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Survey Methods to Identify Risk of Attrition: Measures of Career Intention and Regret

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Abstract: The common measure of teacher retention as snapshots of those employed in state-funded schools may overestimate attrition by failing to consider a desire for flexibility in contemporary teaching careers. When used as a measure of the effectiveness of teacher education, an over-emphasis on classroom teacher supply may also narrow the curriculum to teacher training rather than the more expansive 'learning teaching'. This paper discusses two 'softer' measures of retention, career intention and training regret, to give a more general sense of how contemporary teachers see their career development as relating to their initial teacher education and professional learning. These measures are generated by adapting survey questions from the OECD's TALIS and the US' Beginning Teacher Longitudinal Study, simply asking teachers where they see themselves in five years' time and if they would still choose to become a teacher if they could go back to before they began training. Surveys were administered annually to two cohorts of recent graduates as part of the Measuring Quality in Initial Teacher Education project—three data captures for 2018 graduates, two for 2019 graduates. It is shown how these measures help to mitigate declines in survey response and can give some helpful estimates of teacher attrition with respect to sex, ethnicity, school type, and degree type. The alternative measures are also argued to give helpful indicators of attrition risk before it happens, allowing discussion of how teachers' career intentions change during their early careers. In particular, it is found that leaving the classroom is a fairly common expectation, but not necessarily because of teacher burnout. It is suggested that asking what teachers can imagine themselves doing is an effective measure for engaging with issues around vocational choice and teaching as a lifelong profession, with implications for how careers in education are conceptualised in initial teacher education programmes.

Keywords: teacher retention; wastage rate; attrition; teachers' careers; early career teachers; initial teacher education

1. Introduction

The supply of enough high-quality teachers is regarded as a perennial issue "in all industrialised countries" [1] (p. 202), with regular shortages of teachers in particular subject areas, with certain skills, in rural areas, or because of a need to maintain target class sizes as birth rates fluctuate [2]. In part, this is an issue of forward planning and financing: the lead-in time for educating teachers means that changing priorities can take a while to address, while maintaining class sizes during peaks in birth or immigration rates can mean having too many teachers when the surge passes and risk teacher unemployment.

One of the most common uses of retention figures is to help policymakers estimate the numbers and types of available teachers to determine the allocation of training places, incentives for new or serving teachers, and related policies around class size or teacher workload. Some of these measures can also be used to judge the quality of initial teacher education (ITE), particularly with notions such as early career teacher resiliency being used to compare different ITE providers or routes. While a range of retention measures can be used, each with their own emphasis—retention, attrition, wastage rate, vacancy rate—these tend to see teacher supply at the system level rather than considering what

they tell us about the needs and desires of individual teachers. This is most apparent in the 'wastage rate' measure, which counts any teacher not in the national state-funded school sector (except for short-term or maternity leave) as 'wasted', a term imbued with covert meaning and intent.

One helpful refinement to the standard headcount of teachers is to analyse vacancy rates. Analysis of vacancies in England and Wales has shown that there is not a teacher supply crisis in general, but rather the problem is a mismatch of supply and demand and a need to better predict demand in subject areas or geographical regions using a broader range of measures [3]. Analysis across OECD countries [4], likewise, found that teacher supply was much more about a qualitative shortage: while some countries actually had an oversupply of qualified teachers, all countries recorded shortages in key areas and high attrition among early career teachers. Working with vacancies at subject level, Sprigade [5] shows how adverts in the Times Educational Supplement related to the number of training places on offer in England creates an estimate of 'trainees per post': 0.59 for English indicating that more trainees should be recruited, while 3.58 for citizenship suggests an oversupply of teachers who may struggle to find jobs within their subject specialism. Similarly, measuring teachers in precarious employment or being underemployed (e.g., as teaching assistants or cover supervisors) can highlight the damaging impact of over-supply in some areas, including an analysis of career paths of new teachers in Scotland showing how teacher precarity can undermine professional learning, resulting in fragmented and less satisfying careers, or even questioning the notion that teaching *is* a career [6]. Interpretation of retention measures, therefore, needs to distinguish whether problems are related with not having enough teachers willing to perform the work, or enough schools willing to employ the available teachers. This is further complicated since retention tends to assume that teaching is a traditional 'job for life', creating a questionable interpretation that must be a negative reason for teachers leaving the profession before retirement [7].

