



Why do people choose to enter and exit the teaching profession? An interdisciplinary quantitative synthesis

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Abstract

Many nations experience recurring shortages of teachers in particular subjects, prompting concerns that pupils' education is suffering as a result. Researchers have responded by generating a sizable literature on the reasons why people enter and exit the teaching profession. This paper provides a conceptual synthesis, distilling what we know into a single inter-disciplinary model capturing influences on the decision whether to teach or not. We then test and refine this model using a systematic review of survey experiments on job preferences among both teachers and potential teachers. Our final model shows good fit with the data, sheds light on the relative importance of different influences on job choice and can better inform the decisions of school leaders and policymakers looking to address teacher shortages.

Introduction

Many countries are experiencing a shortage of appropriately qualified teachers. In the most recent Teaching and Learning International Survey (TALIS), 21% of teachers in OECD (Organisation for Economic Co-operation and Development) countries work in schools where the principal (headteacher) reported that a shortage of qualified teachers was hindering the quality of instruction (OECD, 2019). This figure increases to 25% among OECD countries within the EU and is higher still in France (36%), England (38%), and Italy (41%). Data from England and the USA shows that teachers with a background in science and mathematics are in particularly short supply (Dee & Goldhaber, 2016; Worth & Faulkner-Ellis, 2021). In England, annual teacher recruitment targets are consistently missed, particularly in secondary schools (50% below target in 2023) (Maisuria et al., 2023). Looking ahead, UNESCO estimates that 44 million additional teachers will be needed worldwide by 2030 (UNESCO, 2024). To address these challenges, school leaders and policymakers need a way to better understand the drivers of teacher shortages and, more importantly, which reforms might help to reduce them.

Some researchers are concerned that such shortages reflect a long-run decline in the attractiveness of teaching in richer nations. Over time, economic growth has generated new and often better-paid job opportunities outside of teaching, particularly for those with mathematics degrees (Dolton & Chung, 2004; Finan et al., 2017; LiVecchi, 2017). Women now have far broader labour market opportunities, beyond traditionally female-dominated occupations such as teaching (Bacolod, 2003).

In addition, widespread increases in accountability for schools and the teachers within them have also changed the nature of teaching, with some researchers worried that teachers have lost professional autonomy as a result (Perryman & Calvert, 2020; Perryman, 2022). More recently, the COVID pandemic has triggered a large increase in working from home in many occupations; something teachers have not been able to benefit from (Adams-Prassl et al., 2022).

In response to these shortages, researchers have conducted a range of studies looking at how to recruit and retain more teachers (Nguyen et al., 2023). For example, several quasi-experimental evaluations of financial incentives aimed at increasing retention of existing teachers have found these types of policies to be effective (Benhenda & Sims, 2022; Bueno & Sass, 2018; Feng & Sass, 2018). Researchers have also analysed panel survey datasets to investigate which aspects of teachers' working environments are associated with improved retention (Boyd et al., 2011; Ladd, 2011; Kraft, Marinell, & Yee, 2016). Supportive school leadership has emerged as particularly important from this line of research. In addition, psychologists – often using structural equation modelling – have emphasised the importance of psychological constructs such as autonomy (Fernet et al., 2013; Skaalvik & Skaalvik, 2020). More recently, researchers have used survey experiments to understand how varying the attributes of hypothetical (teaching) jobs affects their attractiveness. These studies have highlighted other important aspects of working conditions, such as flexible working arrangements (Johnston, 2021; Lentini et al., 2024; Levatino, 2024; Lovison & Mo, 2024).

As can be seen from this brief overview, this diverse empirical literature has provided a variety of useful insights about what makes teaching (un)attractive. Indeed, the scale and diversity of this research now present a new challenge: how should school leaders and policymakers make sense of this rich evidence base? While new empirical evidence remains welcome, what is now required is a synthesis of what is already known into a useful model that can support the decisions of school leaders and policymakers. To be of best use to these decision makers, such a model would also provide some insight on which influences on job choice are more or less important. Without such a model, the empirical findings referred to above remain disjointed and incommensurable. This makes it harder for school leaders and policymakers to make use of the findings to address shortages. For example, those with responsibility for school budgets are interested not just in whether teachers value a higher salary, but how much they value this relative to other potential reforms, such as expanded professional development opportunities or changed working hours.

We address this gap in the literature by developing an existing interdisciplinary model of job choice (Cassar & Meier, 2018) and tailoring it to the choice to become (and then remain) a teacher. This allows us to synthesise the existing theoretical and empirical literature into a unified conceptual model. We then test this model using a systematic review of the job-choice survey experiment literature. This allows us to provide a rigorous and holistic test of the claims embedded in the model, as well as providing some evidence on the relative importance of different job attributes for the decision to become and remain a teacher. In doing so, we provide a framework that can better inform the thinking of school leaders and policymakers looking to address teacher shortages and guide future research on this topic.

Theory

A general model of job choice

A satisfactory theoretical model of job choice should be able to integrate a broad range of insights about what motivates people to enter and exit the teaching profession, drawn from across academic disciplines. For example, economists have traditionally emphasised the importance of explicit incentives for determining an individual's choice of work (Arcidiacono et al., 2014). In particular, the Roy model of occupational choice predicts that people will enter the occupation in which they can make the largest returns, given their specific skills (Roy, 1951). Returns have traditionally been thought of as the monetary (for example, wages) and non-monetary (benefits in kind) compensation provided in exchange for work, minus the opportunity costs incurred by the worker. Opportunity costs reflect all that is given up by the worker to fulfil the job role, such as the things they would otherwise have done during the hours they were at work.

Work also serves as a source of meaning in that people feel it has a wider significance in their lives. Psychologists and sociologists have traditionally emphasised the importance of these intrinsic incentives for job choice. In particular, self-determination theory (SDT) predicts that individuals will seek work that satisfies three basic psychological needs (Deci et al., 2017; Deci & Ryan, 2000). The first of these is autonomy, defined as acting in accordance with one's own reasoning or values,

and therefore with a sense of volition (Deci et al., 2017; Deci & Ryan, 2000). The second is mastery (also known as competence), which is defined as feeling effective and capable in one's actions (Deci et al., 2017; Deci & Ryan, 2000). The third and final psychological need in SDT is relatedness, which is defined as feeling a connection with others and a sense of being cared for (Deci et al., 2017; Deci & Ryan, 2000).

More recently, these insights from economists and psychologists have been integrated into a single framework (Cassar & Meier, 2018). A slightly simplified version of this model is summarised in Equation 1 below. On the left-hand side is **Utility**, which represents the overall value placed on a job by an individual. This depends on three things, each of which appears on the right-hand side of the equation. The first is **Income** from the job, which itself depends on (within the brackets) the salary earned. The second term on the right-hand side is **Meaning**, which itself depends on (within the brackets) autonomy, mastery, relatedness and hours worked. The third and final term on the right-hand side is **Costs**, which itself depends on (within the brackets) the number of hours spent at work. The functional form connecting, for example, meaning with autonomy, is left unspecified. Utility is theorised to be increasing (+) with income and meaning but decreasing (-) with costs.

Equation 1

Utility = **Income** (salary) + **Meaning** (autonomy, mastery, relatedness, hours) – **Costs** (hours)

Where:

- > Utility represents the overall value placed on a job by a given individual.
- > Salary refers to the monthly/annual remuneration from an employer to an employee.
- > Hours refers to the number of hours of work done in the typical working week.
- > Meaning is defined as the perceived or felt significance of work for one's life (Rosso et al., 2010).
- > Autonomy is defined as acting in accordance with one's own reasoning (Deci & Ryan, 2000).
- > Mastery is defined as feeling effective and capable in one's actions (Deci & Ryan, 2000).
- > Relatedness is defined as a feeling connected to and cared for by others (Deci & Ryan, 2000).
- > Costs refer to the next best alternatives forgone due to engaging in work.

Cassar and Meier (2018) cite a wide range of domain-general evidence in support of this model with a particular emphasis on the meaning term. This includes evidence from time-use surveys (Bryce, 2018), panel data (Benz & Frey, 2008; Bartling et al., 2013), lab experiments (Ariely et al., 2008) and field experiments (Carpenter & Gong, 2020; Chandler & Kapelner, 2013; Grant, 2008; Gosnell et al., 2020). Since their review was published, survey experiments conducted on representative samples have generated further evidence in support of all the terms in Cassar and Meier's model: wages (Schouwer & Kesternich, 2022; Valet et al., 2021), autonomy, mastery and relatedness (Battaglio et al., 2022; Schouwer & Kesternich, 2022; Valet et al., 2021), and costs (Schouwer & Kesternich, 2022).

The model states that individuals will assess the different jobs (or occupations) available to them based on the terms on the right-hand side of the equation. The sum total of these considerations then allows them to reach a judgement about the overall value (utility) of these various options. Individuals will then choose the option with the highest utility and reject the others. Importantly, the additive nature of the model implies that individuals can be persuaded to take a job with lower autonomy if they are sufficiently compensated for this in terms of, for example, higher income or reduced hours. It also highlights the range of options available to policymakers and managers looking to make a given job more attractive. Over time, their current job may cease to have the highest utility among those available to them, leading them to change to another job.

Tailoring this model to the choice to teach

Cassar and Meier's model provides an elegant and general way of thinking about job choice. However, there are several ways that it might be updated, made more explicit and better tailored to the specific choice of whether to become a teacher. In this section, we consider three distinctive features of teaching that could increase the specificity and validity of the model in the teaching setting.

Our first proposed adaptation relates to pensions. This is worthy of particular attention in that teachers' pensions are usually public sector defined benefit schemes, whereas many other private sector occupations pay defined contribution schemes (Disney et al., 2010; Koedel & Podgursky, 2016; Mihaly & Podgursky, 2023). Such defined benefit pension schemes are often more generous than private sector pensions (Dolton et al., 2019). Teaching jobs are often advertised as having good pension plans and, to the extent that people place weight on payments received many years in the future, this will influence their job choice decisions. Since pension payments are best thought of as a form of financial compensation that is deferred until retirement, our revised model includes pensions in the **Income** term. Of course, pensions were already included implicitly within the **Income** term but our model draws this out explicitly, given its particular importance in teaching.

Our second proposed change relates to the flexibility of work. By flexibility we mean 'arrangements which allow employees to vary the amount, timing, or location of their work' (De Menezes and Kelliher, 2011). This can be achieved in many ways. For example, this might mean working their hours on a flexible schedule, working from home some or all the time, or working part time. Flexibility is particularly salient in modelling the choice to become a teacher because of the constraints around where and when teachers' work takes place. Since the COVID pandemic, there has been a marked increase in the proportion of days worked from home, particularly among graduates (Barrero et al., 2023). There has recently been increased interest from policymakers and school leaders in how increased flexibility might be offered to teachers. This includes new government

guidance (Department for Education, 2023) and the Education Endowment Foundation's report on flexible working (Harland, Bradley, & Worth, 2023). Although some schools are experimenting with providing additional flexibility (Cumiskey, 2024b), teachers spend the majority of their contracted hours delivering instruction or otherwise supervising pupils during the school day. This places hard constraints on both how much of their work can be done from home and when that work can be done. Flexibility benefits workers by allowing them to conduct work in a way that reduces conflict with family and leisure, so our revised version of the model includes flexibility in the **Costs** term of the model. Again, our adaptation of the model is best thought of as making this flexibility aspect of **Costs** explicit.

