). For kindergarten teacher education, there is a steady development in a positive direction for the number of applicants from 2013 to 2015 and onwards until 2019. For the primary school teacher educations, the picture is somewhat more motley. But from the first to the last year of the GNIST campaign, there is a certain actual change in the number of primary applicants for both GLU1–7 and GLU5–10. This is an increase from 2275 to 2467 for GLU 1–7 and from 2072 to 2316 for GLU 5–10. For the associate professor educations, which are innovations at this time, there is a noticeable increase in the number of primary applicants from 1137 in 2010 to 1816 in 2014. The increase continues towards 2018, but the proportion of men who apply remains relatively stable.

The follow-up group for the primary and lower secondary teacher education reform points out in its reports (2011, 2012, 2013, 2014, 2015) that the increase in primary and lower secondary teacher education is less than the percentage increase in the total number of students applying for higher education, and that «The increase in primary applicants to GLU is thus smaller compared with the total national increase in applicants for higher education » (Follow-up group, 2013: 21). They also point out that at the same time there is an increase of 17% applicants for sick nursing education (Følgegruppen, 2014).

Unfortunately, it is not possible to conclude whether national recruitment campaigns have an effect or not, neither for search in general nor for different target groups. The fact that those who apply for teacher education have a higher assessment of the profession is positive (see GNIST Indikatorrapport, 2013), but it is not certain that there are more applicants for that reason - it may be that those who would still have applied report increased value of the profession. We have no basis for being able to say anything about this.

Before the application deadline in 2022, there was a large campaign aimed at increasing the number of applicants for teacher education (Become a teacher then), and to increase the number of men who apply. There was a relatively large decrease in the number of applicants in 2022, and kindergarten teacher education (which was one of the most profiled educations) experienced a decrease in the number of applicants of as much as 25%. As mentioned in Chapter 1, this may possibly be related to a structural move that was taken for MGLU 1–7: Removal of grade requirements 4 in mathematics. However, there is no basis for doubting the recruitment campaigns as we do not know what it would have been like without them. What is important is that we need to know more about the effects of such measures in order to also have the opportunity to use resources where there is the greatest chance of getting results.

In a systematic review of knowledge about recruitment strategies for recruiting doctors, the researchers identified two studies that reported on communication campaigns (Verma et al., 2016). One of these had a comparable control group. The experiment was that a promo video that was to help increase recruitment was sent to one group, but not to the control group. It turned out that there were fewer of those who received the video who applied afterwards (29% or 35 of 120) compared to those who did not receive the video (54% or 69 of 128). We have no information about what the film was about or the quality aspects of it . In general, the researchers find that there are weak studies on recruitment and very few who use control groups or longitudinal studies. The same is true in a review of the recruitment of health professionals in Europe (Kroezen, et al., 2015).

Bringing about behavior change through campaigns can be difficult. This research is perhaps a little on the side of the main goal here, and for that reason no systematic search has been carried out either

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and made syntheses, but it may still be of interest because recruitment campaigns to increase recruitment to the teaching profession also want to change behavior. The goal is to get more people to choose an education they may not have thought of before. In a meta-analysis based on studies of mass media campaigns to change health behaviors (wearing a seat belt, safe sex, etc.), the researchers find very small effects of campaigns. The effects are somewhat greater if there are also other external factors that can influence the behavior - e.g. a fine if you do not use a seat belt (Snyder et al., 2010). Nor can mass communication campaigns to change people's habits and make them start walking more show clear effects (Abioye, 2013).

Research in this field emphasizes the importance of campaigns including formative research that can contribute to the theory or framework for the campaign, contribute to the content of the campaign and to the design of the evaluation. Furthermore, it is recommended that the evaluation design includes several groups and control groups with several measurement points over a sufficient period of time using solid data collection methods.

