Education Development Trust

Assessing the potential to teach

Predicting later classroom practice from assessment centre activities: conclusions from a four-year study

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Overview

Teacher professional development is complex. Despite evidence from randomised controlled trials about key factors influencing this process,[1] and evidence about teacher professional growth,[2] there is little research about how abilities prior to initial teacher training (ITT) influence early classroom practice.

In England, many schools face teacher recruitment and retention challenges. The overall number of teachers qualified to teach in state schools has not kept pace with the increase in pupil numbers.[3] Teacher vacancy rates have also increased[4] as workload pressures intensify.[5]

The term 'assessment centre' describes a series of exercises used by employers to evaluate skills they cannot assess using traditional interviews. They may include behavioural activities and evaluation of interactions between candidates. At assessment centres, the word 'competence' applies to an area that observers score the candidate against and its associated rubric, e.g. ability to balance competing objectives. Systematic review[6] showed that, despite increased use of assessment centres in education,[7] no robust studies of their long-term effectiveness exist.

Finding ways to select candidates likely to find the challenges of teaching more aligned to their existing skills could have an important impact. We report the final analysis in a four-year study looking at the ability of the Future Teaching Scholars programme assessment centre to predict later practice. Building on previous reports,[8] we present final conclusions about the approach's predictive validity and the standards of teaching achieved by participants at the end of their first term of teaching.

As found at earlier analysis points,[9] classroom simulation was a better predictor of teaching ability than other selection activities. Once in teaching, participants who passed the assessment centre were on average teaching at a level that was one academic term or more in advance of expectations.

> **Classroom simulation was the best predictor of later classroom practice.**
>
> **Participants demonstrated classroom practice one term in advance of expectations.**

[1] Sims et al. (2021)
[2] Clarke and Hollingsworth (2022)
[3] Long and Danechi (2022)
[4] Ibid.
[5] Churches and Fitzpatrick (2023, in press)
[6] Churches and Lawrance (2020): Australian Education Index (1977 – current), British Education Index (1975 – current), ERIC (1966 – current), Google Scholar, Web of Science. Search terms: education; assessment centre; recruitment; selection; teacher training. Inclusion criteria: quantitative; peer reviewed.
[7] e.g. Fast Track Teaching assessment centre [2001 to 2009] (Churches, Hutchinson and Jones, 2010; Jones, 2008); Teach First assessment centre [2002 to present] (McConney, Price and Woods-McConney, 2012).
[8] Churches and Lawrence (2020); Education Development Trust (2021); Churches and Penfold (2021).
[9] Ibid.

The teacher training programme and its selection method

The Department for Education's Future Teaching Scholars programme is a six-year route into teaching mathematics or physics in secondary schools in England. It began in 2015 and is due to conclude in 2025.

During an undergraduate degree, participants received school experiences, online learning, and face-to-face training. In year four, they joined ITT as an employed unqualified teacher. Following attainment of qualified teacher status (QTS), in collaboration with a School-Centred Initial Teacher Training centre (SCITT), they receive two further years of support.[10] The programme recruited four cohorts of teachers between 2015 and 2018 but is no longer recruiting.

Future Teaching Scholars Six-Year Programme

Undergraduate degree	Teacher training	Further support
Years 1-3	Year 4	Years 5-6
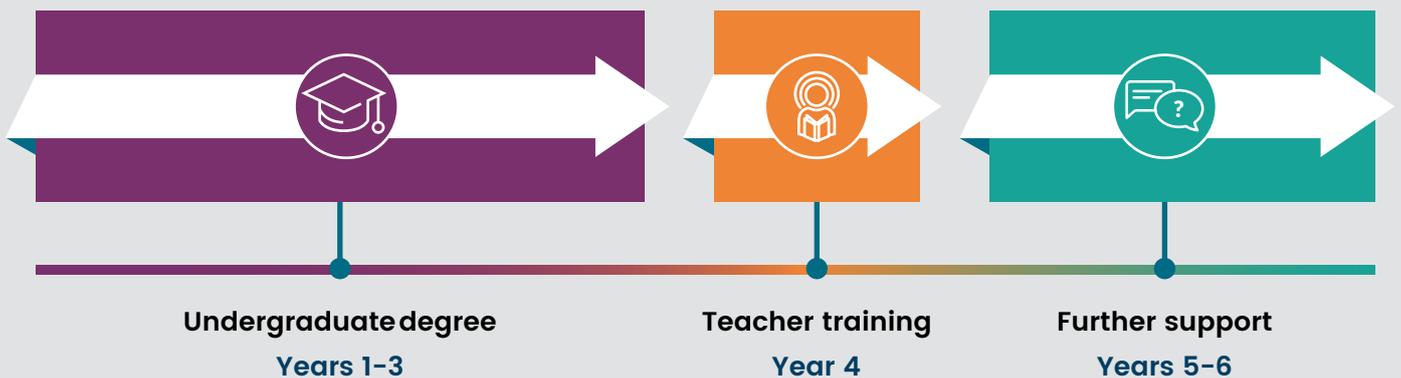
An assessment centre was used as part of the selection process. Most participants attended the assessment centre whilst completing their A Levels, three years before beginning ITT. To meet the criteria to attend the assessment centre, candidates needed to have 'predicted' (or have obtained) A-Level grades of B or higher in either mathematics, physics, or both. Those that passed the assessment centre were then offered a provisional place on the programme, pending taking up a place on a mathematics- or physics-related degree in England.