Our third and final proposed change relates to the amount of paid leave available. This is worthy of particular emphasis because teachers have more paid leave (at least as specified in their contracts) than many other professions. For example, full-time teachers in England typically work 39 (term time) weeks per year or 75% of all the weeks in a year. This is seven weeks less than full-time non-teachers in the UK, who commonly receive around six weeks per year of paid leave and therefore work 46 weeks or 88% of all the weeks in a year. Other things being equal, this increased paid leave reduces the opportunity costs of work by allowing teachers to spend a greater proportion of the year with their family or otherwise engage in leisure. Our revised model therefore explicitly draws out leave in the **Costs** term of the model.

Our revised model is set out below in Equation 2. It states that people compare both teaching and non-teaching jobs in terms of: **Income** (which depends on salary and pensions), **Meaning** (which depends on autonomy, mastery and relatedness) and **Costs** (which depends on hours, flexibility and paid leave). The model suggests that people will enter the teaching profession if it is the best available option, and that teachers will leave the profession if it ceases to be the best available option. This implies that there will be a shortage of teachers in a given year if the number of people for whom teaching is not the best option falls short of the need for teachers in that year.

Equation 2

Utility = **Income** (salary, pensions) + **Meaning** (autonomy, mastery, relatedness, hours) – **Costs** (hours, flexibility, leave)

We considered including a range of other terms in the model. There are important trade-offs here: adding terms has the benefit of making the model more precise but comes at the cost of making the model less parsimonious. For example, we considered making intensity of work explicit within the Costs term. High-intensity work is intuitively more costly and there has recently been an increase in research documenting the intensity of teaching work (Beck, 2017; Creagh et al., 2023; Green, 2021; Te Braak et al., 2024). However, we did not find representative data suggesting that teaching is more intense than other occupations, which calls into question whether this would help explain the choice to teach (Creagh et al., 2023). We therefore decided not to explicitly include it in the model at this stage. We also considered including other types of financial incentives, such as training incentives and pension characteristics. However, in both cases, we judged that the loss of parsimony was not justified by the increased precision, given the current state of the empirical evidence. We return to this point in the Discussion section.

Methods

Inclusion criteria

To test our adapted theory of the choice to become and remain a teacher, we conducted a careful review of relevant existing research. To provide a rigorous test, we set out to identify all evidence that met certain criteria. First, since our model makes causal claims about the relationship between certain job characteristics (on the right-hand side of the equation) and job preferences (on the left-hand side), we wanted to restrict our review to causal evidence. This required us to restrict our search to experimental (random assignment) or quasi-experimental studies. Second, since our model makes claims about preferences across a wide range of job characteristics (such as wages and mastery), we wanted to restrict our search to research that could provide a balanced test of all the variables on the right-hand side of our model. For example, we are aware that there is a large literature evaluating the effect of changes in teachers' pay on retention (Feng, 2020). However, there are far fewer evaluations of some variables, for example, flexibility. It is also not possible to directly evaluate the effects of some variables, such as autonomy.

We therefore focused our search entirely on a research design that is well-suited to evaluating the causal effects of a wide variety of different job attributes on job choices: job-choice survey experiments. Such studies typically involve presenting participants with a pair of job options, each of which is comprised of multiple attributes (for example, wages, sense of mastery, flexibility). For each attribute (such as wages) a value is randomly assigned (for example, full-time equivalent salary of £25,000, £30,000 or £35,000 per year). Participants are then asked to choose between the two job options. The independent random assignment of values for each attribute allows the researcher to causally identify the effect of each job on which job the participant selects.

As the job options are entirely hypothetical, this approach can be used to test the effect of attributes that have not been, or could never be, directly subjected to an evaluation in the field. Despite being hypothetical, studies show that preferences measured in job-choice survey experiments align with subsequent real-world job choice behaviour (Maestas et al., 2023; Viano et al., 2021; Wiswall & Zafar, 2018). Since key methodological contributions to the analysis of factorial survey experiments, in particular the development of the average marginal component effect (AMCE) estimand, were only introduced in 2014 (Hainmueller & Hopkins, 2014; Hainmueller et al., 2014), we also limit our search to articles published after 2013.

Such survey experiments also allow for the value of each attribute to be expressed in terms of salary-equivalent values. For example, the value of working from home one day per week can be expressed in terms of the reduction in pay that respondents would be willing to accept to access this benefit. Restricting our search to job-choice survey experiments, therefore, allows us to quantify the relative importance of the many different terms in our model in a way that quasi-experimental or experimental policy evaluations would not. This is critical, given our goal of developing a model that can help decision makers prioritise reforms of teachers' pay and conditions.

Alongside restricting our search to survey experiments, we also impose some restrictions on the population. Our model seeks to explain the decision to both enter and exit employment in teaching. We therefore restrict our search to studies conducted on teachers, who face the decision about whether to exit, and undergraduate students and non-teaching adults, who have the option to enter.

We further exclude from our search any studies conducted among undergraduates in particular subjects (for instance, exclusively medical students) or adults working in particular industries (such as exclusively in call centres), on the grounds that selection into these groups plausibly makes their preferences very different from our much wider population of interest. We also further restrict our search to studies conducted in more economically advanced (OECD) countries, which are likely to have broadly comparable labour market conditions.

In summary, our inclusion/exclusion criteria are:

1. Survey experiments
2. Involving job preference outcome measures
3. With random assignment of job attribute values to job profiles
4. Conducted among those eligible to be teachers
5. Excluding samples focused on specific degree subjects or occupations
6. Conducted in an OECD member country
7. Reported in English
8. Published after 2013

Searches and data extraction

We developed a search term designed to capture all eight of these inclusion criteria (see Appendix A). We then applied these search terms to four large databases: Google Scholar, ERIC, EconLit, and PsychInfo. This search was finalised on 30 August 2024, and a total of 2,045 papers were identified and screened on abstract, of which 1,992 were excluded. This left 53 papers to be screened on full text, of which 40 were excluded. We also searched through the citations in all included papers. After deduplication, we were left with 12 studies that met our eligibility criteria (see Appendix B for the Prisma diagram reporting the identification and selection process).

Following Hainmueller and Hopkins (2014) and Hainmueller et al. (2014), survey experiments typically express the effect of different job attributes on job choice using a quantity known as the average marginal component effect (AMCE). This captures the effect of changing the value of one attribute (for example, increasing the salary from £30,000 to £35,000) averaged over the joint distribution of all other attributes (such as hours, autonomy and leave) in the survey experiment. Where AMCEs were reported exclusively in graphical form in our included papers, we converted these into numerical form using <https://plotdigitizer.com/>. Some papers used ordinary least squares (OLS) regression, meaning that the AMCEs were expressed as semi-elasticities: the percentage point (pp) in change in probability of choosing a job. Other papers used logistic regression, meaning that the AMCEs were expressed as ratios

of the odds of choosing a job. We converted all odds ratios to semi-elasticities using the method outlined in Chinn (2000). For each paper, one author first collected all the AMCEs. Once this process was complete, another author went through and checked all the data extraction, with any discrepancies addressed through discussion. One of these 13 papers (Maestas et al., 2023) did not report AMCEs but did provide the original data, from which we were able to estimate the AMCEs ourselves. Another paper (Wiswall & Zafar, 2018) did not report AMCEs and did not provide the original data, meaning the results could not be included in the analysis shown.

The 12 papers for which AMCEs could be extracted are summarised in Table 1. Six of these were conducted with samples of teachers and the other six were conducted with general adult samples. These samples were drawn from eight unique countries: USA, Spain, Germany, Holland, Switzerland, Chile, Norway and Costa Rica. Five of the twelve papers use representative samples, with the other eight relying on convenience samples. Eight of the papers are published in journals, two are as-yet-unpublished working papers and two are dissertations. We note that the two dissertations (Abd-El-Hafez, 2015; Chagares, 2016) employed small samples (90 and 111 unique respondents, respectively), resulting in imprecise estimates. Across the studies, the median number of unique respondents was 1,108, the median age of respondents was 40.6 years and median proportion of female respondents was 64.4%.

Table 1. Studies from which data were successfully extracted

	Study reference	Sample	Code
1	Abd-El-Hafez, A. K. (2015). Alternative-specific and case-specific factors involved in the decisions of Islamic school teachers affecting teacher retention: A discrete choice experiment. Long Island University.	Teachers, US, Non-representative, N=90	A15
2	Chagares, A. M. (2016). Experienced teachers' stated preferences regarding transferring from well-performing to low-performing schools: A discrete choice experiment. Long Island University.	Teachers, US, Non-representative, N=111	C16
3	Johnston, A. C. (2021). Preferences, selection, and the structure of teacher pay. SSRN 3532779.	Teachers, US, Non-representative, N=4,358	J21
4	Jost, M., & Möser, S. (2023). Salary, flexibility or career opportunity? A choice experiment on gender specific job preferences. <i>Frontiers in Sociology</i> , 8, 1154324.	Adults, Switzerland, Representative, N=1,500	JM23
5	Lentini, V., Gimenez, G., & Valbuena, J. (2024). Teachers' preferences for incentives to work in disadvantaged districts: A discrete choice experiment in Costa Rica. <i>Economic Analysis and Policy</i> , 82, 831-845.	Teachers, Costa Rica, Non-representative, N=400	LGV24
6	Levatino, A., Ferrer-Esteban, G., & Verger, A. (2024). Unveiling teachers' work preferences: A conjoint experiment on the implications of school governance reform across three countries. <i>Teaching and Teacher Education</i> , 146, 104631.	Teachers, Chile/Norway/Spain, Representative, N=3,426	LFV24
7	Lovison, V. S., & Hyunjung Mo, C. (2024). Investing in the teacher workforce: Experimental evidence on teachers' preferences. <i>American Educational Research Journal</i> , 61(1), 108-144.	Teachers, US, Non-representative, N=1,298	LH24
8	Maestas, N., Mullen, K. J., Powell, D., Von Wachter, T., & Wenger, J. B. (2023). The value of working conditions in the United States and implications for the structure of wages. <i>American Economic Review</i> , 113(7), 2007-2047.	Adults, US, Representative, N=1,738	M23
9	Ripoll, G., Ballart, X., Hernández, E., & Vandenabeele, W. (2023). 'It's a match!': a discrete choice experiment on job attractiveness for public service jobs. <i>Public Management Review</i> , 1-35.	Adults, Spain, Representative N=1,316	R23
10	Wiswall, M., & Zafar, B. (2018). Preference for the Workplace, Investment in Human Capital, and Gender. <i>The Quarterly Journal of Economics</i> , 133(1), 457-507.	Adults, US, Non-representative, N=247	WZ18
11	Woźniak-Jęchorek, B., d'Urso, A. S., & Thurston, C. N. (2022). Remote work preferences of American employees: evidence from conjoint survey experiment.	Adults, US, Non-representative, N=627	WUT22
12	Valet, P., Sauer, C., & Tolsma, J. (2021). Preferences for work arrangements: A discrete choice experiment. <i>PloS one</i> , 16(7), e0254483.	Adults, Germany/Holland, Representative, N=2,678	VST21

Note: N = number of unique respondents. Effective sample size is larger than N because each respondent evaluates multiple profiles. Two of the papers report all results separately for two groups: Jost and Möser (2023) report all results separately for male and female respondents, and Valet et al. (2021) report all results separately for German and Dutch respondents. We report the results separately. Lovison and Hyunjung Mo (2024) also report multiple surveys, we report results from the 2020 survey and survey 2.2 in 2022, the sample size reported for this paper includes respondents from both of these surveys. The study code in the final column corresponds to the study codes mentioned in the text. Levatino et al. (2024) does not feature in any of our graphs because none of the attributes map onto our theoretical model (see Methods section for more detail).