5.4.2 «Nudging»

Several educational institutions have introduced telephone rounds to follow up students who have applied, and try to "nudge" or "hide" them (give them a little push) to choose to show up. Karlsen & Varhaug (2016) and Bjorvatn et al . (2017) investigated the effects of such practices in a systematic way and on behalf of the Ministry of Education. In collaboration with five educational institutions (Bergen University College; University of Bergen; University of Agder; Stord / Haugesund University College; Nord University), three *nudges* were implemented in the spring of 2016 and the effect on attendance was measured against a control group that was not subject to nudging.

The following three *nudges* were implemented (see Bjorvatn et al., 2017: 11):

1. *Quick response nudge:* Information that you are in the draw for the syllabus trip if you accept the offered study place.

Info-nudge: Information about teacher salaries, job opportunities and that the teaching profession is a job with meaning, as well as a link to an inspirational video .

3. *Plan-nudge:* Applicants were asked to answer questions about whether they intend to say yes or no to a study place.

A randomized field experiment was performed with 330 individuals each in four groups (one control group). The results from this study show that none of the nudges had an impact on the applicants' choices. They are registered, but they have not influenced the behavior of the applicants.

The authors write (Bjorvatn et al., 2017: 14):

> Our hypothesis off lack of effect that is the **nudges** in attendance that the applicants motivated,
> informed reflected, and at 9 (on average What they reported motivated, the applicants from 1 to 10) that
> in you to become a teacher score. want a series of reminders along the way from «How strongly do you
> well informed through the institutions. SO and during the year in that such as
> In fact the only one deadline. respondent was the I am
> They are reflected in the typical fact that military service, is "good thanks, yes" (of 14) that
> continuing with others , they said no. regrets made the two master students of
> that our got an impression Through the phone interviews
> that of all had spent good and sensible time to not
> beginning on study that choice and deciding. was

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Damgaard32 & Nielsen (2018) have summarized research on "nudging" in education, and find both positive, negative and neutral results depending on what is done, for whom and how. They have identified and grouped studies by target group, purpose and content and provide a good introduction to theory and empirics in the field. One of the areas nudging is used for in higher education is "reminders" - e.g. to remind applicants of the deadline for accepting a study place. De skrift: «The effects of reminders on specific tasks such as completing college enrollment, aid applications, number of contributions posted in an online forum or applying to an academic conference generally are positive with some indication that the greatest effects arise among low-SES students . However, the effects mostly seem short-lived and the effect on outcomes which are more long-term and require ongoing effort (eg grades and earned course credits) are more mixed »(2018: 324). Another area that has been studied is "nudging" with information about what you will get back by taking an education - why it will pay off for you to take an education. Here the authors conclude: “Overall, nudging with information about the returns to schooling has mostly had no effects on student outcomes in developed countries but positive effects in developing countries” (p. 329).

5.4.3 Middle school boys as play assistants in kindergartens

We have not been able to identify studies that explicitly assess the effect of this measure (adolescent school students as play assistants) that 23% of educational leaders in kindergartens have reported that they do to recruit more men to kindergarten (see above). There is reason to believe that this may be important as many male applicants for kindergarten teacher education report that they have had experience from kindergarten in the past and there may be a predominance of male students without such experience who choose to complete kindergarten teacher education. There is a need for studies that can shed light on the causality between experience and applying for kindergarten teacher education or GLU 1–7, completing the education and staying in the profession.

Summary

- It is not possible to say whether the national recruitment campaigns contribute to increased search, either in general or specific groups such as men and students with an immigrant background. Research is characterized by attitude measurements without relevant control groups and does not have the opportunity to say anything about effects or causality.

- Any new campaigns should be designed with researchers and involve formative research. Measuring effects will still be complicated as there are often many factors that work at the same time, but less formative studies can provide insight into possible content and help build a theory of change for the campaign. Researchers in the field warn against having too high expectations.

- Nudging can be effective, but should be used wisely. It is not always positive - in some cases there can be too much "fuss", and those who are exposed to it can choose to unsubscribe from further contact. Different forms can also have different effects on different people in different situations. Nudging is not a "quick fix" nor a "one size fits all".

- There is also a need for research on the effects of boys gaining experience from daycare work and more insight into how this may contribute to more men applying for education, completing and becoming teachers in daycare and primary school.