Conceptualising teacher attrition in such broad terms also makes the scale of the retention problem appear dramatic. Recent figures for England, for example, suggest that as many as 250,000 teachers under the age of 60 are lost to the system: more than half the number of current practicing teachers [8]. However, this takes a particularly narrow view of what it means to not be in teaching since it only ignores those who retire, die, are on maternity leave, or who are barred from teaching. After that, it becomes a simple binary categorisation of whether a teacher is in a state-funded mainstream classroom: those who become teacher educators or teach abroad, in the private sector, in state schools, in pupil referral units, or in other educational institutions are all classified as 'out of service', giving little indication of how, where, or even if this is a problematic situation.

Aside from the issue of underemployed teachers, who are still working in schools, there appears to be little interest in what teachers are doing when they leave the profession, or even if they intended to leave or simply take a break. For instance, requesting data from the Scottish Teachers' Superannuation Scheme showed that 3126 new teachers registered with the scheme from April 2012 to March 2013, of whom 2194 remained in 2019, with a further 426 transferring to England's equivalent scheme. This data is not routinely published, but there is valuable insight in knowing that nearly half of the teachers leaving Scotland's classrooms are still doing the same jobs south of the border rather than being 'wasted'. Indeed, if teacher retention was measured UK-wide rather than at national level, five-year retention would be around 80%, a far less alarming figure than is generally reported. The number may indeed be higher if including those teaching in other UK nations, overseas, or in the private sector.

One notable area of progress is the changed methodology of Scotland's teacher census [9], which signals that the work of teachers is valued beyond their service in mainstream classrooms as the census includes all teachers in publicly funded primary, secondary, special schools, and early learning and childcare settings, expanding on typical teacher counts which only look at primary and secondary schools. Scotland's local authorities centrally employed teachers are also counted, which includes those in a general local authority

non-teaching role, short- and long-term supply teachers, peripatetic/visiting specialists, and those employed as home visiting tutors or in the hospital teaching service [10]. Such improvements to counting teachers give a clearer view of teachers working in the educational system, more broadly defined, and so gives a better estimate of figures such as teacher: pupil ratio and overall teacher retention across the profession.

Such added detail can generally be regarded as an improvement in workforce tracking, even if it makes comparisons with other data sources and other countries problematic as what is counted as a teacher can vary. However, the variety of ways to count teachers can lead to misuse as the issue becomes politicised. Weldon [11] makes an incisive critique of the commonly cited figure of 50% teacher attrition in the first five years, picking apart a trail of guesses, circular references, and unchecked assumptions in governmental reports and the academic literature to show that there is little robust data to support claims of a teacher retention crisis. Nevertheless, maintaining the narrative of crisis seems to serve neoliberal policies and reform in the name of efficiency as the concept of attrition is related to value-for-money in ITE.

This narrative can also include teacher preparation programme completion as well as in-service attrition. Such a measure of overall retention—from the start of ITE through to the early career—may have some value in showing how many of those who started a programme then remained as teachers (and thus giving an inference about the level of "teacher resiliency" developed on these programmes). However, competition between ITE providers illustrates the potential to use retention figures to mislead. For instance, Teach First claims a programme completion rate of 95%, which it reports as "uniquely high" compared with a PGCE average of 86% [12], although this is called into question by UK Government statistics showing the rate of qualified teacher status awarded to graduates of these programmes which show Teach First at 91%, university-led postgraduate programmes at 90%, and university-led undergraduate programmes at 93%. Teach First confusingly call this 'wastage' instead of 'non-completion', which a cynic may see as trying to present themselves favourably against the common assumption of 30–50% wastage [11]. The confusion increases as retention is reported in different ways: 42% "long-term retention", 54% who "remain teaching in the UK", by which they seem to mean England and Wales, 57% "still in teaching 5 years" after training, or 68% who "remain employed in education" [12]. This echoes earlier research finding that "fewer than half" of those admitted to teacher education programmes made it to their fifth year of teaching [2] (p. 25), but the range of measures perhaps says more about the political value of these figures rather than the realities of teachers in the labour market.