Mapping the attributes in the survey experiments to the terms in our model

Using the empirical findings extracted from these studies to test our theoretical model requires us to map the former to the latter. We found three types of mapping. First, in some cases, an attribute clearly corresponded to only one of the terms in our theoretical model. For example, the attribute 'starting salary' clearly corresponds exclusively to the salary term in our theoretical model. In such cases, it is straightforward to use the attribute to test whether the term in our model affects job choice as predicted. Second, in some cases, the attribute did not map onto any of the terms in our theoretical model. For example, the attribute 'prestige of the job'. In such cases, we did not use the attribute in our empirical test. However, we do return to discuss this group of attributes in the Limitations section below.

Third, we found some attributes that potentially mapped onto more than one of the terms in our theoretical model. For example, the attribute 'class size' might affect job choice through reduced workload (hours) or through reducing the number of relationships (relatedness) or through helping teachers feel more in control of a smaller class (mastery). In such cases, the attribute did not provide a clean empirical test of any one term in our model, and we therefore left it out of the empirical analysis. There was one exception to this. When reviewing the attributes related to the mastery term in our theoretical model, we realised that many of them were also relevant to the relatedness term. For example, almost all forms of training also involve social interactions with teacher educators or other teachers. Since mastery and relatedness are central to our model, we collapse the two terms into a single category in our empirical analysis (see Results section below).

Transparency and openness

The study was registered prior to data collection at: <https://aspredicted.org/pb5s-jnys.pdf>. We pre-registered our conceptual model, the inclusion criteria for our systematic review and our analysis plan. The conceptual model presented above contains one small change from that which was pre-registered: we collapsed the 'wages' and 'hours' terms within **Compensation** in the pre-registered model into a single 'salary' term. This was done because pay was often presented in salary terms in the survey experiments. The inclusion criteria listed above remain

the same as those pre-registered. With respect to the analysis plan, after collecting the data, we decided not to calculate meta-analytic average effect sizes for each term in the equation, as specified in the pre-registration. This was because the attributes and attribute values that we encountered in the literature were so diverse that averaging across them would not have been meaningful. Instead, we present the full set of disaggregated effect size estimates in graphical form.

Results

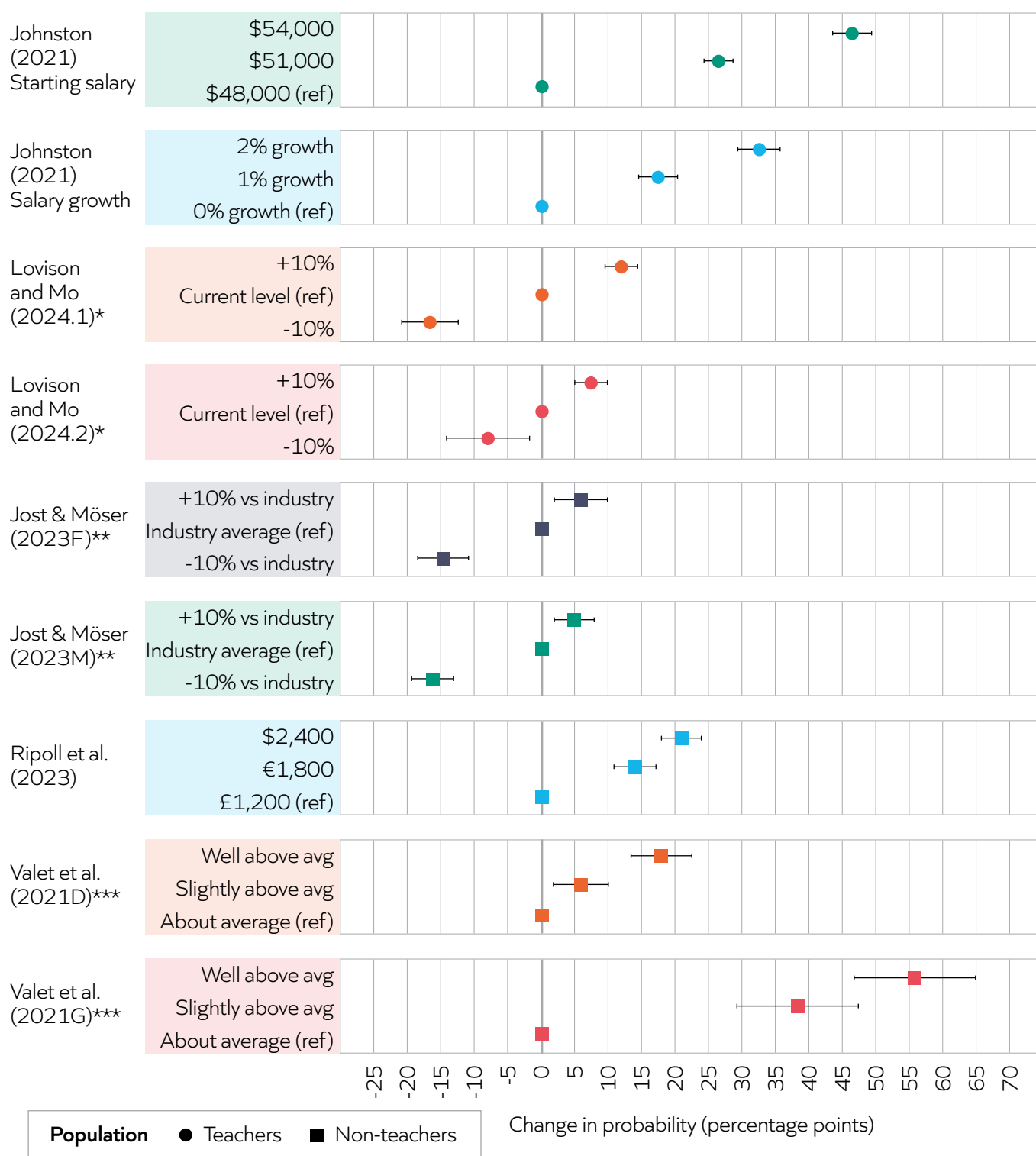
In this section, we present the results from our systematic review. Our main goal is to test whether each of the terms in our theoretical model (see Equation 2) does in fact affect the probability that somebody chooses a job. We therefore present our results across a series of seven graphs, corresponding to each of the terms on the right-hand side of the equation (for example, income, autonomy, flexibility). Each of the seven graphs shows the change in probability of choosing a job on the horizontal axis, with colour-coded clusters of coefficients (corresponding to different job attributes, for example, starting salary) along the vertical axis. The labels for each cluster of coefficients begin with a short code (such as A15) which allows the reader to look up the source study in Table 1 above (such as Abdul-Hafez, 2015). Within each cluster, one of

the coefficients reflects the reference category (for example, current salary) which is equal to zero on the horizontal axis by construction. The other coefficients in each cluster show the percentage point (pp) change in probability of choosing a given job when moving from the reference category for an attribute to another value of that attribute. For example, moving from a respondent's current salary (reference category) to a 10% higher salary. Coefficients marked with a circle indicate that the result is based on responses from serving teachers. Coefficients marked with a square indicate that the results are based on responses from general adult samples, which we label as non-teachers in the graphs for brevity. The horizontal bars represent the 95% confidence interval.

Income

Figure 1 shows all the results from our systematic review that provide a test of the claim that increased salary causes an increase in the probability of choosing a job, other things being equal. There are nine clusters of coefficients, four of which are derived from studies conducted with teachers, and five of which are derived from studies conducted with non-teachers. Unsurprisingly, increased salary causes people to prefer a job. Perhaps more notable is the uniformity of the support, with every coefficient for both teachers and non-teachers in the expected direction and statistically

significant at the 5% level. This holds across different levels of salary, different rates of salary growth over time, different countries (see VST21) and different genders (see JM23). Four clusters (see LH24-JM23) compare proportional changes in salaries, finding that a 10% increase leads to a 5-12 pp increase in the probability of choosing a job. There is also some asymmetry, with a 10% reduction in pay leading to a larger change in the probability of choosing a job than a 10% increase in pay.

Figure 1. The effect of salary on job choice

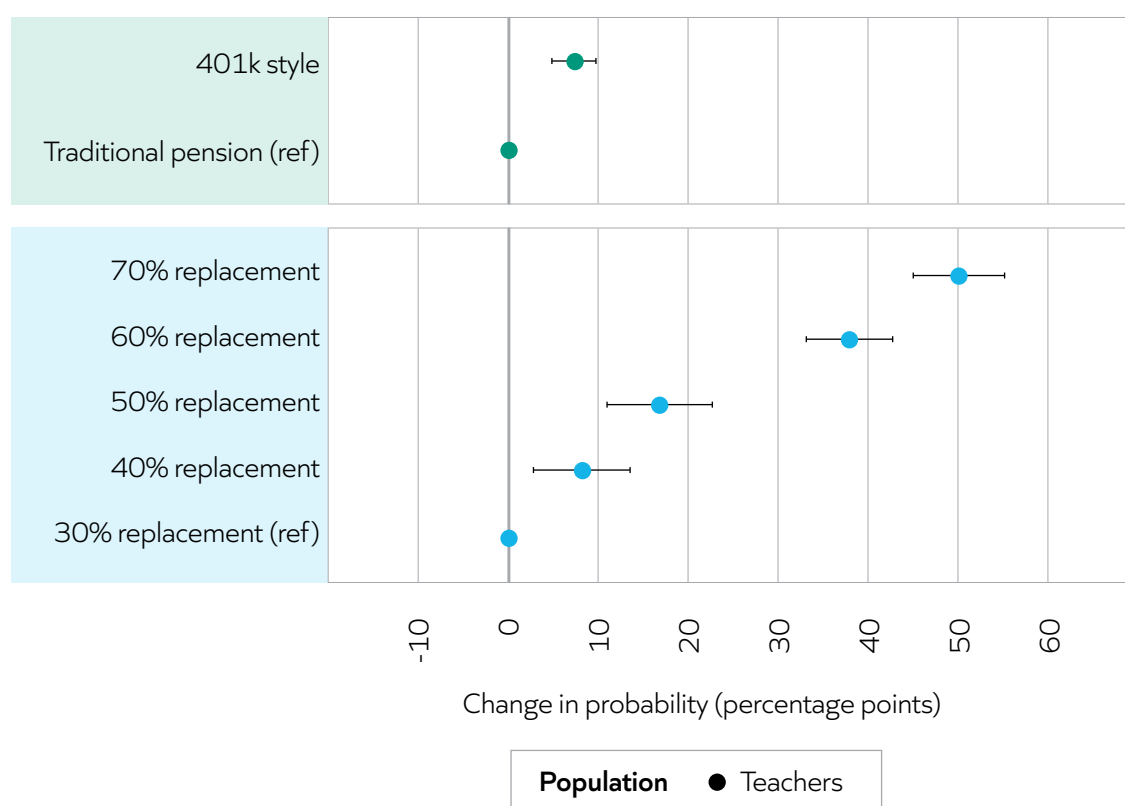
Notes. Point estimates represent average marginal component effects, and interval estimates represent 95% confidence intervals. For further details about the sample in each study see Table 1.