32 Also listen to a podcast from Aarhus University where Damgaard is interviewed about nudging: The pros and cons of nudging (au.dk)

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6. Conclusions and recommendations

In Chapter 1, we wrote that we wanted to shed light on the research questions

- Who is applying for the teaching profession?
- Is it possible to influence more people to apply for the teaching profession?
- What does it take to retain more teachers?

In this chapter, we will briefly summarize and discuss results presented earlier in the report and give some recommendations at the end.

6.1 Recruitment to the teaching profession

The teaching profession is special since it recruits people who have observed the profession and been exposed to the profession for many years. The choice of education happens to many while they are still students, and interests are aroused and strengthened - or weakened. Experiences as a student of one's own schooling are an important factor when it comes to later choices of teacher studies - and in particular for boys. It can also be important to have experience even from working with children for boys to choose kindergarten teacher education or teacher education for basic education. It is not as important for girls to have such experience.

In chapter 2.2.2 we refer to Uggerslev, Fassina and Kraichy's (2012) study. This showed that the strongest predictor of attraction to a career is the extent to which an individual feels that it is suitable for the job, which indicates that perceived "fit" plays a key role in the individual's career decisions. It is not unlikely that boys have a greater need to explore whether a kindergarten teacher or children 's school teacher is suitable for them. The researchers combined realistic job descriptions (where the respondents are presented with a realistic presentation of the job / teacher work) with feedback on person-job-fit. It is possible that this may be an alternative when it is not possible to get an internship, and is something that can be used more in counseling students.

Parents' attitudes towards education can also influence students' choices and interests, and fathers can have an impact on boys' choices. Variations between different immigrant groups can also be an expression of variations in assessing the attractiveness of the teaching profession among parents. For boys, the prospect of a good salary (relative to other jobs and in relation to effort) can be important for the choice of education.

Those who opt for kindergarten teacher education often have lower grade points than the average for college and university students, while both primary school teacher students and associate professor students have higher grade points, with associate professor students at the top. The average grades of teacher students have increased gradually over time in Norway.

Students are concerned with getting a good salary with a positive work environment. They are concerned with their study subject and want to work with academic interests. Men place more emphasis on external rewards; salary, leisure time for other tasks, etc. There are some indications that it is possible to change the view of the teaching profession as an attractive choice by exposing students to the personal and social benefits of the teaching profession, but none of the studies followed the students long enough to register actual choice of studies.

Students who choose science have traditionally not chosen the teaching profession, but experiments with alternative programs (eg Teach First) and financial incentives have shown that it is possible to get more realists.

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into the profession. Financial incentives can be important for increasing recruitment in certain regions or in schools where it is difficult to recruit enough teachers with competence. Offering scholarship schemes to increase recruitment to teacher education has also been shown to have an effect. It may be that it contributes to "insecure" applicants choosing teacher education, but not necessarily that people who had not considered the teaching profession feel like becoming a teacher.

It is much more common to develop alternative teacher education programs in countries that do not have national regulations. Therefore, there are very many different programs in the United States and much of the research is also from the United States. The strongest studies indicate that alternative programs can potentially help recruit more teachers - and they can recruit more men, ethnic groups and teachers to specific subjects that are under-covered. But the programs often combine several elements, e.g. both an alternative program and financial incentives. Some also have obligations attached to them; Teachers must commit to teaching in the district for a number of years, or they must repay if they do not complete and start working in the district. Very many studies do not follow teachers long enough to be able to say anything about long-term effects.

Research on recruitment strategies used in Norway - national recruitment campaigns, nudging and giving boys the opportunity to try themselves in kindergarten while they are secondary school students - there is little research that can document the usefulness in terms of effect on recruitment. National communication campaigns may be important for raising awareness and for positive attention, but it has not been proven that they have an effect on recruitment. Researchers in the field recommend i.a. that such campaigns start with formative research projects to try out and develop in a systematic and knowledge-based way. Three different forms of nudging were tried in one project in Norway without finding any effect, but this is also a complicated field that requires more research. The same applies to the measure with boys as play assistants who there is reason to believe may be important, but who have not been documented.

