

University of Groningen

## Attrition of certified teachers in secondary education during the induction phase

Noordzij, T.; van de Grift, W. J. C. M.

*Published in:*  
 Pedagogische Studiën

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
 Publisher's PDF, also known as Version of record

*Publication date:*  
 2020

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Noordzij, T., & van de Grift, W. J. C. M. (2020). Attrition of certified teachers in secondary education during the induction phase. *Pedagogische Studiën*, 97(2), 96-107.

### Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

### Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*

# Attrition of certified teachers in secondary education during the induction phase

T. Noordzij and W.J.C.M van de Grift

## Abstract

Teacher attrition is generally considered problematically high, with attrition rates of beginning teachers up to 50%. This study shows the problem is not as big as has been claimed before. Previous studies have often focused on the attrition within 5 years, showing a quarter or more of beginning teachers leaving the profession. However, this disregards the fact that teachers leave at later stages as well, and the fact that some beginning teachers are not qualified to work as a teacher. Using administrative data from payroll administrations of schools in the Netherlands for secondary education a reliable measure of teacher attrition was made. Administrative data on diplomas in higher education were used to establish if teachers are certified at the start of their career. The results of this study show that the attrition rate of beginning teachers is only high within the first year of their career. The attrition rate within 1 year of experience is around 12% until the early 2000s, rising to close to 20% in more recent years. In comparison with other countries this seems relatively modest. However, after the first year, a base rate of attrition (retirement excluded) remains fairly constant at approximately 3% to 5% every year, explaining the gap with high attrition rates found in earlier studies. Attrition of certified teachers within one year is about 9%, with very little variation over time, versus the 12% to 20% of all beginning teachers. This 9% attrition rate of certified teachers is much lower than many earlier studies suggest.

**Keywords:** teacher attrition; beginning teachers; secondary education; certification

## 1 Introduction

Articles in the news and in academic research about teacher attrition often have an alarming tone. The Dutch ministry of education published an analysis about beginning teachers who stopped teaching, not to return. The study found an attrition rate of over 30% of young teachers (<30 years) in secondary education in the first 5 years of their career (Ministerie van Onderwijs Cultuur en Wetenschap, 2014). In the Netherlands other professions, like nursing, also seem to struggle with a high level of turnover (Commissie Werken in de Zorg, 2019; NOS, 2020). The teacher attrition rates reported by Ministerie van Onderwijs Cultuur en Wetenschap (2014) are in the same range as many other countries, such as an estimated five years attrition rate as high as 40% in the US based on a cross sectional survey (Ingersoll, 2003). In the UK an attrition rate of 50% is reported in the popular press (Espinoza, 2015). Attrition rates of 30 to 40% of the teachers leave teaching within the first five years are estimated in Australia (Ewing & Manuel, 2005; Milburn, 2011). The attrition rate in the Netherlands could be considered relatively modest in comparison to these countries (Den Brok, Wubbels, & Van Tartwijk, 2017). The attrition rates of different studies are hard to compare between and within countries however, because of the different methodology of these studies. For each of the studies mentioned above, another finds much lower teacher attrition rates for these countries. In the US, Gray & Taie (2015) find a teacher attrition rate of 17% after four years in a longitudinal study using nationally representative data on attrition. The official statistics on retention rates of qualified teachers in England show an attrition rate of 30% after five years

(Department for Education, 2019). Weldon (2018) concludes the attrition rate in Australia is not well established. In a more recent study from the Australian state of Queensland an attrition rate of registered teachers in Queensland of around 15% within four years is reported based on administrative data (Queensland College of Teachers, 2019).

No matter how high attrition rates are exactly, they are problematic for multiple reasons. There is a personal cost for individuals who make a wrong choice of career and have a false start on the labor market. But besides the personal investments of people, the investments of the government (which partially funds the teacher training in the Netherlands, as in many other countries) and those of the school involved are lost. On top of that, it is likely that student achievement also suffer, as many studies have shown that teachers improve as they gain experience (Hanushek & Rivkin, 2006). If beginning teachers do not keep teaching and leave the profession, they will likely be replaced by new inexperienced teachers.

However, teacher attrition might not be as big a problem as presented by some researchers and policy makers. As can be seen in the Australian studies mentioned above, it matters if all starting teachers (Ewing & Manuel, 2005; Milburn, 2011) or just the certified teachers (Queensland College of Teachers, 2019) are included in the attrition rate. Moreover, the focus on the attrition of beginning teachers diverts attention from attrition rates that are common during the rest of the teachers' career. Lowering the attrition rate of beginning teachers seems like a commendable goal, but it would be wise to know what the baseline attrition rate is after the first few years of teaching before setting a specific target for the attrition rate of beginning teachers.

It would be problematic if schools had more difficulty retaining certified teachers than uncertified teachers. As long as schools are able to find enough qualified and capable teaching staff, and as long as the supply of good teachers surpasses the demand, the quality of education does not have to suffer. There is no general teacher shortage expected

for secondary education in the Netherlands with the current number of students in teacher training, and the current population of teachers. For a few subjects however, most notably in subjects related to science, technology, engineering and math (STEM) teacher shortages are expected (Adriaens, Fontein, Den Uijl, & De Vos, 2016). For these subjects it has also proven to be difficult to attract and retain qualified staff for a longer period of time. This shows in the relatively high percentages of classes given by an uncertified teacher and a higher percentage of classes for these subjects that are given by teachers in training giving than for other subjects (Vloet, Den Uijl, & Fontein, 2017). Because many of the subjects for which teacher shortages exist are compulsory, these teacher shortages affect a lot of students in secondary education. Many countries face the same challenge with teacher shortages for specific subjects. Attracting students to teacher training programs for these subject, as well as retaining the teachers trained in these subjects is more related to the competition with other professions where their academic background is in high demand than it is to teacher attrition (Dolton, 2006).