- * Lovison and Mo (2024.1) refers to data taken from a study done in 2020, and Lovison and Mo (2024.2) refers to data taken from a study done in 2022 with a different sample. Both sets of results were reported in Lovison and Mo (2024).
- ** Jost & Möser (2023F) refers to an experiment with a sample of females, Jost & Möser (2023M) refers to an experiment with a sample of males, both reported within this Jost & Möser (2023).
- *** Valet et al. (2021D) refers to a Dutch study, Valet et al. (2021G) refers to a German study, both reported within Valet et al. (2021).

Figure 2 shows all our results that provide a test of the claim that increased pension values cause an increase in the probability of choosing a job. There are two clusters of coefficients, both of which are derived from studies conducted with teachers. Indeed, all the coefficients come from one study: Johnston (2021). As with salary, the results are all in the predicted direction and statistically significant at the 5% level. Each 10 pp increase in salary replacement upon

retirement leads to an approximately 9 pp increase in the probability of choosing a job in Figure 2. A ‘401(k)-style retirement plan’ is US terminology for a portable, defined contribution retirement plan into which both employer and employee make contributions (Mihaly & Podgursky, 2023). This is akin to the pensions that are standard in private sector employment in many European countries.

Figure 2. The effect of pension arrangements on job choice



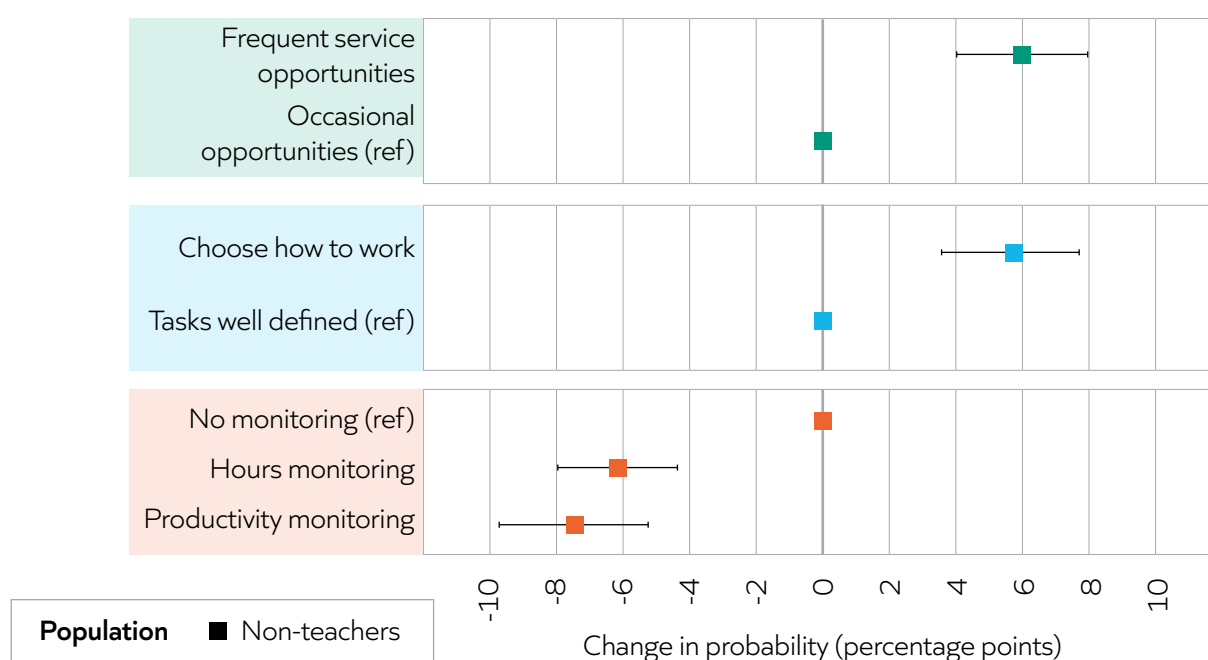
Notes. Point estimates represent average marginal component effects, and interval estimates represent 95% confidence intervals. For further details about the sample in each study see Table 1.

Meaning

Figure 3 shows all our results that provide a test of the claim that increased autonomy causes an increase in the probability of choosing a job. There are three clusters of coefficients, all of which are derived from the two studies conducted with non-teachers. All three coefficients have the sign predicted by our theoretical model, though the third cluster is not statistically significant at the 5% level. The first cluster shows respondents are 6 pp more likely to choose a job that provides choice and therefore autonomy over how

tasks are done, compared to a job in which tasks are well defined. The second cluster shows respondents are again 6 pp more likely to choose a job that provides “meaningful work with frequent opportunities to serve” compared to a job that provides “occasional opportunities to serve”. We interpret this as affecting autonomy because “meaningful work” and “service” imply endorsing the reasons for doing the work. The final cluster of coefficients is also in the direction predicted by our model.

Figure 3. The effect of autonomy on job choice

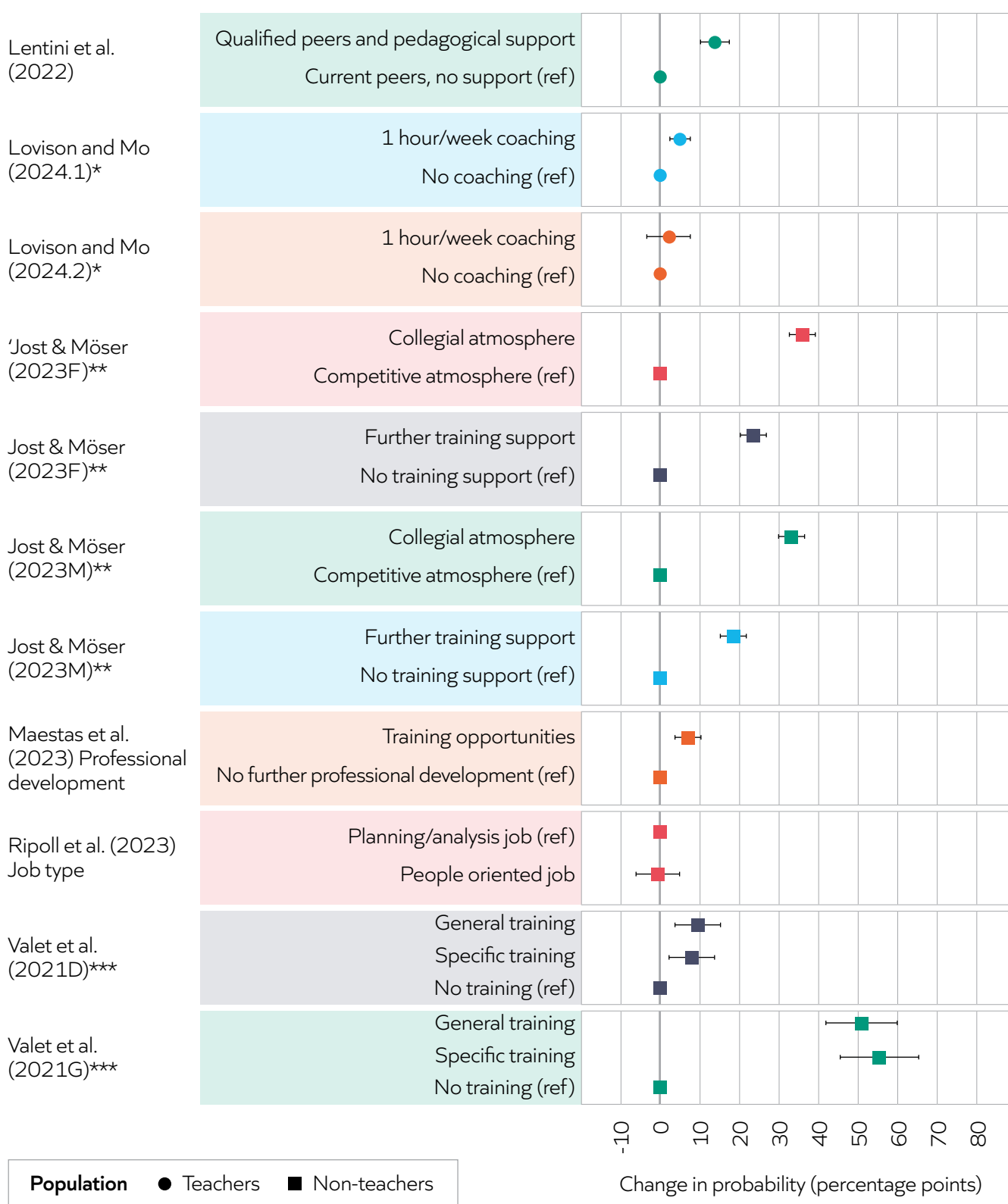


Notes. Point estimates represent average marginal component effects, and interval estimates represent 95% confidence intervals. For further details about the sample in each study see Table 1.

Figure 4 shows all our results that provide a test of the claim that increased mastery or relatedness causes an increase in the probability of choosing a job. There are 11 clusters of coefficients, three of which are from studies conducted with teachers and eight of which are from studies conducted with non-teachers. All coefficients have the sign predicted by our theoretical model, though two of them are not statistically significant at the 5% level. Jobs that include training

are 2-56 pp more likely to be chosen than jobs that do not. There is one clear outlier, which finds much larger effects (VST21 German), but the equivalent result is much smaller in the Dutch sub-sample in the same study.¹ One study (JM23) isolates the relatedness construct, finding that a collegial working atmosphere, in contrast to a competitive one, leads to a sizable 33 pp increase in the probability of choosing a job.

1 We contacted German and Dutch authors working in this area to better understand this discrepancy. It seems this may reflect the cultural assumption in Germany that occupation-specific training is almost a pre-condition for entering a given

Figure 4. The effect of mastery and relatedness on job choice

Notes Point estimates represent average marginal component effects, and interval estimates represent 95% confidence intervals. For further details about the sample in each study see Table 1.