On a pragmatic level, having such a range of measures with confusingly similar names can obscure the issues and make it difficult for policymakers to find suitable measures. On a more philosophical level, the use of retention as a measure of the quality of ITE can more problematically lead to a narrative of pounds spent per year of a teacher being in a classroom. Thus, ITE is seen to be failing if the number of those remaining employed in schools falls and its primary purpose is assumed to be providing schools with teachers on a regular enough basis to mitigate seemingly inevitable attrition.

As well as adding nuance to the simple teacher headcount as in vacancy rate or teacher censuses, attempts have also been made to consider teachers' economic motivations. Sims shows how recruitment and retention must engage with a range of market conditions, showing a "perfect storm" [13] of a bulge in pupil numbers working its way through from 2015 to 2024, while teachers from the Baby Boom generation are retiring and the 30% increase in graduates training to be teachers, following the 2008 recession, potentially leaving teaching as the economy recovers.

Aside from economic motivations, individual teachers may also change careers due to "vocational maturity", in which "people become more clear about their assets and liabilities as well as about the opportunities and limitations of their job" [14] (p. 94). Rather than being 'wasted', these teachers experience attrition positively as they go on to new opportunities. For instance, while qualification level can be a crude proxy for teacher quality, US data

suggests that the most qualified teachers have "an 85% greater likelihood of leaving the profession than less selective graduates in the first three years of teaching" [15] (p. 648).

Along similar lines, analysis of working conditions, salaries, and the attraction of alternative employment points out a range of push and pull factors for teachers [16,17], where policy can be informed better by figures such as teacher turnover, resignation rates, or average years of service for teachers in a school or district. Other studies have invested in better tracking of teachers beyond the binary in/out of service, showing, for instance, that more than half of teachers leaving state schools actually stayed in the education sector, most commonly "teaching in private schools, becoming teaching assistants and taking up a non-teaching role in school" [18] (p. 10). Such reassurance echoes similar improvements in understanding of student retention in higher education more generally, where fears over high drop-out rates are greatly diminished when it is shown that the vast majority of students quickly return to study on a different programme [19], distinguishing the relatively low number who 'stop out' from those observed to 'drop out'.

Thus, the starting point for the current study was to seek a context-suitable measure [20] of the proportion of teachers who could be deemed to be putting their ITE to good use. The measure should consider value to the individual teacher rather than just to the state-school system as a measure of the quality of ITE provision. This is in line with Scottish Government funding of higher education, that study at a higher level is deemed a social good in general terms and should therefore not be treated in terms of narrow utility for a particular job. Specifically, the idea that teaching internationally should be counted reflects a broader commitment in national policy to internationalisation of the curriculum and diversity of the workforce while reflecting the argument, common in HE, that international work is considered an indicator of quality. Likewise, the concept of "vocational maturity" [14] (p. 94) was helpful in considering how teachers might see their capabilities as opening up a range of new career options, which again could be taken as a positive indication of ITE quality even if it led to higher teacher attrition figures. It was also desirable to find measures which could be used in surveys of teachers before they experience attrition. From discussing and comparing a range of possible measures in survey data, we conclude that two measures, teacher career intention and career regret, offer many advantages over current measures of retention and may usefully extend into measures of ITE quality.

2. Materials and Methods

Data comes from the Measuring Quality in Initial Teacher Education (MQuITE) Project, a six-year study funded by the Scottish Government and involving co-investigators from every ITE provider in Scotland. Currently in Year Four, the project has a broad remit to find and generate data suitable for measuring the quality of ITE in ways which suit the context of Scotland or identify where existing data already exists.