### 1.1 Research questions

This introduction leads to the main question of this paper: Is the attrition rate of beginning teachers higher than the attrition rate of other teachers? To be able to answer the main question, three sub-questions will be answered first: What is the attrition rate for teachers that are not leaving the profession because of retirement? What is the attrition rate of beginning teachers? And what is the attrition rate of certified beginning teachers?

## 2 Theoretical framework

Teacher attrition has received increased attention from the academic community in the last two decades. In an influential study, Ingersoll (2001) described the cause of staffing problems as a 'revolving door': it's not the lack of an adequate teacher supply that causes staffing problems, but the inability

of schools to keep their newly acquired teachers in the schools. The early research on teacher attrition is flawed, however, because it is difficult to identify beginning teachers. To answer the question whether beginning teachers leave the profession early it is necessary to know the years of experience of teachers. It has proven difficult to gather reliable data on experience though, so the age of teachers is often used as proxy for experience. In reviews of the literature there seems to be consensus that teacher attrition usually follows a U-shaped distribution when attrition is plotted against age or years of experience, with more teachers leaving the profession at either higher ages or early in their careers, although some studies do not find this pattern (Borman & Dowling, 2008; Guarino, Santibanez, & Daley, 2006).

Ingersoll used survey data on schools and teaching staff to estimate the level of teacher attrition. He found that 6.0% of all teachers left the profession, which included those teachers who retired. Both younger and older teachers in the sample had a higher likelihood of leaving the profession (Ingersoll, 2001). In a later study Ingersoll (2003) estimates the cumulative percentage of teachers having left the teaching profession at 39% after five years.

Similar research has been conducted in the U.S. using other data sources. Harris and Adams (2007) used a survey containing data on the entire labor force, including teachers. They found an annual teacher attrition rate of almost 8%, but no strong indications that the attrition rates for young teachers were significantly higher. Neither one of these studies considered experience of teachers directly however, but used age as a proxy. This might have distorted the results, because the starting age of teachers can vary considerable and lateral entry of teachers into the profession can happen at any age.

Considering the concerns about teacher attrition early in their career, the NCES launched a study to focus on following a cohort of beginning teachers (one to three years of experience) for multiple years, allowing more reliable estimations of teacher attrition because there is no need to use age as proxy for years of experience. The data

showed that 10% of beginning teachers left the profession after one year, with that attrition rate accumulating to 17% after four years (Gray & Taie, 2015). This attrition rate of 10% in the first year is much higher than the attrition rate of 2 to 3% in the following years. This warrants a more thorough study into experience, rather than age, as a factor related to teacher attrition. More specifically, a focus on the first year as a teacher in comparison to later years is supported by these findings.

The findings of researchers trying to establish a level of teacher attrition are inconsistent, largely due to differences in data collection and sampling. This also makes it difficult to establish the development of teacher attrition over time. While it is possible that teacher attrition rates have been changing in the years between the various data collections, there is little concrete evidence for that (Borman & Dowling, 2008; Ingersoll & Strong, 2011).

## **2.1 Teacher attrition in the Netherlands**

The studies reviewed in the previous section were all conducted in the U.S., based on several different surveys. Teacher attrition has also been an important topic in the Netherlands. Policy makers in the Netherlands relied on the analysis of a government agency (DUO), who had access to administrative data of the entire population of teachers from payroll administrations to reliably establish teachers entering and leaving the workforce. They found an attrition rate of over 30% of young teachers (<30 years) in secondary education in the first 5 years of their career (Ministerie van Onderwijs Cultuur en Wetenschap, 2014). Over two thirds of these teachers leaving the profession left within their first year. These attrition rates of beginning teachers in the Netherlands seem somewhat higher than the ones reported in the U.S. (Borman & Dowling, 2008; Guarino et al., 2006), but moderate in comparison to some other countries (Den Brok et al., 2017). However, other studies in the Netherlands show different attrition rates of beginning teachers (Den Brok et al., 2017).

In the Netherlands teacher attrition of beginning teachers also seems to be related to

the skills of teachers. Teachers with the lowest pedagogical and didactical skills have a significantly higher chance to leave the school they started at within three years. The skills of teachers that leave are a full standard deviation lower than the ones that stay (Helms-Lorenz, Van de Grift, & Maulana, 2015; Van de Grift & Helms-Lorenz, 2013).