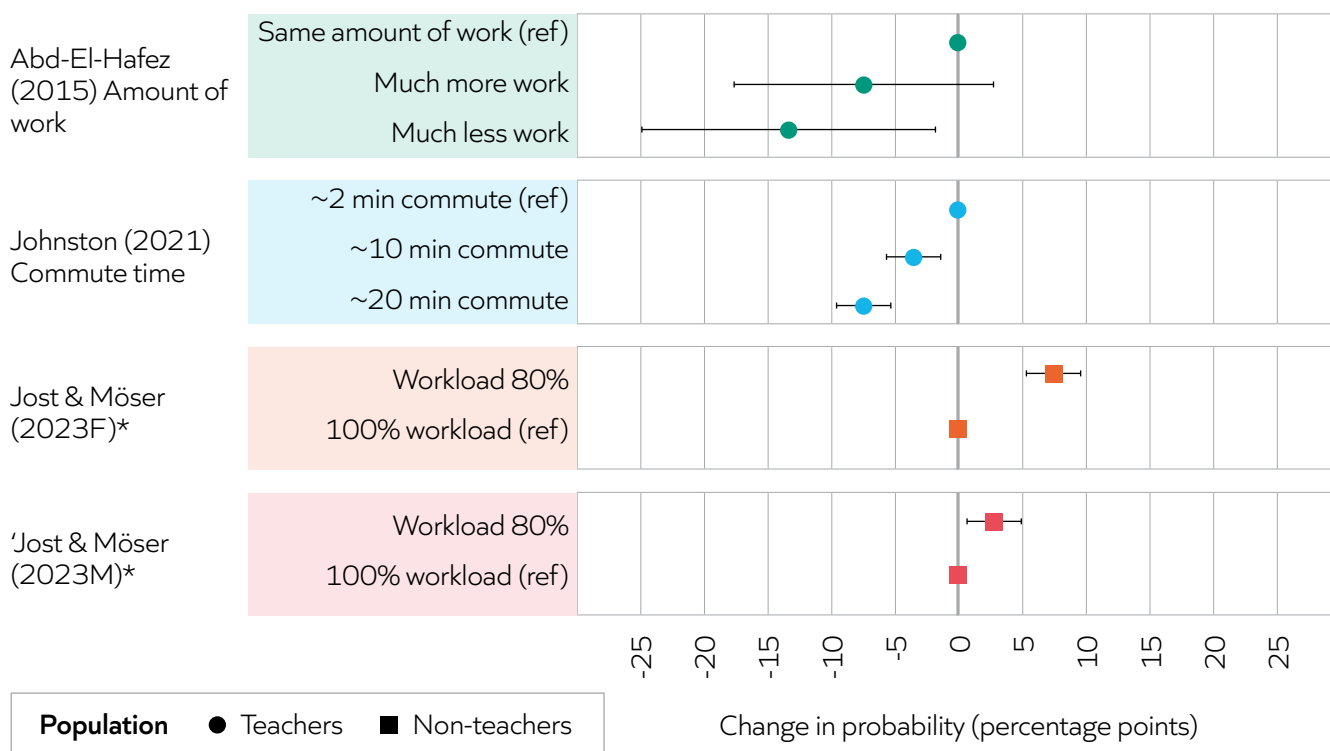
- * Lovison and Mo (2024.1) refers to data taken from a study done in 2020, and Lovison and Mo (2024.2) refers to data taken from a study done in 2022 with a different sample. Both sets of results were reported in Lovison and Mo (2024).
- ** Jost & Möser (2023F) refers to an experiment with a sample of females, Jost & Möser (2023M) refers to an experiment with a sample of males, both reported within this Jost & Möser (2023).
- *** Valet et al. (2021D) refers to a Dutch study, Valet et al. (2021G) refers to a German study, both reported within Valet et al. (2021).

Costs

Figure 5 shows all our results that provide a test of the claim that increased hours cause a decrease in the probability of choosing a job. There are four clusters of coefficients, two of which are from studies conducted with teachers and two of which are from studies conducted with non-teachers. Generally, the coefficients have the sign predicted by our theoretical model and this pattern holds across changes in travel time, changes in working time, or the potential to reduce working hours. The one exception to this is study A15, where both “less work” and “more work”

are associated with a reduced probability of choosing a job. When interpreting this finding, readers should note the very large confidence intervals on these estimates, suggesting high uncertainty due to small sample sizes in the underlying study. The best quantified findings (JM23) suggest that the effects of reduced hours are quite small, with a 20% reduction leading to a 3-7 pp increase in the probability of choosing a job. Looking across studies, respondents seem more averse to extra time travelling (J21) than the equivalent amount of extra time working (JM23).

Figure 5. The effect of hours on job choice

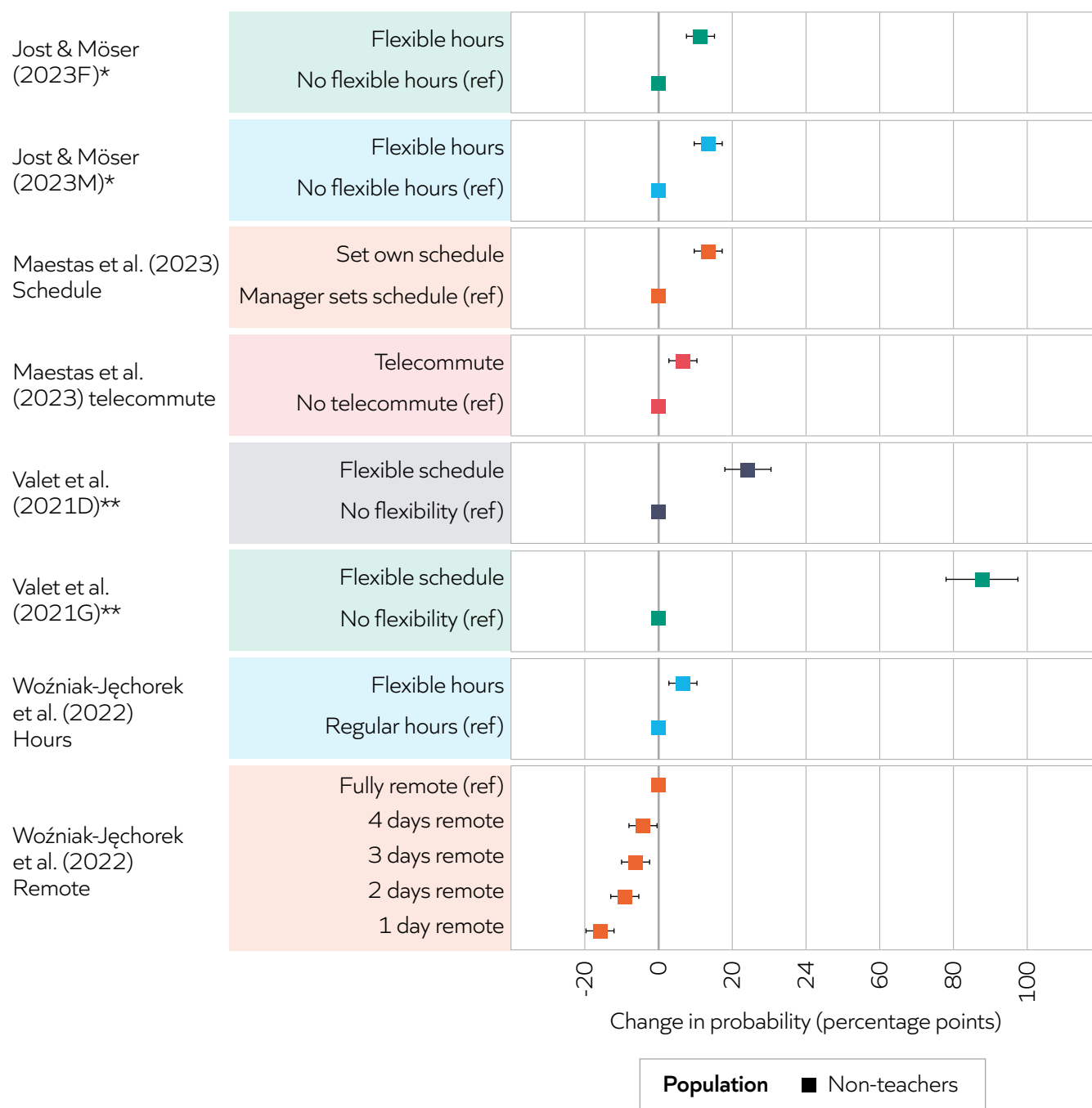


Notes Point estimates represent average marginal component effects, and interval estimates represent 95% confidence intervals. For further details about the sample in each study see Table 1.

- * Jost & Möser (2023F) refers to an experiment with a sample of females, Jost & Möser (2023M) refers to an experiment with a sample of males, both reported within this Jost & Möser (2023).

Figure 6 shows all our results that provide a test of the claim that increased flexibility causes an increase in the probability of choosing a job. There are eight clusters of coefficients, all of which are from studies conducted with non-teachers. All of the coefficients have the sign predicted by our theoretical model and are statistically significant. Three of the clusters relate to having a flexible schedule (control over when work occurs during the day). Increased schedule flexibility

has a universally positive effect on the probability of choosing a job. However, there is marked variation in the size of this effect, with the VS21 German sample once again producing larger effects. The last cluster (WU22) relates to working from home and indicates that additional days in the office (between one and four days per week) is associated with a 4-17 pp reduction in the probability of choosing a job.

Figure 6. The effect of flexibility on job choice

Notes Point estimates represent average marginal component effects, and interval estimates represent 95% confidence intervals. For further details about the sample in each study see Table 1.

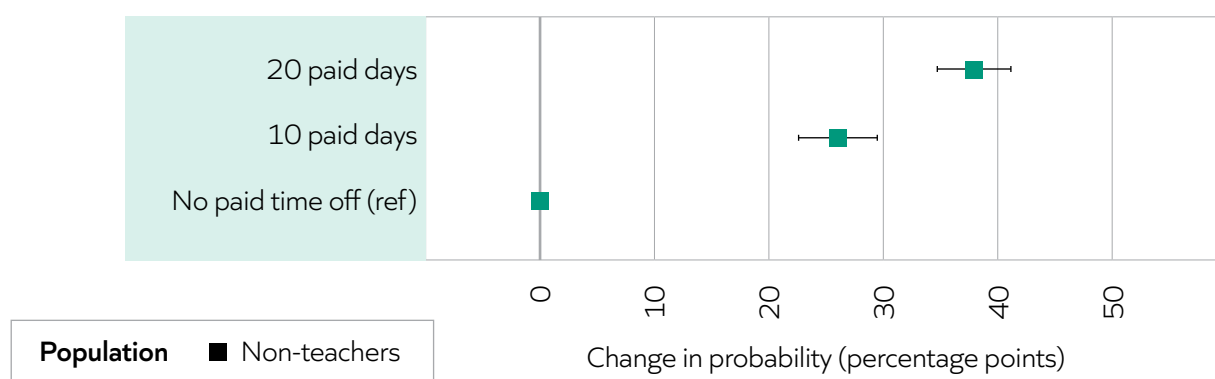
* Jost & Möser (2023F) refers to an experiment with a sample of females, Jost & Möser (2023M) refers to an experiment with a sample of males, both reported within this Jost & Möser (2023).

** Valet et al. (2021D) refers to a Dutch study, Valet et al. (2021G) refers to a German study, both reported within Valet et al. (2021).