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[10] Successful candidates also receive a grant of £15,000 during their undergraduate degree in three installments. This grant must be paid back in staged amounts if a candidate leaves the programme or does not stay in teaching for three years including their ITT year.

ASSESSING THE POTENTIAL TO TEACH

At the assessment centre, assessors evaluated 12 competencies across four activities:

» Competence-based interview.
» Classroom simulation in which candidates teach a short lesson to two serving teachers from an Ofsted-rated outstanding Teaching School.[11]
» Reflective discussion about the teaching they just completed.
» Group problem-solving in which observers scored interactions with other candidates.[12]

In the classroom simulation, two serving teacher observers roleplayed learners interrupting or finding it hard to understand. This aimed to measure innate 'mental set' prior to teacher training.[13] Specifically, a candidate's 'with-it-ness' (ability to monitor/quickly identify potential problems and act) and 'emotional objectivity' (staying calm, not getting angry or frustrated). Together, these are known to have a positive effect on reducing classroom management issues.[14] [15] If the assessment centre was effective, it was hypothesised that this activity would best predict later classroom performance.

Simulated Classroom Role Play
Observed by expert serving practitioners

'With-it-ness' | Future classroom management ability | Emotional objectivity

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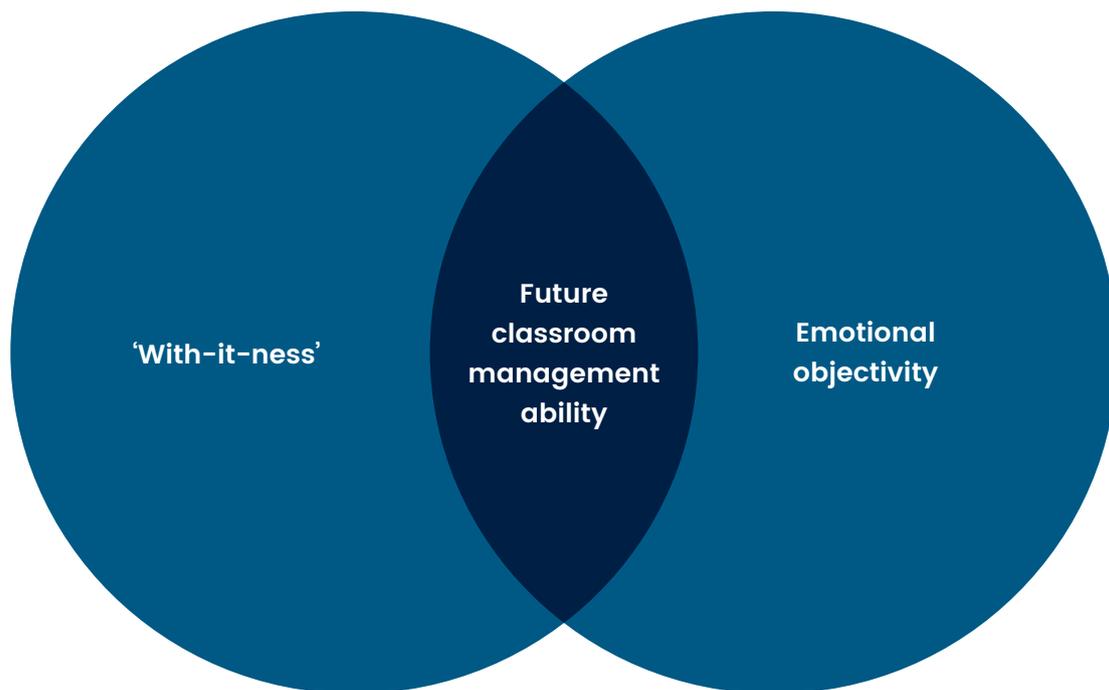
[11] The Teaching School initiative is one in which the highest Ofsted-rated schools in England can take on wider school improvement roles in their region (usually through a Teaching School Alliance) and carry out and accredit initial teacher training.
[12] A matrix illustrating which competencies are assessed in each activity can be found in Appendix A.