### **2.2 Teacher attrition of certified and non-certified teachers**

While studying the effectiveness of induction programs for retaining beginning teachers and improving the quality of teaching in the first years of teachers' careers, researchers found that in their sample 16% of the beginning teachers in the Netherlands left within the first 3 years (Helms-Lorenz, Van de Grift, & Maulana, 2015). The Dutch study further showed that certified teachers who finished a teacher training program before entry into the profession had considerably lower attrition rates: 9% of certified teachers left education in the first 3 years versus 16% of all beginning teachers in the sample (the total of not certified, not yet certified or student teacher, and certified teachers) (Helms-Lorenz et al., 2015). Other research from the Netherlands suggests attrition rates of certified teachers in secondary education to be 13% after 5 years (De Vos, Fontein, Van der Boom, & Vrielink, 2017). After reviewing several Dutch studies on teacher attrition, Den Brok et al. (2017) suggested that the measure of De Vos et al. (2017) is the most accurate of teacher attrition, because their data take into account all certified teachers and cover several cohorts.

Certified teachers leaving at lower rates than non-certified teachers have also been reported in literature reviews on teacher attrition in the U.S. (Borman & Dowling, 2008; Guarino et al., 2006). For example, in the NCES studies conducted in the U.S., a similar pattern was reported, where (almost) certified teachers left the teaching profession at considerably lower rates, although the researchers note that these results should be interpreted with caution because the variation of these estimates are large (Goldring, Taie, & Riddles, 2014). The aforementioned

Australian studies also show a much lower attrition rate for certified (Queensland College of Teachers, 2019) versus all (Ewing & Manuel, 2005; Milburn, 2011) teachers, although the studies used different methods to measure attrition.

### **2.3 Teacher attrition compared to other professions**

Harris & Adams (2007) compare the attrition of teachers to that of nurses, social workers, and accountants. Their research suggests that teacher attrition is not significantly higher than that of these other professions, even after controlling for other measured differences among them. Grissom & Reininger (2012) used nurses and social workers as reference group and also concluded that attrition rates between these profession and teachers have no statistically significant difference.

Research in the Netherlands mentions high levels of attrition in nursing (Commissie Werken in de Zorg, 2019). Nine percent of all professionals left healthcare in 2019, although 60% of these became inactive on the labor market as employees (retired, on benefit, or self-employed). According to this research, the attrition rates of starting healthcare professionals are considerably higher though: about half of all beginning employees leave in the first two years. Although these researchers did not find sources to compare attrition rates within healthcare to other sectors of the labor market in the Netherlands (Commissie Werken in de Zorg, 2019), this seems to be higher than the attrition rate of teachers of 30% in the first five years that the Ministerie van Onderwijs Cultuur en Wetenschap (2014) reported. Comparing the attrition rates of different professions using different data and methodology should be done with caution though.

### **2.4 Survey data or administrative data**

Previous research into teacher attrition has had serious limitations. One of the issues is associated with the known downsides of using survey data, such as selection bias. It is not unlikely that teachers leaving the profession have lower response rates to

follow up questionnaires than teacher that stay for example. Also, in the majority of survey research the certification status of teachers is either self-reported or provided by the employer. Both types of respondents could be inaccurate in reporting teaching credentials. For example, they might report teachers with temporary credentials for student teachers as a fully certified teacher. This could lead to an underestimation of the negative relation between a lack of certification and teacher attrition.

In the Netherlands, a different approach is possible to avoid the above mentioned limitations of survey data. All public schools for secondary education are obliged to send data on the appointment of their staff and their salary to the Dutch ministry of education. These data can be linked to a registry of all diplomas in higher education, including nearly all forms of teacher education. However this has not been done to study trends in teacher attrition for certified and non-certified teachers yet. With this study we explore the possibilities of using these administrative data to reliably measure teacher attrition and the relationship between formal teacher training and teacher attrition.

### 3 Data and methods

#### 3.1 Data description

The original source file used for this study contains data on all registered contracts of school staff in primary, secondary, and upper secondary vocational education, with a unique identifier for every person across schools and years (Ministerie van Onderwijs Cultuur en Wetenschap, 2014). Schools are obliged by law to provide these data to Dutch ministry of education, thus the response rate is close to 100%. Since 2009, the data submitted to the government by practically all schools also includes the social security numbers of their staff, further improving the possibilities to correctly identify individuals across years and employers. After being anonymized by the government agency handling these data,

they have been made available for research purposes, under strict conditions not to reveal personal information about school employees or individual schools. These data have been cleaned and corrected for non-response (Adriaens et al., 2016; Adriaens, Vos, & Fontein, 2017). This anonymized, cleaned and corrected data set is the source for this study. The cleaned data file contains 2,034,639 records (contracts) in secondary education, of 214,700 unique persons in a period of 21 years (1994 – 2015).

Data on certification were obtained from the registrations of the Dutch ministry of education on student's enrollments and the diplomas they obtained at universities and universities of applied science in the Netherlands (DUO, 2018). This register contains data on the enrollment of students and their certification from the years 1991 to 2015, although data of the first years do not cover all universities. This data set contains an anonymized unique identifier for every individual to link it to the data on school staff described earlier, and is made available under the same conditions as the data set on school staff.

#### 3.2 Dependent variable: teacher attrition

A teacher is defined in this study as a person who has at least one contract as a teacher in a certain year, whether this person has finished formal teacher training or not. A teacher entering the profession is defined as a teacher in a certain year, who could not be found as a teacher in any earlier year. A leaving teacher, or 'leaver', is defined as a teacher in certain year, who could not be found as a teacher in any later year. Teachers are only considered to have left the profession if there is no contract as a teacher for that person for at least two years, to account for teachers that temporarily stop teaching but return within a year.