The MQuITE study began with a snapshot survey of 2018 graduates (n = 332) as they completed their ITE programmes, but later expanded to include 2019 graduates and a small group of 2020 graduates when two new universities were accredited for initial teacher education. From around 8000 survey invitations cascaded through institutional contacts and the General Teaching Council for Scotland, 197 teachers have remained in the study throughout every stage as of the most recent data capture in September 2021. A larger number of teachers have completed at least one survey, meaning that overall the study has gathered views from 572 teachers through 1551 individual survey completions. For the most recent data capture, the 197 responses came from 494 invitations sent to those who volunteered their email addresses at the end of a previous survey. A total 16 surveys were started and not completed, while 6 emails bounced. Response attrition from those invited is therefore 60%, although as a percentage of all those who started an earlier survey (n = 962) it is a much higher at 80%. This is a clear disadvantage to survey estimates of teacher retention, particularly when relying on cascade methods of final-year students who

may already be experiencing survey fatigue, compared with the much easier to collect headcount data from employment contracts.

Survey questions related to teacher retention were adapted from large-scale surveys, specifically the OECD's TALIS [21] and the US-based Beginning Teacher Longitudinal Study [22]. The OECD data is freely available online, so there was also the added benefit of enabling international comparisons. The questions included were:

- If you could go back to the start of university and start over again, would you become a teacher or not? [scale response]
- How long do you plan to remain in teaching? [multiple response checkbox options]
- At this point in time, where do you envisage yourself in 5 years' time? [multiple response checkbox options]

Other questions were helpful in making comparisons relevant to policy questions around retention, such as ethnicity and sex data being used to see if retention had an equalities impact and teachers' self-assessed competence levels and professional development needs to see if teacher learning or efficacy affected retention. Analysis used simple descriptive statistics to report percentages, with cross-tabulation identifying differences in means. Ethical approval was granted by the University of Edinburgh, where the project originated in 2017, with endorsement from each of the partner institutions and, most recently, refreshed approval from the University of Strathclyde in 2020 as it took overall responsibility for the project.

3. Results

This section reports on variables potentially related to teacher retention, including one—career regret—which enables international comparisons, before presenting overall responses to the career intention prompt. Career intention responses are then discussed with respect to how they might be used to consider the kinds of questions usually asked of headcount data.

3.1. Participant Responses

3.1.1. Estimates of Teacher Rregret

While not a direct measure of teacher retention—indeed, it is a measure that gives no indication of a teacher's employment status—presentations of the emerging data at conferences and government committees have found that one measure resonates particularly well: "If you could go back to the start of university and start over again, would you become a teacher or not?" OECD's TALIS phrases this as "If I could decide again, I would still choose to work as a teacher" under the prompt "We would like to know how you generally feel about your job. How strongly do you agree or disagree with the following statements?", followed by a range of statements around the desire to change schools, whether teachers enjoy their work, etc. [21]. While it limits our ability to claim direct comparability, our slight rephrasing suited our context of a survey about initial teacher education, rather than about working conditions, as is the focus of TALIS. We refer to this affectionately as the 'do-over rate', turning the adjectival rating scale responses into simple percentages to give an indication of teacher career regret.

Across all survey cohorts at the point of graduation, only 6% of teachers indicated they would decide differently if given their choice again. This increases slightly, to 14%, when surveyed during their induction year, and then up again to 16% at the end of their first-year post-registration (i.e., their second year as a classroom teacher since graduating from university). Overall, this estimates early career regret at 13% and suggests a relatively positive view of the value of ITE programmes. By way of comparison, filtering the TALIS dataset to only include teachers at a similar career stage shows regret expressed by 27% of early career teachers across the OECD sample. The measure may even be rankable, showing some interaction between ITE quality and working conditions. For instance, Mexico leads with just 8% regretting their choice, Japan comes bottom at 45%, while

Scotland's neighbours are around the OECD mean: Finland with 21%, England 32%, Sweden 36%.

3.1.2. Intended Length of Service

Taking prompts from the BTLS, respondents were given a range of tick-box options to indicate how long they planned to remain in teaching. Response options included until retirement, qualifying for benefits, a better job, life events, as soon as possible, etc. While comparisons are not possible with BTLS in the same way as can be performed with TALIS data because BTLS is a restricted dataset, responses offer some insight into whether early career teachers share the view of retention statisticians that teaching is a lifelong career. For estimating intention to remain, responses were recoded into three main categories: until retirement/inability to work, until a life change or better job, leaving as soon as possible, and undecided. These summaries are presented in Table 1, below.