[13] Marzano, Marzano and Pickering (2003)
[14] d = -1.29
[15] A film of the classroom simulation created to help train assessors using actors is available here: www.youtube.com/watch?v=9HQMZwrZae4

Our approach

Measuring teacher effectiveness is challenging. Although lesson observation can be useful in teacher development and performance improvement,[16] it is hard to conduct effectively.[17] Observation may not be enough to measure teacher effectiveness[18] as even if individual lesson judgements are accurate, there may be an inaccurate overall impression.[19] Experiments[20] using lesson videos of 'effective' and 'ineffective' teachers found that despite high agreement and consistency of judgement, there was low success in identifying which group the teachers belonged to (with less than 1% identified accurately as 'ineffective').

Ensuring consistency of judgements to achieve reliability can also be difficult,[21] particularly where the observation tool items require too much interpretation or non-experts conduct observations.[22] Expert observers, in contrast, become sensitive to, and notice, areas of practice others may miss.[23]

Two other issues are worth noting. Firstly, despite the importance of paying attention to subject teaching issues,[24] there are few subject-specific instruments. Secondly, we must consider the validity of a snapshot rather than extended observation. Although there is evidence to support the effectiveness of a short observation in predicting the quality of an overall lesson (60% accuracy),[25] the risk of an overall inaccurate impression remains.[26]

To address such challenges, Education Development Trust has developed a classroom observation tool known as the Teacher Practice Tool (TPT).[27] In this study, to assess participants' teaching, expert teacher trainers[28] conducted a lesson observation using this approach at the end of the teachers' first term employed in a school. Observers combined this data with other observations and knowledge of the teachers' practice.

We then conducted a statistical analysis to assess the extent to which candidate competency scores at the assessment centre were associated with later classroom practice, using Spearman's rank order correlation coefficient.[29] This was used to assess whether higher scores at the assessment centre predicted higher scores for classroom teaching on each of the individual items of the TPT.

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[16] Pianta and Hamre (2009)
[17] Coe (2014)
[18] Penfold and Childs (2019)
[19] Kane and Staiger (2012)
[20] Strong et al. (2011)
[21] Ingram et al. (2018)
[22] Coe (2014)
[23] Grant et al. (1998)
[24] Penfold and Childs (2019)
[25] Ho and Kane (2013)
[26] Kane and Staiger (2012)

[27] 12-items grouped into five areas: creating a positive climate, structuring and organising lessons, interactive teaching that encourages dialogue, providing well-designed learning tasks, and assessing learning continuously. Individual items break down into quality indicators describing practice at distinct levels of maturity.
[28] Serving teachers delivering ITT leading to qualified teacher status in association with Ofsted outstanding rated Teaching Schools.
[29] In our Year 2 update (Education Development Trust, 2021) we were able to follow this analysis with the use of ordinal regression. However, the combined data for the final analysis did not meet the assumption of having no multi-collinearity.

We also looked at participants' overall classroom performance compared to expectations for other teachers training at the Ofsted-rated outstanding Teaching Schools and their associated SCITTs that were providing QTS accreditation.

Formal statistical benchmarks of teacher quality do not exist in England. Instead, a set of minimum qualitative standards[30] have been published, the maintenance of which at ITT providers is quality-assured by Ofsted. To make an estimate of how well Future Teaching Scholars were teaching in their ITT year compared to their peers, we asked these teacher trainer experts to estimate where the QTS pass mark might sit on the classroom observation tool used in the research.[31]

Prior to this analysis, we updated our previous assessment of the classroom observation tool's construct validity and internal reliability.[32] This suggested that, in this instance, the TPT should be seen as a single-factor questionnaire, ignoring the five categories that have been used for teacher feedback.[33] A single sample t-test was used to compare participants' overall (average) performance on the TPT with the benchmark data average.

Taking the two approaches above afforded the opportunity to explore two interrelated research questions:

» Does the Future Teaching Scholars Assessment Centre predict later classroom practice at the end of a first term in teaching?
» How does the quality of that practice compare to expected standards at that point in time?

Key findings

Results from the full amalgamated sample[34] were remarkably like previous analyses, with some minor differences.[35] Classroom simulation was the best predictor of later classroom practice for all the competences assessed.[36] See Appendix C for tables of significant correlations.

Classroom simulation

»   Ability to explain subject-specific concepts in the simulation predicted later teaching performance in relation to: high expectations, giving feedback to learners, the maximising of learning time, variety of subject-specific learning tasks, and structuring and designing learning.

»   Demonstrating passion for mathematics or physics in the simulation predicted four out of five of the same competences. The exception was giving feedback.

»   Perseverance in the face of challenges was associated with providing challenge in the classroom and continuous assessment.

»   Initiative and problem-solving ability and the ability to balance competing objectives both predicted high expectations.