6.2 Transition from student to teacher

There is a lot of documentation that the transition from student to teacher can be very tough. Therefore, several induction programs have also been developed to help the graduates in their first year. In Norway, principles have been developed for this, funds have been set aside for new graduates to have a reduced teaching obligation, and there is training for supervisors. What we know so far is that the graduates who participate in the scheme are satisfied with the scheme, but we do not know if it contributes to more people staying in work (which is one of the important objectives of the measure). We also do not know whether it contributes to competence development in teaching, and other studies indicate that one reason why teachers drop out is a perceived lack of mastery and lack of teaching knowledge.

Studies with a randomized design in our sample could compare newly qualified teachers who were allowed to take part in an induction program with those who did not take part. The programs ran over several years and included both guidance and training. The conclusion from these studies is that participation in the induction programs had no clear effect on the choice "to stay in school / as a teacher". What emerges from the studies is that experience of support from leaders and colleagues is very important.

We can thus not document that the mentoring scheme has an effect on retaining teachers in school, but that does not mean that such a scheme does not have an effect on making the transition to the teaching profession better or more manageable. Reduced reading obligation *can* be crucial for new graduates in their first time as a teacher when everything takes much longer and no good habits have been developed. The studies are not able to distinguish between the various components of the measures, and as such we do not know what has the most or least significance for quality during the transition and induction period.

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6.3 Retaining teachers

There are several studies that have looked at factors such as performance pay and increased pay, but it is not possible to draw solid conclusions from these. Performance pay may have greater appeal for men, but is problematized by most. There are also mixed results when it comes to salaries in general - both positive results and neutrals. The effect can also be short-lived. Several of these studies that look at what pay means, point out that it is not necessarily the financial incentives that are important for whether teachers stay in school, but the working conditions.

Interview studies show an understanding that salaries are experienced relatively. The salary must be good enough in relation to what one could have received in other positions with the same length of education, and it must correspond to the effort.

However, increased pay cannot compensate for poor working conditions, management or the school environment. This is a clear result of our review. In one of the Norwegian studies, working conditions can also be about the proportion of teachers who are unqualified. It is possible that this reflects a perceived school environment or fellowship that is not academically strong, but the study does not provide insight into the reasons.

6.4 Recommendations

Recommendations we give in the end are based on our review and based on a narrative synthesis. As we have pointed out several times, there is often a weak scientific basis for concluding. Several recommendations should therefore also be followed in terms of research.

6.4.1 Kindergarten and school as good workplaces

Based on this review of research, we assume that the most important recruitment work and the most important work to retain teachers takes place in kindergartens and schools, in daily life.
According to the studies in our sample, future career choices are decided quite early for very many, and it will be crucial for students that the school is perceived as meaningful and valuable and that the work as a teacher seems attractive. Own experiences from school influence the choice of teaching profession, state pupils and students in studies we have referred to.

A good workplace is about relationships, resources and opportunities. Relationships with management, the experience of support from the leader and good communication with the leader are highlighted in very many studies. Principal behavior can have an effect on teachers' well-being and their pedagogical work (Liebowitz & Porter, 2019). The principal also has the opportunity to take care of workload for teachers, and can be important for teachers' experience of being able to handle workload. A good fellowship that realizes intentions in the Curriculum (LK20) on collaborative learning and professional development can both be supportive and provide opportunities for learning in safe forms.

Resources to be able to do a good job are not always something the kindergarten or school has at its disposal, and they will have to deal with changing economies nationally and locally. Resources are about access to equipment, but it is also about group / class size, and access to competence in the college. Good communication about the school's choices and participation in elections can be important, especially in difficult economic times. For schools with many students with special educational needs, access to resources can be particularly demanding. Several studies also point out that the student base in a school can be a reason for teachers to quit or move - but not necessarily.