Table 1. Intention to remain by career stage.

Remain Until	On Graduation	During Induction	After Induction
Retirement or inability to continue work	48%	73%	73%
Until a life change or better job	2%	1%	3%
Leaving as soon as possible	2%	3%	2%
Undecided	3%	5%	3%

It, therefore, seems that the assumption underlying many retention measures, that teaching is a career through to retirement, is still widely held by early career teachers, although it is by no means a universal expectation. In particular, there appears to be some doubt upon graduation, although this rapidly improves once teachers start work. It also suggests that very few teachers see themselves as likely to be out of the classroom in the short-term, highlighting a need to better understand the gap between their expectations and what seems to be borne out in teacher census data.

3.1.3. Career Intention

Table 2, below, shows career intention by career stage. As with the 'intention to remain' options, these largely followed the BTLS prompts but were rephrased to use more locally common terms.

Table 2. Career intention by career stage.

Intention	On Graduation	During Induction	After Induction
(a) Class/subject teacher in Scotland	72%	67%	63%
(b) Middle leader	35%	33%	37%
(c) School leader/headteacher	4%	2%	1%
(d) Not teaching at all	7%	9%	10%
(e) Teaching out with Scotland	23%	18%	16%
(f) Working in further or higher education	7%	8%	7%
(g) Working in education but not teaching	11%	12%	11%
(h) Studying for, or having achieved, a Master's Degree in Education	32%	24%	23%
(i) Studying for, or having achieved, a doctorate in education, e.g., PhD or EdD	4%	3%	3%
(j) Studying for, or having achieved a master's or doctorate in a non-education-related field	3%	2%	2%
(k) Other	3%	5%	3%

The first response, those seeing themselves as teaching in classrooms in Scotland, matches closely with teacher retention figures, the teacher census, and the pension participation figures previously discussed. This suggests that the career intention question may be a helpful indicator of which teachers may indeed leave the classroom which, by virtue of being a survey item, may be beneficial in predicting attrition. It is also noteworthy to see the large number of respondents who thought they may be teaching out with Scotland, which in follow-up interviews seemed to include overseas (the Middle East being the most common), but in the most part referred to other UK nations. There are also small but significant numbers of EU citizens who take ITE programmes in Scotland which, prior to 2021, received a fee waiver from the Scottish Government, so they may be more likely to anticipate returning to teach in their own country, particularly following Brexit.

It can also be seen that the proportion of respondents who think they might not be teaching at all in five years' time is low, below 10%, but increases each year. Some response bias can be assumed for the survey, although it is issued to private email addresses so can include teachers who have left Scotland. There are also high numbers for those considering further study, and the 'other' responses included many education-related ideas (e.g., church minister, children's charity workers, etc.). Since the majority of response options might be considered relevant to an education-related career, aggregating responses is helpful for providing a summary. Ignoring 'other', since responses were so varied, responses were grouped into 'teaching related' (responses a, b, c, e, f), 'education-related' (g, h, i), and 'out of service' (responses d or j). These are summarized below in Table 3.

Table 3. Aggregated career intention responses.

Intention Category	On Graduation	During Induction	After Induction
I. Teaching related	95%	96%	87%
II. Education related	40%	26%	37%
[neither I nor II]	3%	5%	7%
III. Out of service	8%	22%	14%

Creating an additional 'neither teaching-related nor education-related' category to compare with 'out of service' helps to show how many teachers saw themselves as open to several options, which included some of those who also chose 'out of service' responses. That is to say, many of those teachers who could imagine a future where they would be counted as 'out of service' in census data could still see other options in teaching-related or education-related roles. While this number still increases year-on-year, it is again much smaller than might be assumed in the context of retention as it is commonly reported.

3.2. Relationships between Retention Measures

Aside from survey data helping to anticipate and perhaps mitigate attrition before it occurs, having survey questions that serve as reasonable proxies of attrition offers the potential for analysing relationships with other variables. For instance, policymakers may find it helpful to be able to identify teachers who are categorised as 'retained' but perhaps feel trapped and would prefer to leave if they felt they could. However, one major limitation in conducting such analysis is that the numbers expressing regret were so low that a much larger sample or a survey with better participant retention would be necessary for running any inferential statistics (e.g., Table 4).