Note that this definition only identifies teachers leaving the teaching profession altogether. 'Movers', teachers that moved to a different school in secondary education but remain in the teaching profession, are not considered 'leavers' but 'stayers'. Teachers that get another job in a school, such as a support coordinator, are no longer teachers and are considered leavers for this study.

Considering the definitions above and the fact that the data covers the years 1994 to 2015, the first cohort of teachers that can be identified as entering the profession is the 1995 cohort. These teachers have contracts in 1995, but not in 1994. Similarly, leavers can only be identified until 2013. These leavers had a contract as teacher in 2013, but no teacher contracts of this person could be found in the data of 2014 and 2015.

The attrition rate is established by counting the number of leaving teachers in a year, divided by the total number of teachers in that year.

### **3.3 Independent variable: experience**

The years of experience of a teacher are defined as the number of years between the year a teacher enters the profession and the year that a teacher has been identified as a leaver.

### **3.4 Independent variable: certification**

A certified teacher is defined in this study as a teacher who has a diploma at a bachelor or master level at any teacher training program for secondary education before that teacher has their first contract as a teacher. A non-certified teacher is a teacher who has no diploma from a teacher training program at the moment that teacher has their first contract as a teacher. These non-certified teachers can include teachers who finished non-teacher training bachelor or master programs of subjects related to subjects in secondary education, and teachers who had not finished their teacher training program yet at the start of their career. For the purposes of this study, certified teachers, teachers with teaching credentials, and teachers who finished teacher training are considered synonymous.

Because the coverage of the diploma registry is not complete in the earliest years, and contains no data on diplomas obtained outside of the Netherlands, it is likely that some certified teachers are misidentified as non-certified teachers. However, when a teacher is identified as a certified teacher, it is certain that this teacher has teaching credentials for at least one subject taught in secondary education.

### **3.5 Independent variable: time**

The development of attrition rate of beginning teachers over time will also be looked at. Attrition rate per year will be calculated in the period of 1995 to 2013 for this purpose.

### **3.6 Analysis**

To answer the main question of the study, whether the attrition rate of beginning teachers is higher than a baseline attrition rate, first a base rate of teacher attrition for teachers that are not leaving the profession because of retirement was established. For the years 1995 to 2013 the attrition rate was calculated for all teachers younger than 55. As the age of retirement has not been stable throughout the years, with the pension age rising and other changes in pension plans for teachers, the cutoff point of the age of 55 years was chosen to have the best comparable teacher population over which teacher attrition is calculated. The size population of teachers younger than 55 years is between 52,433 and 58,270 (with an average 55,438.4 and a SD of 1731.8) from 1995 to 2014.

Next, the attrition rate of all beginning teachers was established for the same range of years, 1995 to 2013. This rate should be very similar to the earlier analysis by the Dutch ministry of education (Ministerie van Onderwijs Cultuur en Wetenschap, 2014), although there could be small discrepancies because more recent data has been used and the data has been cleaned and corrected (Adriaens et al., 2017).

As a final step, the attrition rates of all teachers was split into an attrition rate of certified and non-certified teachers for the same years, 1995 to 2013.

As the data used in this study concerns the entire population of teachers in secondary education, no weighting and testing for statistical significance is necessary to establish the difference of attrition rate between certified and not certified teachers. Linear regression models were applied to study the relationship between attrition rate and time. To study the interaction between time and certification and their effect on attrition rate ANCOVA was used.

## 4 Results

Figure 1 shows the base rate of teacher attrition of teachers that do not leave the profession due to retirement (age <55 years), whether they are certified or not.

The base rate of teacher attrition is around 4% per year, rising from 3% to close to 5% in the period from 1995 to 2013. Not shown here, attrition rates of teachers younger than 55 years, excluding the teachers with less than one year of experience before they leave the profession, have a similar range. Teachers who are certified at the start of their career show only slightly lower attrition rates<sup>1</sup>.

The attrition rates of all beginning teachers, by certification status at the start of their career is shown in Figure 2.

The attrition rate within 1 year of experience of the total teacher population in secondary education was around 12% until the early 2000s, rising to close to 20% in more recent years. Applying a linear regression model, we found an average rise of the attrition rate of 0.501 percentage-point per year over the period of 1995 to 2013 ( $p = 0.000$ ). Not shown in the graph, the attrition rate within two years of experience was around 5% on top of the attrition rate within one year until early 2000s,

rising to close around 8% in recent years. In all experience years after the second, the attrition rates are around 5%, which matches the results shown in Figure 1. This replicates the earlier findings of the publications of the Dutch ministry of education (Ministerie van Onderwijs Cultuur en Wetenschap, 2014).

Figure 2 also shows the attrition rates within one year of experience of the teachers who were certified and not certified at the start of their career. The attrition rate within 1 year of experience of teacher who were certified at the start of their career was 9% on average. Applying a linear regression model to the attrition rates of certified and not certified teachers over the years, we found a small but statistically significant rise of the attrition rate of certified teachers in this period, of 0.151 percentage-point per year ( $p = 0.0158$ ). The attrition rate of teachers that are not certified at the start of their career has risen with an average of 0.729 percentage-point per year ( $p = 0.000$ ).