Figure 7 shows all our results that provide a test of the claim that increased leave causes an increase in the probability of choosing a job. All of the coefficients are from one study, conducted with non-teachers (M23). All of the coefficients have the sign predicted by our

theoretical model and are statistically significant. Increasing the number of days paid leave from 10 to 20 per year (in a US sample) leads to a 12 pp increase in the probability of choosing a job.

Figure 7. The effect of paid leave on job choice



Notes Point estimates represent average marginal component effects, and interval estimates represent 95% confidence intervals. For further details about the sample in each study see Table 1.

Within-study comparisons of preferences

One aim of this research is to provide some insight into which of the influences on job choice are more important. This can be done by comparing the size of the effects of different attributes. Doing this across studies potentially introduces confounders related to sample characteristics, for example teachers or general adult respondents, or country. We therefore restrict ourselves to within-study comparisons. That is, we compare the size of the effects of pairs of attributes within a given study, thus holding the sample fixed. There are many such comparisons in our data, so we have selectively summarised some of what we judge to be the most policy-relevant in Table 2.

The first row of the table focuses on a study conducted with a convenience sample of teachers in the USA (JM21). The study finds that a 6% increase in salary (from \$48,000 to \$51,000) leads to 25 pp increase in the probability of choosing a job, but an increase in pension contributions worth 10% of the current salary only leads to a 7 pp increase in the probability of choosing a job. By linearly scaling up the

effect of a 6% increase in salary to make it equivalent in size to the 10% increase in pensions, it can be inferred that these teachers place around five times more weight (37 pp versus 7 pp) on an increase in compensation today compared to the same increase in compensation upon retirement.

The second row of the table focuses on a study conducted among a representative general adult population in Holland (VST21). The study finds that moving from 'average' to 'slightly above average' salary increases the probability of choosing a job by 8 pp, as does moving from a job with 'no training' to 'job-specific training'. This implies that people place equal weight on a modest salary increase and gaining access to job-specific training. Finally, the third row of the table focuses on a study conducted with a representative sample of adults in the USA. The study finds that participants place equal weight on increasing paid leave by ten days (from ten to 20) and a 7% pay rise.

Table 2. Within-study comparisons of attributes' influence on job choice

Study	Attributes	Change in value	Change in choice	Relative weight
JS21 Teachers USA	Salary	10% increase	37 pp increase	Five times more weight on increased income now than income on retirement
	Pension	10% increase	7 pp increase	
VST21 Adults Holland	Salary	"Average" to "slightly above average"	Both 8 pp increase	Equal weight
	Training	"No training" to "job-specific training"		
M23 Adults USA	Paid leave	An extra 10 days	NA	Indifferent between gaining an extra ten days paid leave and a 7% pay rise

Discussion

Many nations face serious shortages of teachers (OECD, 2019). Over the last two decades, researchers have responded to this problem by conducting a wide range of research on this topic (see Nguyen et al., 2023) which has generated a long and somewhat disjointed list of putative influences on recruitment and retention. Indeed, the accumulated weight of research in this area now poses a challenge for those looking to make sense of this evidence. How do these different influences relate to each other? Are some more important than others? We set out to synthesise this literature to help those – including policymakers and school leaders – looking to better understand and address teacher shortages.

In line with this, the primary contribution of this paper has been to provide a unified model of why people choose to enter and exit teaching. This model draws on and elaborates an existing interdisciplinary model of job choice and tailors it to the choice to become (or remain) a teacher, thus providing a coherent theoretical framework. The second contribution of the paper has been to empirically test this model using a systematic review of survey experiments – a research design that is uniquely suitable for providing a holistic test of the causal claims embedded in the model. A third and final contribution of the paper has been to summarise several pairwise comparisons of the influence of different job attributes on job choice. In sum, the paper provides an empirically validated synthesis of what matters most for the recruitment and retention of teachers.

Implications

The model has a number of novel implications for policy and practice. First, existing accounts of why people become or remain teachers tend to strongly emphasise intrinsic or altruistic motives, often on the basis of data collected from those already in the profession (Fray & Gore, 2018; See et al., 2022). Our findings support the importance of intrinsic rewards (see Figure 3 and Figure 4). However, they also clearly demonstrate the importance of extrinsic incentives such as pay (Figure 1) and hours (Figure 5) for both existing teachers and potential new recruits to teaching. Our model therefore serves to qualify the view that intrinsic incentives should be considered the most important influence on entry to, or remaining in, the profession (cf. Fray & Gore, 2018). It is notable, for example, that existing marketing campaigns in England tend to emphasise the intrinsic rewards of teaching. Our findings suggest that a more balanced approach should be taken, emphasising the extrinsic rewards, such as relatively high starting salary, alongside the many intrinsic rewards.

A second set of novel implications comes from our focus on survey experiments, which provide causal evidence in areas where there is currently little in the way of impact evaluations. For example, we are only aware of one quasi-experimental study looking at the effect of offering teacher professional development (training) on recruitment or retention of teachers (Allen & Sims, 2017). However, we find consistent evidence (based on data from Holland and Germany) that offering professional development makes teaching more attractive to both existing teachers and potential entrants (Figure 4). Indeed, evidence from within-study comparisons suggests that respondents are willing to sacrifice salary in return for additional job-specific training (Table 2). Research has shown that high-quality teacher professional development can improve teaching and learning (Sims et al., 2024). The evidence presented here suggests that there is an additional benefit in terms of recruitment and retention in the profession.

As with training, there is currently very little evidence from evaluations on the effect of flexible working arrangements on recruitment to, or retention in, teaching (Harland et al., 2023). However, we find consistent evidence that offering flexible hours, remote working and additional paid leave makes jobs more attractive. Where possible, schools should look to provide such benefits to recruit and retain teachers. Schools in England are increasingly experimenting with a range of additional flexible working arrangements. For example, part-time working, job-share arrangements and clustering teachers' planning, preparation and assessment (PPA) time on a single day so that it can be done from home (Adams et al., 2023). Indeed, some schools in England are now moving to nine-day working fortnights, which amounts to 20 extra days paid leave per year (Cumiskey, 2024a). Our results (based on data from the US) suggest an extra ten days leave can be worth as much as a 7% pay rise (Table 2).

A fourth policy implication of the paper relates to the structure of teacher pay. Compared to other graduate occupations, teachers receive a disproportionately large amount of their total compensation in retirement, as opposed to during their working years (Dolton et al., 2019). This 'backloading' of teacher pay may be an inefficient use of public money. Our results suggest (based on data from the US) that teachers place around five times more weight on a percentage point increase in income now than on a percentage point increase in income in retirement (Table 2). It should be noted that other studies, which did not meet our inclusion criteria, have estimated this figure to be slightly lower: 1.6-2 times more weight on an increase now compared to in retirement (Zuccollo, 2025; Burge & Phillips, 2021). Regardless, these findings all suggest that, where feasible, shifting compensation earlier in the career would likely improve recruitment and retention of teachers.

Limitations

The above findings and implications should, of course, be interpreted in light of the limitations of this research. While we found consistent empirical support for all eight of the terms in our model, we cannot rule out that there are other important influences on job choice that are not included in the model. Plausible candidates include work intensity, job security and occupational prestige, among others. As with all theoretical frameworks, there is a trade-off to be made between specificity (including more terms) and parsimony (limiting the number of terms). Looking through the list of attributes in our survey experiments that could not be mapped onto the terms in our model, we were somewhat reassured by the observation that there were no attributes that repeatedly occurred (see Appendix C). Having said that, it may be worth expanding the model in future, as and when new evidence emerges.

A second set of limitations relates to our use of survey experiments to test the model. As with all research designs, survey experiments have their own limitations. Foremost among these is that they involve only hypothetical choices between jobs, and we cannot

rule out that people would behave differently in real-life choice tasks. Having said that, it is reassuring that preferences measured in job-choice survey experiments are predictive of subsequent real-world job choice behaviour (Maestas et al., 2023; Viano et al., 2021; Wiswall & Zafar, 2018). Survey experiments are also potentially prone to the issue of 'masking', in which respondents assume that the presence of a certain job attribute implies the presence of other unstated attributes. For example, high pay may be taken to indicate high hours if hours are not directly manipulated in the study. It is unclear to what extent this is a problem with the individual survey experiments in our sample. However, it is reassuring to note that the direction of effects for given job attributes are highly consistent across the studies in our sample.

A third limitation relates to the choices we have made when mapping job attributes to the terms in our model. For example, we had to combine mastery and relatedness in a single graph (Figure 4). One of the attributes (collegial working atmosphere) would seem to provide a clean test of relatedness. By contrast, none of the attributes relate entirely to mastery.

This is because the attributes related to training all involve working with colleagues to improve practice. The most we can say is that mastery and/or relatedness improve the attractiveness of teaching. Having said that, it is clear from the individual coefficients in this graph that the provision of training does improve the attractiveness of a job. Likewise, some of the attributes

may seem somewhat removed from the reality of teaching. For example, work tracking software (Figure 3) does not feature in many schools. However, it is theoretically aligned with the idea of autonomy and the meaning of work, which is why we have included it in this part of our analysis.

Conclusion

This paper developed and validated a unified model which revealed that income, meaning and costs influence whether or not people enter (and remain in) teaching. The survey experiments summarised here suggest that the evidence connecting professional development and flexible working with the decision to teach is stronger than has previously been recognised. The findings also suggest a range of low-cash-cost policies that can be used to improve teacher supply, such as reducing the back-loading of teacher pay,

reforming the structure and length of teachers' working week, and increasing the emphasis in marketing communication on extrinsic rewards, such as the additional paid leave for which teachers qualify. While implementing these policies may involve logistical or managerial challenges, the fact that some schools are already doing them suggests they may well be feasible. More generally, the model provides an elegant synthesis of the now sprawling empirical literature on why people choose to teach or not.