Table 4. Example of cross-tabulation interpretation for ratings upon graduation (n = 154).

		Intend to Remain Teaching as Long as Able (At Graduation)	
		No (n = 30)	**Yes (n = 124)**
Regret becoming a teacher (at graduation)	Regrets (n = 9)	9 (30%)	0 (0%)
	No regrets (n = 145)	21 (70%)	124 (100%)

While such small numbers preclude inferential statistics, the crosstabulations between related items suggest that there is some nuance and therefore value in asking both questions. For instance, Table 4 shows that there were only nine respondents who expressed regret at becoming teachers, and that, unsurprisingly, none of these respondents thought they would remain in teaching for as long as they were able. However, these are not all the respondents who felt they would not remain in teaching, with a further 21 respondents choosing this option. This means that, even though 100% of those intending to remain as long as they were able also expressed no regrets at becoming teachers, both questions still have value in looking for nuances in the experiences of those small numbers of teachers not intending to remain or expressing career regret.

To help explore the career regret variable further, a new variable was created for any teachers who responded to any of the three annual surveys that they 'certainly would not' or 'probably would not' become a teacher if they had their time again. Of the 485 teachers who answered this question, 60 (12%) expressed regret, 2 (.5%) expressed regret in one data capture but not another, and 423 (87%) never expressed regret. The same can be conducted with the intention to remain until retirement or as long as they are able. Of the 458 responses to this question across all data captures, 268 (59%) said throughout that they intended to remain, with 190 (42%) saying that they did not. In this case, where the same teacher stayed in the sample from one year to the next, their response was unchanged. Collapsing the 'regret' variable into a dichotomous response allows the cross-tabulation shown in Table 5, below.

Table 5. Cross-tabulation of regret and intention to remain variables across all data captures (n = 329).

		Intend to Remain Teaching as Long as Able	
		No (n = 72)	Yes (n = 257)
Regret becoming a teacher	Regrets (n = 40)	33 (46%)	7 (3%)
	No regrets (n = 289)	39 (54%)	250 (97%)

Looking across all years of data capture shows some interesting nuances—while the vast majority of those who express regret also responded that they did not intend to remain teaching as long as they were able (33 of 40 respondents; 83%), there were some exceptions. Seven respondents who regretted becoming teachers nevertheless intended to remain in the profession, while 39 respondents who did not regret becoming teachers still did not intend to remain in the profession. There is perhaps some insight possible from the 'remain until a specific life event (e.g., parenthood, marriage)' response. Of the 330 who responded, just 37 teachers (11%) agreed with the statement, but these made up 30% of the 'regrets' category and only 9% of the 'no regrets' category. Remembering how early in their careers these respondents were sampled, this could suggest that they quickly found out that teaching was not compatible with their life plans.

Comparing the 'regret' rating with the career intentions responses is perhaps the most illuminating analysis. Table 6, below, shows that almost all teachers expect to still be in a teaching-related or education-related role in five years' time. However, almost all of those who do not (87%) are also those who expressed regret at becoming teachers (13, compared with 2), suggesting that this phrasing of the question could be useful for those who still feel that they are using their teaching skills but do not see their future in the classroom. As a measure of the value of a student's initial teacher education experience, it is perhaps the intersection between these two questions that is most revealing, with just 13 of the 329 respondents (4%) feeling that they both regretted becoming teachers and did not expect to remain in the education profession.

Table 6. Cross-tabulation of regret and expectation to be in a teaching- or education-related role across all data captures (n = 329).

		Expect to Be in a Teaching or Education-Related Role in Five Years' Time	
		No (n = 15)	Yes (n = 314)
Regret becoming a teacher	Regrets (n = 40)	13 (87%)	27 (9%)
	No regrets (n = 289)	2 (13%)	287 (91%)

Regretting their choice of becoming teachers seems to be a good indicator of teachers who expect to be in different careers in the near future, whether education-related or not. However, it is not the full story, and there are still sufficient numbers of teachers who do not regret taking their ITE programmes but nevertheless can see themselves being 'out of service' within the next five years. This illustrates the potential of using such survey questions to inform policy related to teachers' careers, or for making judgements about the quality of ITE.