We tested to see if the slopes of the attrition rate over time for certified and not certified teachers were equal using an ANCOVA. The slopes are significantly different ( $p = 0.00$ ), which means the change of attrition rate over time was not the same for both groups.

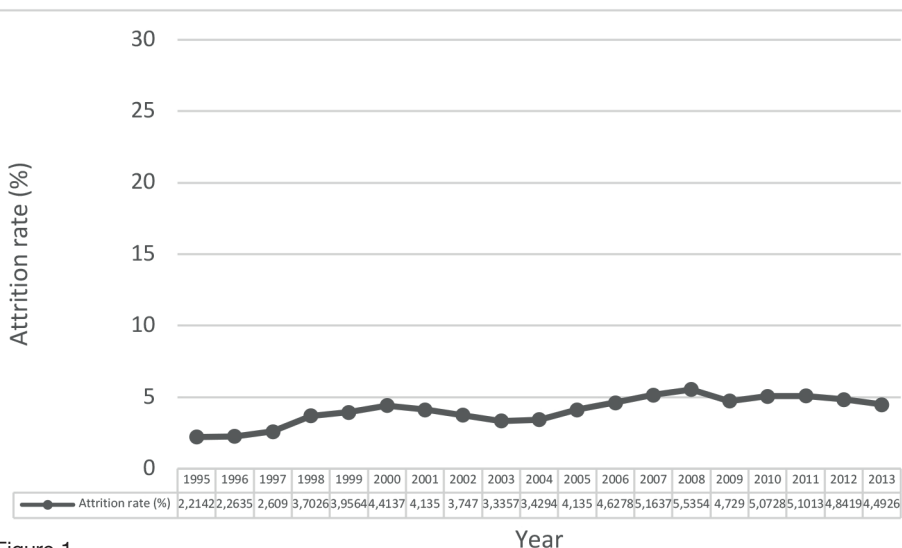


Figure 1  
Attrition rate of all teachers <55 years of age (regardless of certification or experience) in secondary education



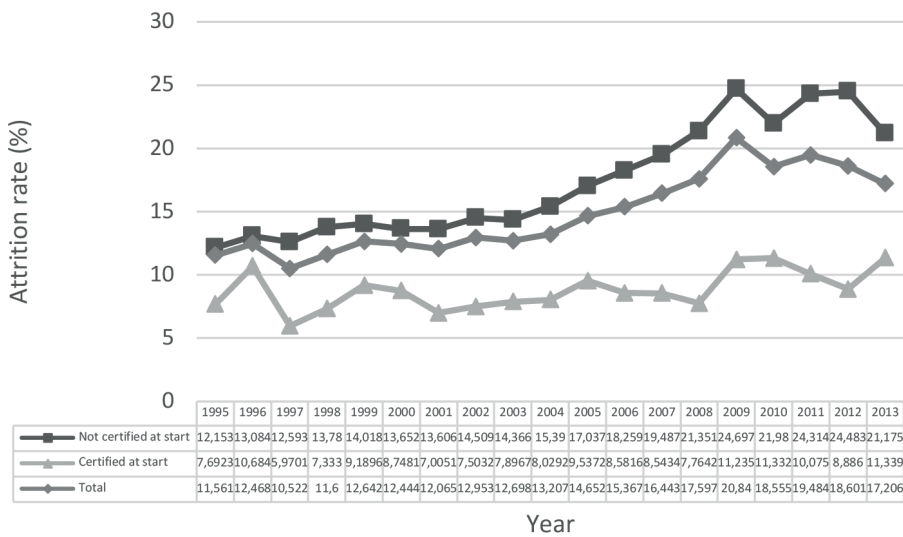


Figure 2  
Attrition rate of teachers in secondary education within one year of experience by certification at the start of their career

## 5 Conclusion

This descriptive study answers the question whether the attrition rate of beginning is higher than a baseline attrition rate of all teachers. This question is at least in part a normative one, but there are facts that should be taken into consideration when examining this research question.

First, reporting attrition rates of teacher after more than one year seems an odd choice. This study replicated the attrition rates after of 25 to 30% after three years reported in an earlier study that used the same data (Ministerie van Onderwijs, Cultuur en Wetenschap, 2014). That is in a similar range as the attrition rates after five years commonly found in international research (Borman & Dowling, 2008; Guarino et al., 2006), such as the 17% to 40% in the US (Ingersoll, 2003), 30% to 50% in the UK (Department for Education, 2019; Espinoza, 2015), and 15 to 40% in Australia (Ewing & Manuel, 2005; Milburn, 2011; Queensland College of Teachers, 2019).

Although the results of the Dutch study are replicated in this study, it is clear that almost all above-normal attrition takes place in the first year. The approximately 20%

attrition rate within the first year of experience is also reported in the study from the Ministerie van Onderwijs, Cultuur en Wetenschap (2014), but the higher attrition rate after three or five years is used as a measure of successful retention. It would make more sense to focus on the attrition rate after one year, as all attrition after the first year is just the base rate of teachers leaving the profession, as is likely to happen in any profession. The finding that attrition rates are especially high in the very first year are similar to what some other studies have shown in other countries, but not emphasized in their conclusions. In the US Ingersoll (2003) reported a cumulative attrition rate of almost 40% after five years, but more than half of that rate was accumulated in the first two of those five years. Also in the US, Gray & Taie (2015) report a 17% attrition rate after four years, but a 10% attrition rate in the first year. The Department for Education (2019) in the UK reports an attrition rate of 30% after five years, but an attrition rate of approximately 12% after one year.