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Stability in management and in the community of colleagues can also be important for the experience of good relationships, and there are studies that indicate that a lot of replacement in management can also have a contagious effect on teachers. Recruiting for management is a challenge, and the work of managers is also becoming more and more complicated. Responsibility for making it possible to do a good job in kindergartens and schools goes far beyond the individual kindergarten and school.

One of the reasons why it has been important to retain teachers is that it is also important for children and young people to have well-qualified and stable teachers. Lynch et al (2016) are among the studies that point out the importance of teachers being engaged in the work. That is, they enjoy the work and with the students , that they experience job satisfaction and a supportive work environment). Although we do not have longitudinal data that can document that teachers who are considering quitting actually quit work, it is generally the case that poor working conditions and a lack of mastery experience are stated as the reason why teachers are considering quitting. This should be seen as risk factors, and it can be crucial that such issues are addressed by the manager.

The first point of our recommendations is about something as large, complicated and important as long-term and continuous quality work, and that all good forces in and outside kindergarten and school contribute to kindergartens and schools being good workplaces that provide joy and mastery experiences in everyday life for children , young people and employees.

6.4.2 Identify the risk of quitting as a student or teacher

Our next point is about keeping those who, after all, have chosen the teaching profession. Risk of quitting for both teacher students and teachers is about an experience of being overwhelmed, and not mastering the tasks. For students, it can turn out to be a lack of submissions, failures or something else. For teachers, it can be more difficult to spot, and it is therefore open and good communication with colleagues and management is important. It may also be that some subject teachers are particularly vulnerable because it is difficult to build good relationships with students if you have a few hours per week with many students. How the working day is organized, number of classes, size of classes, whether the teacher teaches subjects without having subject competence - all this can contribute to experiences of not dealing with the workload .

Lynch et al. (2016) find that teachers who experience being positively involved in the work may also consider resigning. The amount of work becomes too much, they feel that they have given enough. These may be good qualified and skilled teachers, but they come to a point that workloads are not manageable.

Several studies point out that some dropouts from both teacher education and the profession must be taken into account, and it can be both correct and important that someone quits. But it is of great importance that kindergartens and schools do not lose employees who do a qualitatively good job. For study places, it will be crucial to have a special look at men in the educations as there is a greater tendency for them to leave. Quitting may be due to an experience that the profession does not "suit" them. It may be worthwhile to explore what lies in such an experience and possibly consider measures.

6.4.3 The importance of parents for students' choice of study

Parents seem to have an influence on the young people's choices, regardless of ethnicity, and it can therefore also be important to be aware of this in collaboration with parents. This is basically about what status parents feel that the teaching profession has, and how parents experience the teaching profession and kindergarten and school as a workplace.

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Perhaps fathers are more important for the boys' choices, and it can also be something to be aware of.

6.4.4 To give students - especially boys - more experiences and good information

As we have seen, there is a tendency for boys who have some experience with teaching work or work with children to have a greater tendency to apply in that direction. It may also be that they complete the study more than men who do not have such experience (kindergarten teacher education).
Cooperation between schools and kindergartens, and cooperation between stages within the same school can give more students opportunities to try their hand at "teaching".

6.4.5 Financial incentives

The salary level for teachers can also be important for increasing the proportion of men as teachers in kindergarten and school, a greater diversity of ethnic groups, and for recruiting other groups who are more uncertain about becoming a teacher. What is emphasized in several studies is the relative salary - that the salary must be comparable to what one could get in other positions that require the same length of education. Reward must be in proportion to effort. This is also emphasized especially for some groups of subjects - such as science subjects where students in these subjects expect to have positions that pay better than teacher positions.

The studies are not uniform in their conclusions, and it may be that salary is more important for recruiting than for retaining (then it seems that it is the work environment that is most important), but it may be a contributing factor.

6.4.6 Alternative programs or incentive schemes for recruiting specific groups

It may appear that the proportion of people with an immigrant background is increasing when it comes to employment in kindergartens and schools and when it comes to the proportion of students. It is possible that there has been a natural delay in the number simply due to age groups - that there have been more children and young people than young adults and adults who have been able to choose the teaching profession. That said, it also turns out that there may be different choices in different groups depending on which country the parent immigrated from. It can be important to follow developments and possibly consider whether alternative programs or other incentives can be something to try. Experiences from Teach First can then be important to build on. The same applies if there is a need to recruit teachers in specific subjects.