3.3. Other Factors to Cconsider

Working with estimates of attrition risk in survey data lacks the clarity of census data, but it does allow exploration of questions around teacher efficacy, professional development needs, or feelings of preparedness To illustrate one way of working with these new estimates, a new 'at risk' variable is created for those responses where something is wrong. This includes any respondents at any stage who regretted becoming teachers (n = 62), those who intended to leave teaching 'as soon as possible' (n = 16), and those who anticipate being out of service within the next five years (positive responses to the 'out of service' prompt, n = 61, or negative responses to all the 'teaching-related' and 'education-related' prompts, n = 26). These new variables can be compared with teachers' self-reported efficacy, professional learning need, efficacy with particular reference to managing behaviour, and their overall rating of competence taken from elsewhere in the MQuITE surveys. Summarised below in Table 7 as a percentage increase or decrease in the risk category, it can be seen, for instance in the first row, that those student teachers expressing career regret also have 8% lower efficacy ratings than those who do not express regret, rising to 10% for efficacy ratings relating to classroom management or pupil behaviour, and a 15% lower rating of their own competence, but no difference in their level of perceived need for further professional learning.

Table 7. Self-reported teacher competency changes by risk category.

Student Teacher Risk Category	Self-Efficacy (Mean of All Measures)	Self-Efficacy (Behaviour)	CPD Need	Competence
Career regret	−8%	−10%	0%	−15%
Not expecting to be teaching in a classroom in Scotland	+1%	+1%	−2%	+1%
'At risk' composite	−6%	−9%	0%	−13%
Not expecting to be in teaching-related or education-related roles	−7%	−5%	+1%	−13%

4. Discussion

This study set out to find context-appropriate measures related to teacher retention. Specifically, the context was a state-funded higher education system broadening the concept of 'in service' to consider a wider sense of what it means to make good use of a teacher's initial teacher education. There was also a desire to find a suitable retention-related measure that could be used in surveys before attrition occurs. One immediate practical advantage is that it is easier to survey teachers while they are at risk of attrition instead of after they have left, meaning that the influence of a broader range of variables can be considered. Finding

a suitable measure to include in surveys would also assist in making inferences about the quality of initial teacher education programmes, possibly extending beyond surveys of early career teachers to include student teachers during their teacher preparation at risk of in-programme attrition and helping to identify those teachers in need of support.

Comparing four different ways that teachers might be identified as 'at risk' helps to indicate the value of adapting measures to suit local context. For example, if the survey only relied upon the 'Do you expect to be teaching in a classroom in Scotland in five years' time?' measure, there would be no meaningful difference in any of the efficacy, CPD, or competence ratings between those teachers who answered yes and those who answered no (Table 7). As the MQuITE project continues and the dataset grows, intersectionality between variables may be feasible to analyse, and longitudinal analysis tracking the cohorts will be possible. At the moment, for example, there are not enough teachers from BME backgrounds to draw any conclusions.

It has conversely been shown that too broad a measure of 'making good use of your ITE' is also limiting. Taking a positive interpretation of retention including all teaching-related or education-related roles means that fewer than 3% of teachers are identified as at risk of attrition, which could erroneously imply that there is no problem. This lack of discrimination in the question, with over 97% of teachers seeing themselves in at least one teaching-related or education-related role in five years' time, can be mitigated by a composite measure of risk which includes all respondents identified in any of the other measures. However, this requires asking several questions of participants, each with a range of responses, and so would have to justify the extra data collection. In particular, questions adapted from the BTLS around staying to retirement, benefits eligibility, life event, etc., seemed less meaningful in the Scottish context.