Furthermore, the attrition rate after one year of beginning teachers that finished a teacher training program is around 9%, less than half that of all beginning teachers

without correcting for certification. The attrition rate of certified teachers has been increasing slightly over the period of measurement, while the attrition rate of not certified teachers continued to rise at a much higher rate. An average 9% attrition rate for certified teachers can still be considered high in comparison with the baseline attrition rate of 3 to 5% of teachers leaving the profession every year (retirement excluded). However, it certainly is not as dramatic as the 25 to 30% attrition rates that have been presented in earlier studies.

## 6 Discussion

The alarming message of the early studies in teacher attrition, claiming the staffing of schools was problematic because the teaching profession was a 'revolving door' for beginning teachers seems to be misplaced. High attrition rates for beginning teachers are easily found when measuring inaccurately, a baseline attrition rate is ignored, or certification of teachers is not considered.

Three to five percent of teachers leaving the profession yearly as found in this study seems reasonable. This can happen due to many kinds of life events and is similar to other professions (Grissom & Reininger, 2012; Harris & Adams, 2007). The high attrition rate in the first year needs to be explained in more detail though. The results of this study show the attrition rate of beginning teachers in the Netherlands not as high as the 25 to 30%, if we disregard the 3 to 5% yearly base rate of teacher attrition and focus on the attrition rates of teachers that start their career after finishing a teacher training program. The 9% attrition rate of certified teachers within one year after beginning their career is two to three times higher than the base rate attrition of all certified teachers, so teachers are clearly at risk of attrition in the first year. However, teachers are not unique in this respect. A first job after finishing a study can be a big change. It is a period in which the risk of attrition is higher for more professions (Grissom & Reininger, 2012; Harris & Adams, 2007).

Striving for zero teacher attrition is neither realistic, nor commendable. It has been argued by many that some turnover is healthy for any profession, but it strongly depends on which professionals leave the profession. Borman & Dowling (2008) argue that part of the teacher attrition has benefits: Teachers with teacher training seem to have lower attrition rates than those without teacher training. Other research shows that teachers that finished a teacher training program are more important for teacher quality than higher levels of qualifications in general (Hanushek & Rivkin, 2006).

A study by Van de Grift & Helms-Lorenz (2013) shows that starting teachers who leave the profession in the Netherlands score more than a full standard deviation lower on the pedagogical didactic skills of teachers than starting teachers who stay at the school they started their career. The beginning teachers who leave the profession use less clear examples, less often make clear what the intention of the lesson is, explain less clearly, make sure that students do their best and pay attention, and use less clear rules. It is therefore not surprising that these starting teachers experience more professional stress, are dissatisfied with the profession and leave the profession. If these beginning teachers had learned better during their studies to manage a classroom well and had learned to explain better, they might not have experienced so much stress and perhaps would have been more satisfied with the profession, which might have kept them in the profession (Van de Grift, Helms-Lorenz, & Maulana, 2014). If attrition leads to more of the best teachers (which are most often trained teachers) staying in the profession, attrition is less of a problem. Lowering attrition rates for well-prepared beginning teachers is useful from that perspective. For all beginning teachers, whether they finished their teacher training before they acquired a contract as a teacher, a good induction program can help to lower attrition rates (Helms-Lorenz et al., 2015). A teacher training program should prepare a teacher for a good start of their teaching career. It could be the quality of teacher training programs that is not good enough.

However, a study from the Netherlands showed that beginning teachers who finish teacher training before they start teaching are both more skilled, improve faster, and are less likely to leave the profession. There is currently no strong indication that there are differences between individual teacher training programs in the Netherlands (Helms-Lorenz et al., 2015).

The attrition rate of teachers who finished their teacher training before beginning a job as a teacher has been relatively stable throughout the last two decades, but the attrition rate of the total population of beginning teachers has been rising. For an explanation of the rising teacher attrition we must look more closely at the non-certified teachers. Persistent shortages of certified teachers for certain subjects are reported, both in the current teacher population and in the forecasts (Adriaens et al., 2016; Vloet et al., 2017). Teachers who have not finished teacher training before they start teaching are especially vulnerable for attrition.

Part of the explanation of the rising attrition rate could be found in the developments on the labor market. Demographic developments in both the student and teacher population, especially in some regions where the student population shrinks, could make schools unattractive employers. Labor market forecasts show that not only are the highly urbanized regions hard to staff, but the sparsely populated regions as well (Adriaens et al., 2016). If certified teachers can even be found, beginning teachers are more likely to have unattractive working conditions, such as temporary positions and a lack of peers.

Although the available data covers the entire population of teachers on the schools' payrolls, a small group of teachers is excluded nonetheless. Microdata on temporary teachers, who are hired through an employment agency and not directly employed by a school, are not available. This is a small group of teachers however. In secondary education, on average less than 3% of the labor costs of schools are related to personnel not directly employed, and only part of that is spent on teachers (Leemans,

van Bergen, Lubberman, Amsing, & Cörvers, 2017). It is possible that the attrition rates found in this study are an overestimation because some teachers employed by schools will drop out of the available data set and become employed as temporary teachers through an employment agency. This overestimation is likely limited, mainly because this group is very small in comparison to the teachers directly employed by schools.