References

- Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2022). Work that can be done from home: Evidence on variation within and across occupations and industries. *Labour Economics*, 74, 102083.
- Adams, L., Coburn-Crane, S., Sanders-Earley, A., Keeble, R., Harris, H., Taylor, J., & Taylor, B. (2023). *Working lives of teachers and leaders-wave 1*. Department for Education.
- Abd-El-Hafez, A. K. (2015). *Alternative-specific and case-specific factors involved in the decisions of Islamic school teachers affecting teacher retention: A discrete choice experiment*. Long Island University.
- Allen, R., & Sims, S., (2017). Improving Science Teacher Retention: do National STEM Learning Network professional development courses keep science teachers in the classroom? Wellcome Trust.
- Angelici, M., Del Boca, D., Oggero, N., Profeta, P., Rossi, M. C., & Villosio, C. (2022). Pension information and women's awareness. *The Journal of the Economics of Ageing*, 23, 100396.
- Arcidiacono, P., Hotz, V. J., Maurel, A., & Romano, T. (2014). *Recovering ex ante returns and preferences for occupations using subjective expectations data (No. w20626)*. National Bureau of Economic Research.
- Ariely, D., Kamenica, E., & Prelec, D. (2008). Man's search for meaning: The case of Legos. *Journal of Economic Behavior & Organization*, 67(3-4), 671-677.
- Bacolod, M. P. (2003). Do alternative opportunities matter? The role of female labor markets in the decline of teacher supply and teacher quality, 1940–1990. Department of Economics, University of California, Irvine (September).
- Bansak, K., Hainmueller, J., Hopkins, D. J., Yamamoto, T., Druckman, J. N., & Green, D. P. (2021). Conjoint survey experiments. *Advances in Experimental Political Science*, 19, 19-41.
- Barrero, J. M., Bloom, N., & Davis, S. J. (2023). The Evolution of Work from Home. *Journal of Economic Perspectives*, 37(4), 23–49. <https://doi.org/10.1257/jep.37.4.23>
- Bartling, B., Fehr, E., & Schmidt, K. M. (2013). Discretion, productivity, and work satisfaction. *Journal of Institutional and Theoretical Economics*, 4-22.
- Battaglio, R. P., Belle, N., & Cantarelli, P. (2022). Self-determination theory goes public: experimental evidence on the causal relationship between psychological needs and job satisfaction. *Public Management Review*, 24(9), 1411-1428.
- Beck, J. L. (2017). The weight of a heavy hour: Understanding teacher experiences of work intensification. *McGill Journal of Education*, 52(3), 617-636.
- Benhenda, A., & Sims, S. (2022). The effect of financial incentives on the retention of shortage-subject teachers: evidence from England.
- Benz, M., & Frey, B. S. (2008). Being independent is a great thing: Subjective evaluations of self-employment and hierarchy. *Economica*, 75(298), 362-383.
- Boyd, D., Grossman, P., Ing, M., Lankford, H., Loeb, S., & Wyckoff, J. (2011). The influence of school administrators on teacher retention decisions. *American Educational Research Journal*, 48(2), 303– 333.

- Bryce, A. (2018).** *Finding meaning through work: eudaimonic well-being and job type in the US and UK* (No. 2018004). Sheffield Economic Research Paper Series.
- Bueno, C., & Sass, T. R. (2024).** The Design of Bonus Schemes and Their Impact on Teacher Recruitment and Retention: The Case of Georgia's Bonus Program for Early-Career Math and Science Teachers. Available at SSRN 4926708.
- Burge, P., Lu, H., and Phillips, W. D. (2021).** *Understanding Teaching Retention: Using a discrete choice experiment to measure teacher retention in England*. RAND.
- Cansoy, R. (2019).** The relationship between school principals' leadership behaviours and teachers' job satisfaction: A systematic review. *International Education Studies*, 12(1), 37. <https://doi.org/10.5539/ies.v12n1p37>
- Cassar, L., & Meier, S. (2018).** Nonmonetary Incentives and the Implications of Work as a Source of Meaning. *Journal of Economic Perspectives*, 32(3), 215–238. <https://doi.org/10.1257/jep.32.3.215>
- Carpenter, J., & Gong, E. (2016).** Motivating agents: How much does the mission matter?. *Journal of Labor Economics*, 34(1), 211-236.
- Chagares, A. M. (2016).** *Experienced teachers' stated preferences regarding transferring from well-performing to low-performing schools: A discrete choice experiment*. Long Island University.
- Chandler, D., & Kapelner, A. (2013).** Breaking monotony with meaning: Motivation in crowdsourcing markets. *Journal of Economic Behavior & Organization*, 90, 123-133.
- Chinn, S. (2000).** A simple method for converting an odds ratio to effect size for use in meta-analysis. *Statistics in Medicine*, 19(22), 3127-3131.
- CooperGibson Research. (2018).** Factors affecting teacher retention: Qualitative investigation. Research report - [Factors affecting teacher retention: qualitative investigation](#)
- Creagh, S., Thompson, G., Mockler, N., Stacey, M., & Hogan, A. (2023).** Workload, work intensification and time poverty for teachers and school leaders: A systematic research synthesis. *Educational Review*, 1-20.
- Cumiskey, L. (2024a, April 8).** United Learning to offer alternative pension and boost starter salaries to £45k. Schools Week. <https://schoolsweek.co.uk/nine-day-fortnight-proves-a-big-hit-with-dixons-staff/>
- Cumiskey, L. (2024b, July 11).** Nine-day fortnight proves a big hit with Dixons staff. Schools Week. [Pension scheme alternative to be offered by United Learning](#)
- De Menezes, L.M. and Kelliher, C. (2011).** Flexible working and performance: a systematic review of the evidence for a business case. *International Journal of Management Reviews*. Vol 13, No 4. pp 452–74
- Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017).** Self-Determination Theory in Work Organizations: The State of a Science. *Annual Review of Organizational Psychology and Organizational Behavior*, 4(1), 19–43. <https://doi.org/10.1146/annurev-orgpsych-032516-113108>
- Deci, E. L., & Ryan, R. M. (2000).** The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Dee, T. S., & Goldhaber, D. (2017).** Understanding and addressing teacher shortages in the United States. *The Hamilton Project*, 5, 1-28.
- Department for Education. (2023).** Flexible working in schools. <https://www.gov.uk/government/publications/flexible-working-in-schools/flexible-working-in-schools--2>

Department for Education (2024). School workforce in England 2023. School workforce in England. Reporting year 2023 - Explore education statistics - GOV.UK (explore-education-statistics.service.gov.uk)

Dolton, P., & Chung, T. P. (2004). The rate of return to teaching: how does it compare to other graduate jobs?. *National Institute Economic Review*, 190, 89-103.

Dolton, P., Samek, L., & She, P., (2019). Total reward and pensions in the uk by occupation in the public and private sectors. National Institute of Social and Economic Research.

Feng, L. (2020). Compensating differentials in teacher labor markets. In *The economics of education* (pp. 415-430). Academic Press.

Feng, L., & Sass, T. R. (2018). The impact of incentives to recruit and retain teachers in "hard-to-staff" subjects. *Journal of Policy Analysis and Management*, 37(1), 112-135.

Fernet, C., Austin, S., Trépanier, S. G., & Dussault, M. (2013). How do job characteristics contribute to burnout? Exploring the distinct mediating roles of perceived autonomy, competence, and relatedness. *European Journal of Work and Organizational Psychology*, 22(2), 123-137.

Finan, F., Olken, B. A., & Pande, R. (2017). The personnel economics of the developing state. *Handbook of economic field experiments*, 2, 467-514.

Fray, L., & Gore, J. (2018). Why people choose teaching: A scoping review of empirical studies, 2007–2016. *Teaching and Teacher Education*, 75, 153-163.

Gough, D., Thomas, J., & Oliver, S. (2012). Clarifying differences between review designs and methods. *Systematic Reviews*, 1(1), 28. <https://doi.org/10.1186/2046-4053-1-28>

Gosnell, G. K., List, J. A., & Metcalfe, R. D. (2020). The impact of management practices on employee productivity: A field experiment with airline captains. *Journal of Political Economy*, 128(4), 1195-1233.

Grant, A. M. (2008). The significance of task significance: Job performance effects, relational mechanisms, and boundary conditions. *Journal of Applied Psychology*, 93(1), 108.

Green, F. (2021). British teachers' declining job quality: Evidence from the skills and employment survey. *Oxford Review of Education*, 47(3), 386-403.

Hainmueller, J., & Hopkins, D. J. (2014). The hidden American immigration consensus: A conjoint analysis of attitudes toward immigrants. *American journal of political science*, 59(3), 529-548.

Hainmueller, J., Hopkins, D. J., & Yamamoto, T. (2014). Causal inference in conjoint analysis: Understanding multidimensional choices via stated preference experiments. *Political Analysis*, 22(1), 1-30.

Harland, J., Bradley, E., & Worth, J. (2023). *Understanding the factors that support the recruitment and retention of teachers: Review of flexible working approaches*. Education Endowment Foundation.

Jerrim, J. (2024). The link between school leadership, staff job satisfaction and retention. Longitudinal evidence from England.

Jerrim, J., & Sims, S. (2019). The Teaching and Learning International Survey (TALIS) 2018. [TALIS 2018 research](https://www.talisinternational.com/research)

Johnston, A. C. (2021). Preferences, selection, and the structure of teacher pay. Available at SSRN 3532779.

Jost, M., & Möser, S. (2023). Salary, flexibility or career opportunity? A choice experiment on gender specific job preferences. *Frontiers in Sociology*, 8, 1154324.

- Koedel, C., & Podgursky, M. (2016). Teacher pensions. In *Handbook of the Economics of Education* (Vol. 5, pp. 281-303). Elsevier.
- Lentini, V., Gimenez, G., & Valbuena, J. (2024). Teachers' preferences for incentives to work in disadvantaged districts: A discrete choice experiment in Costa Rica. *Economic Analysis and Policy*, 82, 831-845.
- Levatino, A., Ferrer-Esteban, G., & Verger, A. (2024). Unveiling teachers' work preferences: A conjoint experiment on the implications of school governance reform across three countries. *Teaching and Teacher Education*, 146, 104631.
- Lovison, V. S., & Hyunjung Mo, C. (2024). Investing in the teacher workforce: Experimental evidence on teachers' preferences. *American Educational Research Journal*, 61(1), 108-144.
- Kraft, M. A., Marinell, W. H. and Shen-Wei Yee, D. (2016). School organizational contexts, teacher turnover, and student achievement: evidence from panel data. *American Educational Research Journal*, 53 (5), 1411–1449. <https://doi.org/10.3102/0002831216667478>
- Ladd, H. F. (2011). Teachers' perceptions of their working conditions: How predictive of planned and actual teacher movement? *Educational Evaluation and Policy Analysis*, 33(2), 235–261.
- Liu, Y., Bellibaş, M. Ş., & Gümüş, S. (2021). The effect of instructional leadership and distributed leadership on teacher self-efficacy and job satisfaction: mediating roles of supportive school culture and teacher collaboration. *Educational Management Administration & Leadership*, 49(3), 430-453. <https://doi.org/10.1177/1741143220910438>
- LiVecchi, A. J. (2017). The Opportunity Cost of Teaching for Secondary STEM Instructors. *The Opportunity Cost of Teaching for Secondary STEM Instructors*
- Lovison, V. S., & Hyunjung Mo, C. (2024). Investing in the teacher workforce: Experimental evidence on teachers' preferences. *American Educational Research Journal*, 61(1), 108-144.
- Maisuria, A., Roberts, N., Long, R., and Danechi, S. (2023). Teacher Recruitment and Retention in England. House of Commons Library. Available at: <https://researchbriefings.files.parliament.uk/documents/CBP-7222/CBP-7222.pdf>
- Mihaly, K., & Podgursky, M. (2023). Teacher pensions: An overview. *Educational Researcher*, 52(2), 57-62.
- Nguyen, D., See, B. H., Brown, C., & Kokotsaki, D. (2023). Reviewing the evidence base on school leadership, culture, climate and structure for teacher retention. Education Endowment Foundation. <https://durham-repository.worktribe.com/output/1874199>
- OECD (2019). TALIS 2018 Results (Volume 1). Annex C Table I.3.63.
- Perryman, J., & Calvert, G. (2020). What motivates people to teach, and why do they leave? Accountability, performativity and teacher retention. *British Journal of Educational Studies*, 68(1), 3-23.
- Perryman, J. (2022). *Teacher Retention in an Age of Performative Accountability: Target culture and the discourse of disappointment*. Routledge.
- Ripoll, G., Ballart, X., Hernández, E., & Vandenabeele, W. (2023). 'It's a match!': a discrete choice experiment on job attractiveness for public service jobs. *Public Management Review*, 1-35.
- Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in Organizational Behavior*, 30, 91–127. <https://doi.org/10.1016/j.riob.2010.09.001>
- Roy, A. D. (1951). Some thoughts on the distribution of earnings. *Oxford Economic Papers*, 3(2), 135–146. <https://doi.org/10.1093/oxfordjournals.oep.a041827>

See, B. H., Munthe, E., Ross, S. A., Hitt, L., & El Soufi, N. (2022). Who becomes a teacher and why?. *Review of Education*, 10(3), e3377.