As a balance between ease of responding and enabling further analysis, the best option seems to be a pared-down version of the career intention question from BTLS [22] and the career regret question from TALIS [21]. Qualitative follow-up may help in suggesting context-meaningful response options that would better support inferences around whether teachers are anticipating going into teaching-related or education-related roles and how or if these expectations relate to their views on teachers' working conditions or the quality of their teacher education. Rather than being a checkbox, more sophisticated responses such as ranking may also be worth exploring. Adding in questions about teachers' longer-term intentions–such as their intention to return–could help when discussing how to categorise teachers who gain valuable experience, they can bring back to have direct benefits in the classroom. Both the career intention and career regret questions may also easily adapt to surveys of student teachers during their ITE programmes, helping to identify where these feelings may originate or strengthen. Such a view of career intention as student teachers move through their education and early career could combine particularly well with recent work looking at the views of those who consider but do not ultimately choose to enter teacher education programmes [23]. A measure of career intention and ITE regret may help to broaden this focus further, engaging with those who perhaps always saw a teaching career as part of something else.

As a summary of increased risk factors, looking at intention and regret together suggests a greater attrition risk for teachers who rate their competency lower, particularly in terms of self-efficacy abilities from the TALIS list and, even more specifically, in terms of managing pupil behaviour. It also appears that professional learning needs as surveyed using the TALIS list have no relation to retention risk factors, running contrary to expectations.

More broadly, it is hoped that this study opens discussion around what counts as retaining a teacher in the profession. There remains the practical need for teachers to meet teacher-student ratios and for there to be enough high-quality teachers (however defined) able to teach the full curriculum in all areas of the country and meet the diverse needs of learners. However, governments may also wish to consider the education profession as extending beyond this. There may be a broader view of how society benefits from

having teachers taking on different roles, consideration of how teachers may move flexibly between different jobs within an education career, and even a strategic view of how flexible teaching careers can be supported to manage the ebb and flow of births and immigration. For example, there is currently renewed interest in sabbaticals for teachers in Scotland, which could be a powerful policy lever for managing teacher employment rates, giving policymakers an extra tool beyond ITE recruitment targets. As Gorard et al. [24] point out, it hardly seems wasteful for teachers to move from the state to the independent sector, or to teach in further or higher education. Likewise, teachers entering other voluntary or public service sectors may continue to derive benefits from their teacher preparation and provide benefits back to the state. Examples from our free text responses included a teacher setting up a road safety education charity, writing textbooks, and becoming a teacher educator. These would be counted as 'out of service' in current measures, so the statistic needs to be treated with caution. Similarly, Scotland's teacher education has a strong social justice and diversification agenda, so the number of teachers going to teach overseas may represent important contributions on a global scale even if these are a short-term loss to Scottish schools.

The range of figures discussed above suggest that there may be a convergence around a common estimate of teacher retention, leading to a general impression that attrition and teachers' own expectations of attrition are around 20% over the first five years. There is also some support for the assumption that attrition is more acute in the earliest years of a teacher's career. However, it is difficult to claim that there is a 'true' figure for teacher retention since the measure has become so politicised. Instead of arguing for any one single approach, transparency in methods and reporting may be better to ensure that appropriate estimates of retention are used for different policy contexts. The range of measures here also warrants caution when using conventional estimates of teacher retention, since around 75% of teachers typically categorised as 'out of service' may still be in education-related roles and experiencing what they regard as successful careers.

Considering the extent to which ITE intends to prepare students for a teaching career or an education career, or indeed whether that is a helpful distinction to make [25], may be helpful in deciding specifically how retention should be measured for making inferences about the quality of ITE provision. Indeed, future research asking some form of these questions during ITE may be able to create combined estimates of programme non-completion and teacher attrition. Given the changes in career expectations from one year to the next, it may also be prudent to consider career planning and advice as part of teacher preparation or early career professional learning.

Finally, the study acknowledges a limitation in sampling bias, that those who have left teaching already are less likely to remain in the survey cohort. This will inevitably produce an overly optimistic view of intention to remain. Nevertheless, particularly when thinking of intention to leave or sense of regret, this sample may still help to indicate career dissatisfaction or early signs of burnout and includes teachers who may wish to leave but feel unable to find suitable work elsewhere or are otherwise trapped by circumstances. These attitudinal measures can therefore supplement the 'harder' data of teachers' employment status, better informing debate around what it means for a teacher to make good use of their professional preparation.

Data Availability Statement: Data collection instruments are available through the project website, www.mquite.scot.

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