The staffing of schools with good teachers can certainly be challenging, but lowering the attrition rate of beginning teachers might not be the most important key to achieve that. Certified teachers have a much lower chance of leaving the profession early in their career. Supporting an adequate inflow of students in teacher training programs will likely help. Finding ways to lower the baseline attrition rate might also be worthwhile, as it affects not only the beginning teachers, but a much larger group of teachers.

## Note

<sup>1</sup> Tables with detailed information about population size, attrition rates and entry rates per year can be requested from the authors.

## References

- Adriaens, H., Fontein, P., Den Uijl, M., & De Vos, K. (2016). *De toekomstige arbeidsmarkt voor onderwijspersoneel po, vo en mbo 2015-2025. Update november 2016*. Tilburg. Retrieved February 2, 2020 from <https://www.rijksoverheid.nl/documenten/rapporten/2014/10/28/de-toekomstige-arbeidsmarkt-voor-onderwijspersoneel-po-vo-en-mbo-update-oktober-2014>.
- Adriaens, H., De Vos, K., & Fontein, P. (2017). *Historische formatie- en stroomgegevens voortgezet onderwijs*. Tilburg: CentERdata.
- Borman, G.D., & Dowling, N.M. (2008). Teacher Attrition and Retention: A Meta-Analytic and Narrative Review of the Research. *Review of Educational Research*, 78(3), 367–409.
- Commissie Werken in de Zorg (2019). *Rapportage commissie Werken in de Zorg 2019*. Retrieved February 16, 2020 from <https://>

- www.rijksoverheid.nl/documenten/rapporten/2019/12/20/rapportage-commissie-werken-in-de-zorg-2019.
- De Vos, K., Fontein, P., Van der Boom, E., & Vrieliink, S. (2017). *Loopbaanmonitor onderwijs*. Tilburg: CentERdata/MOOZ. Retrieved February 2, 2020 from <https://www.rijksoverheid.nl/documenten/rapporten/2017/10/19/loopbaanmonitor-onderwijs>.
- Den Brok, P., Wubbels, T., & Van Tartwijk, J. (2017). Exploring beginning teachers' attrition in the Netherlands. *Teachers and Teaching: Theory and Practice*, 23(8), 881–895. <http://doi.org/10.1080/13540602.2017.1360859>.
- Department for Education. (2019). *School workforce in England: November 2018*. London: Department for Education. Retrieved February 2, 2020 from <https://www.gov.uk/government/statistics/school-workforce-in-england-november-2018>.
- Dolton, P.J. (2006). Teacher Supply. In E.A. Hanushek & F. Welch (Eds.), *Handbook of the Economics of Education* (Vol. 2, pp. 1079–1161). Elsevier B.V. [http://doi.org/10.1016/S1574-0692\(06\)02019-8](http://doi.org/10.1016/S1574-0692(06)02019-8).
- DUO. (2018). *Programma van Eisen Elektronische gegevensuitwisseling tussen HO-instellingen en de Dienst Uitvoering Onderwijs*. Retrieved from <https://duo.nl/zakelijk/images/programma-van-eisen-ho.pdf>.
- Espinoza, J. (2015). Four in ten new teachers quit in first year, union warns. *The Telegraph*. Retrieved January 19, 2020 from <https://www.telegraph.co.uk/education/education-news/11505837/Four-in-10-new-teachers-quit-within-a-year-union-warns.html>
- Ewing, R., & Manuel, J. (2005). Retaining early career teachers in the profession: New teacher narratives. *Change: Transformation Education*, 8, 1–16.
- Goldring, R., Taie, S., & Riddles, M. (2014). *Teacher Attrition and Mobility: Results From the 2012–13 Teacher Follow-up Survey*. NCES 2014-077. Washington, DC: National Center for Education Statistics: U.S. Department of Education. <http://doi.org/10.1007/s13398-014-0173-7.2>.
- Gray, L., & Taie, S. (2015). *Public school teacher attrition and mobility in the first five years: results from the first through fifth waves of the 2007–08 beginning teacher longitudinal study (NCES 2015-337)*. U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubsearch>.
- Grissom, J.A., & Reininger, M. (2012). Who Comes Back? A Longitudinal Analysis of the Reentry Behavior of Exiting Teachers. *Education Finance and Policy*, 7(4), 425–454. [http://doi.org/10.1162/EDFP\\_a\\_00075](http://doi.org/10.1162/EDFP_a_00075).
- Guarino, C.M., Santibanez, L., & Daley, G.A. (2006). Teacher recruitment and retention: a review of the recent empirical literature. *Review of Educational Research*, 76(2), 173–208. <http://doi.org/10.3102/00346543076002173>.
- Hanushek, E.A., & Rivkin, S.G. (2006). Teacher Quality. In E.A. Hanushek & F. Welch (Eds.), *Handbook of the Economics of Education* (Vol. 2, pp. 1051–1078). Elsevier B.V. [http://doi.org/10.1016/S1574-0692\(06\)02018-6](http://doi.org/10.1016/S1574-0692(06)02018-6).
- Harris, D.N., & Adams, S.J. (2007). Understanding the level and causes of teacher turnover: A comparison with other professions. *Economics of Education Review*, 26(3), 325–337. <http://doi.org/10.1016/j.econedurev.2005.09.007>.
- Helms-Lorenz, M., Van de Grift, W., & Maulana, R. (2015). Longitudinal effects of induction on teaching skills and attrition rates of beginning teachers. *School Effectiveness and School Improvement*, 26(5), 1–27. <http://doi.org/10.1080/09243453.2015.1035731>.
- Ingersoll, R.M. (2001). Teacher turnover and teacher shortages: an organizational analysis. *American Educational Research Journal*, 38(3), 499–534. <http://doi.org/10.3102/00028312038003499>.
- Ingersoll, R.M. (2003). Turnover and shortages among science and mathematics teachers in the United States. *Science teacher retention: Mentoring and renewal*, 1–12.
- Ingersoll, R.M., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: a critical review of the research. *Review of Educational Research* (Vol. 81). <http://doi.org/10.3102/0034654311403323>.
- Leemans, A., van Bergen, K., Lubberman, J., Amsing, M.J., & Cörvers, F. (2017). *Personeel niet in loondienst (PNIL) in het po, vo en mbo*. Amsterdam.
- Ministerie van Onderwijs, Cultuur en Wetenschap. (2014). *Factsheet Uitstroom van beginnende leraren*. Retrieved July 10, 2019 from <http://www.onderwijsincijfers.nl/themas/onderwijs-personeel/uitstroom-beginnende-leraren>.