Sims, S. (2020). Modelling the relationships between teacher working conditions, job satisfaction and workplace mobility. *British Educational Research Journal*, 46(2), 301-320. <https://doi.org/10.1002/berj.3578>

Skaalvik, E. M., & Skaalvik, S. (2020). Teacher burnout: relations between dimensions of burnout, perceived school context, job satisfaction and motivation for teaching. A longitudinal study. *Teachers and Teaching*, 26(7-8), 602-616.

Te Braak, P., Van Droogenbroeck, F., Minnen, J., & van Tienoven, T. P. (2024). Dissecting the effects of workload and work intensification on teacher job satisfaction: A time-diary approach to teachers' working time allocation. In *Teaching and Time Poverty* (pp. 127-145). Routledge.

UNESCO & International Task Force on Teachers for Education 2030. (2024). Global report on teachers: Addressing teacher shortages and transforming the profession.

Valet, P., Sauer, C., & Tolsma, J. (2021). Preferences for work arrangements: A discrete choice experiment. *PloS one*, 16(7), e0254483.

Viano, S., Pham, L. D., Henry, G. T., Kho, A., & Zimmer, R. (2021). What teachers want: School factors predicting teachers' decisions to work in low-performing schools. *American Educational Research Journal*, 58(1), 201-233.

Voils, C. I., Sandelowski, M., Barroso, J., & Hasselblad, V. (2008). Making Sense of Qualitative and Quantitative Findings in Mixed Research Synthesis Studies. *Field Methods*, 20(1), 3-25. <https://doi.org/10.1177/1525822X07307463>

Worth, J., & Faulkner-Ellis, H. (2021). Teacher Labour Market in England: Annual Report 2021. *National Foundation for Educational Research*.

Woźniak-Jęchorek, B., d'Urso, A. S., & Thurston, C. N. (2022). Remote work preferences of American employees: evidence from conjoint survey experiment.

Yates, W., Lister, J., & Pfitzner, S. (2024). Tomorrow's teachers: A roadmap to get Gen Z into the classroom. Teach First. [Tomorrows teachers Teach First report.pdf](#)

Zucollo, J. (2025). *What pensions do teachers want?* Education Policy Institute.

Appendix

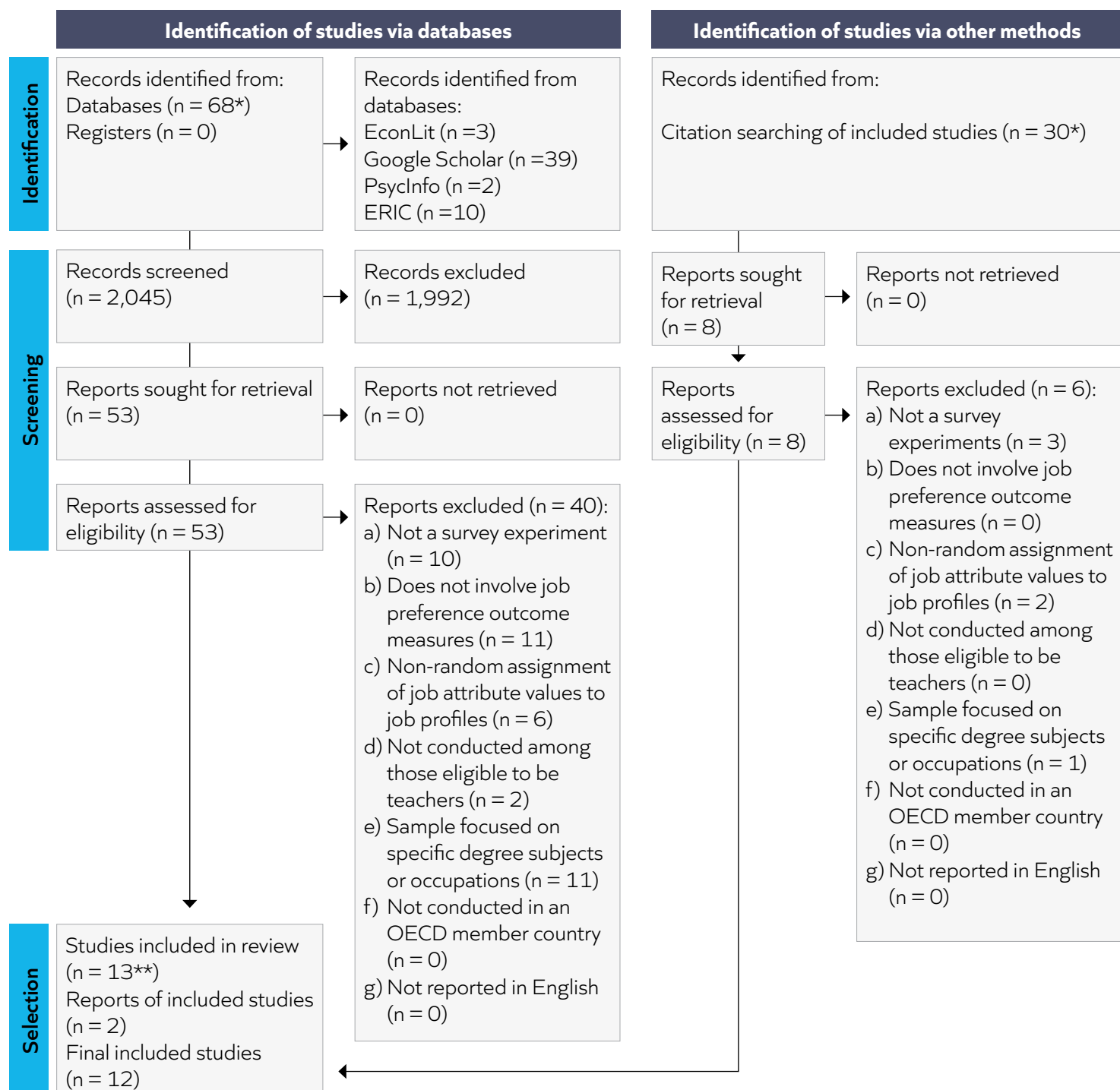
Appendix A.

Search term used to identify studies that had the potential to be included in this review.

("teacher" OR "student" OR "worker" OR "employee") AND ("discrete choice experiment" OR "conjoint experiment" OR "survey experiment") AND ("salary" OR "pay" OR "pension" OR "meaning" OR "autonomy" OR "consultation" OR "mastery" OR "training" OR "professional development" OR "relatedness" OR "collaboration" OR "flexible" OR "work from home" OR "paid leave" OR "annual leave" OR "time off" OR "job preferences" OR "job characteristics")

Appendix B.

Prisma diagram of included study identification and selection from systematic search.



'n' refers to the number of studies

* There were several duplicates identified across the four data bases which were deduplicated between identification and screening.

** 3 studies excluded further as data was uninterpretable.

Appendix C.

Attributes that could not be mapped onto our model and were, therefore, excluded from our analysis.

Study	Attribute measured by the study but excluded from our analysis
Abd-El-Hafez, (2015).	A lot less opportunities to practice Islam. A lot more opportunity to practice Islam. Much less prestige (academic quality of schools or prestige of non-school job). Much more prestige (academic quality of schools or prestige of non-school job).
Johnston, A. C. (2021).	60% of students from low-income backgrounds. 80% of students from low-income backgrounds. 100% of students from low-income backgrounds. 50% of students from minority backgrounds. 90% of students from minority backgrounds. Average achievement in 50th percentile. Average achievement in 66th percentile. Probationary period of 1 year. Probationary period of 2 years. Probationary period of 3 years. Renewable terms of 2 years. Renewable terms of 3 years.
Lentini, V., Gimenez, G., & Valbuena, J. (2024)	Teacher score increases for 'teaching'.
Levatino, A., Ferrer-Esteban, G., & Verger, A. (2024). [pooled results]	Struggling students.
Lovison, V. S., & Hyunjung Mo, C. (2024). [data from 2022 study 2.2]	Most students come from middle-income families. Most students come from high-income families. Student body are more than 50% white More than 50% of students scored proficient last year.
Maestas, et. al. (2023).	Team-based working, evaluate own work. Physical demands of job involve moderate physical activity. Physical demands of job involve sitting.

Study	Attribute measured by the study but excluded from our analysis
Ripoll, et. al. (2023)	Management job type. Private sector. Third sector. Permanent contract.
Valet, P., Sauer, C., & Tolsma, J. (2021). Dutch study	Reputation of the company is very good. Reputation of the company is average. Gender composition is about equal. Gender composition has more men. Permanent contract. 5-year contract.
Valet, P., Sauer, C., & Tolsma, J. (2021). German study	Reputation of the company is very good. Reputation of the company is average. Permanent contract. 5-year contract.
Woźniak-Jęchorek, B., d'Urso, A. S., & Thurston, C. N. (2022).	Professional development opportunities to socialise with coworkers. Professional development mentoring. Professional development incentive trip. Professional development annual retreats.

1 For accessibility, we use a word equation instead of a symbolic equation. However, the rest of the notation remains the same. More sophisticated versions of the model allow for individuals to place different weights on each the components, but a central contention of the model is that everyone places some value on each of the components (Cassar & Meier, 2018). The 'mission' term from the original model has been folded into the 'autonomy' term here because 'mission' can be thought of as acting in accordance with one's own values. Since teaching is a graduate job in most countries, we replace the 'wage' and 'hours' terms with a single 'salary' term.

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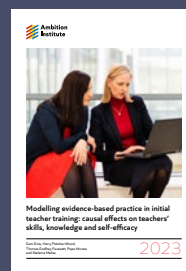
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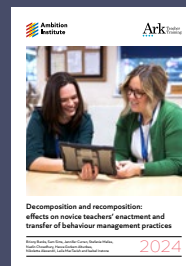


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Evidence is at the heart of what we do at Ambition Institute. Through our research we want to push forward our collective knowledge of effective professional development and share what works, to turn evidence into action. We aim to answer important questions faced by the sector, help teachers and leaders to address disadvantage, and show the impact of evidence-informed teaching.



Does adding modelling to professional development help to bridge the theory-practice gap? This research looked at whether video models helped initial teacher trainees to develop their retrieval practice skills.



This research explored whether breaking down (decomposing) and then recombining teaching practices into a different sequence of teaching (recomposing) helped initial teacher trainees apply what they learnt to new contexts.