6.4.7 Exploring induction strategies

Evaluations and research on induction strategies are not convincing in their strength to be able to say anything about effects. There is a high probability that it is important to ensure a transition from student to teacher in kindergarten and school, and there are many studies that show connections between access to induction programs and satisfaction - even greater satisfaction with the first year compared to those who do not. got an induction year.

Based on our review, we would still recommend that several measures be tried out in a systematic and research-based way that provides an opportunity to assess the effects of various components for the new graduates' development of competence and for them to stay in kindergarten / school. As evaluations of the Norwegian scheme document large differences in how the scheme is implemented, it will

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be not able to examine effects based on only registry data and information on participation or non-participation.

6.4.8 Exploring information work

All educational institutions we have been in contact with reported that they work in many different ways to get information out to potential applicants. There are school visits, there is education of "ambassadors" who tell about educations to almost peers, there are movies and TikTok and other social media. In addition, we have had some major national recruitment campaigns with collaboration and information that have taken place over several years.

The fact that there is good and accessible information about the various teacher educations from the educational institutions is undoubtedly of great importance to those who are considering applying for the educations. The GNIST partnership may have meant something for the profiling of the teaching profession and may have received more positive media attention. However, the extent to which this information is important in convincing people to apply for teacher education who have not thought about it before is linked to greater uncertainty. There are several studies from several different fields that show that it can be very difficult to get people to change their perception or change their behavior due to a mass media communication strategy. Here, there is also a need for research and opportunities for what is called "formative research" to try out approaches and examine responses in a systematic way. This can e.g. be a strategy for exploring parents' relationships with the teaching prof

6.5 Further research

It is common to assess research quality in systematic knowledge overviews because it is important to know on what basis results have been obtained and to what extent it is possible to emphasize the results and draw conclusions based on them. This is not least important when it comes to the effects of interventions, e.g. effects of an induction program or whether performance pay is important for teachers to stay in work. Then it is important to plan a design with control groups to investigate what happens in groups that are not exposed to the intervention, and it is important to have both large enough samples and to follow the samples over time. Recommendations based on research can lead to large financial costs, and it can be important to know whether the increased costs can also be expected to give the desired results.

We must conclude that there is little research among what we have identified that satisfies such design requirements. It is also clear from the Appendix where we report on quality assessment of research found in the international database searches. Research we have identified through searches in Norwegian journals and websites is also mostly cross-sectional studies or attitude studies, but with some exceptions.

Studies that are based on interviews or surveys that ask for opinions or attitudes can of course be of high quality. The point here is that there are too few studies that can say anything about the consequences of measures or interventions, and it would be important for future development that there were a few more such studies. In our recommendations, we have identified three areas in which there is a need for research and where there is a need for other forms of research than what we have so far: (1) induction schemes, (2) recruitment campaigns to increase recruitment to the teaching profession, and (3) boys' choice of teaching profession. The first two are often large, demanding and national, and if the intention is for them to contribute to either increased recruitment or to more people staying in work, it would be natural to investigate this in ways that can provide better answers to the questions. Formative research projects can be an opportunity for all three areas.

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With regard to newly qualified - and experienced - teachers, it would also be important to gain a more holistic insight into which areas of competence and knowledge may be most needed for further development within. It will require a good research design to be able to shed light on the consequences for mastery or competence development. These days, kindergartens and schools are involved in workplace -based development work in collaboration with the higher education sector, and it is also a question of whether this development work responds to the needs for competence development that teachers are aware of.

It can also be problematic with different ways to register e.g. teacher competence or dropout. We would therefore recommend that further work be done to obtain solid figures and agreement on definitions. It is important for the education sector as a whole - and not least for children and young people - that there is knowledge about qualifications in kindergarten and school and whether standards are met.

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