NOS (2020). *Veel jonge zorgmedewerkers binnen twee jaar weer weg*. Retrieved February 16, 2020 from <https://nos.nl/artikel/2318031-veel-jonge-zorgmedewerkers-binnen-twee-jaar-weer-weg.html>.

Queensland College of Teachers. (2019). *Attrition of Queensland Graduate Teachers 2019 Report*. Retrieved February 2, 2020 from [https://cdn.qct.edu.au/pdf/QCT\\_Qld\\_Graduate\\_Attrition\\_Report\\_2019.pdf](https://cdn.qct.edu.au/pdf/QCT_Qld_Graduate_Attrition_Report_2019.pdf).

Van de Grift, W., & Helms-Lorenz, M. (2013). *Waarom verlaten zoveel beginnende leraren de school waar ze hun carrière begonnen? Van Twaalf tot Achttien*, 18.

Van de Grift, W., Helms-Lorenz, M., & Maulana, R. (2014, January). *What can be done to stop attrition of beginning teachers in their first years: What can be done to boost the quality of teaching skill of beginning teachers?* Presentation at the annual conference of the International Congress of School Effectiveness and School Improvement (ICSEI), Yogyakarta.

Vloet, A., Den Uijl, M., & Fontein, P. (2017). *IPTO : bevoegdheden en vakken in het vo*. Tilburg. Retrieved February 2, 2020 from <https://www.rijksoverheid.nl/documenten/rapporten/2017/11/28/ipto-bevoegdheden-en-vakken-in-het-vo-peildatum-1-oktober-2016>.

probleem niet zo groot is als eerder is verondersteld. Eerder onderzoek rapporteerde meestal over een uitvalpercentage 5 jaar na de start van de carrière, waarbij een kwart of meer van de leraren uitvalt. Hiermee wordt echter genegeerd dat leraren ook na die 5 jaar uitvallen en sommige leraren hun bevoegdheid niet hebben wanneer ze beginnen als leraar. Met administratieve data uit loonadministraties van scholen in Nederland is een betrouwbare maat voor uitval van leraren geconstrueerd. Administratieve data uit diplomaregisters in het hoger onderwijs zijn gebruikt om vast te stellen of leraren een bevoegdheid hebben. Deze studie laat zien dat de uitval van beginnende leraren alleen in het eerste jaar hoog is. De uitvalpercentages na 1 jaar zijn ca. 12% rond 2000 en lopen op tot bijna 20% in recentere jaren. Dit lijkt relatief laag in vergelijking met andere landen. Na het eerste jaar blijft het percentage leraren dat uitvalt om andere redenen dan pensionering vrij stabiel op 3% tot 5% per jaar, wat het verschil in uitvalpercentage met eerder onderzoek verklaart. Het uitvalpercentage van bevoegde leraren is na een jaar ca. 9% en is constant over de tijd, versus de 12% tot 20% van alle beginnende leraren. Deze 9% uitval van bevoegde leraren is veel lager dan uit eerder onderzoek naar voren kwam.

## Authors

**Thijs Noordzij**, Ministry of Education, Culture and Science, The Hague, The Netherlands. **Wim van de Grift**, Emeritus Professor of Educational Sciences, University of Groningen, Groningen, The Netherlands.

*Correspondence:* Thijs Noordzij, Postbus 16375, 2500 BJ Den Haag, The Netherlands; E-mail: [thijs.noordzij@gmail.com](mailto:thijs.noordzij@gmail.com).

## Samenvatting

### Uitval van bevoegde leraren in het voortgezet onderwijs tijdens de inductiefase

De uitval van leraren wordt als problematisch hoog gezien, waarbij uitvalpercentages tot 50% genoemd worden. Deze studie toont aan dat het

**Kernwoorden:** uitval leraren, beginnende leraren, voortgezet onderwijs, bevoegdheid