»   Empathy and cultural awareness predicted recognising Special Educational Needs and Disabilities (SEND) and providing relevant support.

»   Simulation scores did not predict three areas of later practice: clarity of explanations and instructions, questioning to encourage engagement, and questioning to encourage thinking. This is understandable if we consider these as areas of classroom practice likely to require training to develop and, therefore, areas unlikely to appear 'innate' in a context where someone untrained is attempting to teach.

Reflecting after the classroom simulation

»   Ability to reflect on classroom practice did not predict quality of teaching on any of the TPT items.

The competence-based interview

» Despite seeking to measure the widest range of competences, the competence-based interview was not a good predictor of later classroom effectiveness.

» Although ability to explain a mathematics or physics concept again predicted high expectations, no other competences were predictors of later effective classroom practice. In analyses of the smaller dataset, at the end of year 2 of the study,[37] the stronger a candidate's espoused passion for working with young people, the less effective was their classroom practice in several areas. This relationship was not present in the full sample.

Group problem-solving

» Initiative and problem-solving in the group activity predicted asking questions and engagement but not empathy as had been found at previous analysis points.

Data from expert teacher trainers suggested that the expected average Teacher Practice Tool score for a teacher passing Qualified Teacher Status in England (summer term of ITT) would be 4.11, slightly above the mid-point for the seven-point scale version of the TPT used in this research. Comparison of average scores for Future Teaching Scholars at their first term in teaching suggested that they were on average achieving a similar level of classroom practice (4.01) at least one academic term in advance.[38]

Conclusions

These findings to some extent parallel applied psychology recruitment research, where observations of people conducting work-related activities, in a wide range of professions, are often better predictors of later performance than what people say about themselves during interviews.[39] However, the research raises questions about the cost-effectiveness (in teacher recruitment) of following what might be called a full assessment centre approach, involving not only a work-related activity but also competence-based interview and group problem-solving.

Although an interview may be helpful in making decisions about a candidate's fit to the ethos of a programme or a school's values and context, it is unlikely to be a good measure of actual performance in front of a group of children. Group problem-solving abilities may well be important once leadership roles are undertaken. However, the nature of these activities may be too distant from the actual job of a classroom teacher for them to be useful for such selection purposes, as the type of empathy demonstrated in these activities is different to that required while teaching.

Limitations and recommendations for future research

It was not possible to include participants who did not join initial teacher training following the first three years of support during their undergraduate degree because, by definition, they had no future classroom practice to assess. In addition, the estimate of expected teacher practice is a unique measure to this study as there is no metric nationally to assess teachers' practice against incremental levels of competence. This makes broader generalisations challenging.

Future research into programmes of this sort may wish to track a parallel comparison group of people who did not pass the assessment centre but still went into teaching. Finally, the assessment centre is just one component of the Future Teaching Scholars programme, therefore it is not possible to disaggregate the effects of the training programme prior to entering initial teaching training and the extent to which this may have amplified scholar skills in the classroom compared to the effects of the selection process.

There is a wealth of other data available for analysis from this innovative programme and further research may wish to explore a range of other research questions. In particular, the possibility of looking at the performance of examination classes[40] (taught by the participants) and comparing this to national averages could be considered.

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[39] Anderson et al. (2008) [40] GCSE Mathematics and Physics; A Level Mathematics and Physics. **11**

Lessons for policymakers

» Assessment centres are expensive and costly to set up and run, particularly when they include a full range of activities and detailed competency frameworks. Equal value for money might be attained by focusing on teaching simulation and classroom role play activities, rather than extending the assessment into competence-based interviews and group problem-solving activities.

In the English state school system, schools appoint candidates to posts and (in many cases) to ITT programmes.

» Our research supports the value of schools asking candidates to demonstrate their ability to explain subject content and their skills dealing with learners (or observers roleplaying learners) while doing this.
» Uncovering someone's potential to teach requires an observation of teaching in some form.
» Teachers alone can conduct such activities as roleplaying and observation in a valid and reliable way, without always needing the use of a genuine class of students.
» The classroom simulation delivered could, potentially, be replicated in an online video conference environment with suitable software and planning to support international or remote teacher recruitment.
» Whether or not a teaching activity or simulation forms part of the final selection approach, scoring such an activity could be useful in creating a development plan for a beginning teacher, pointing to areas of potential difficulty prior to joining initial teacher training.

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Appendix A – Matrix illustrating which competences were assessed in which assessment centre activity

	Competences	Competency-based interview	Classroom roleplay	Reflection [post-classroom roleplay]	Group activity
You as a scientist/mathematician	Passion for mathematics or physics	✓	✓		
	Knowledge and skill in mathematics or physics				
	Initiative and problem-solving ability		✓		✓
	Ability to explain mathematics or physics concepts	✓	✓		
You as a teacher	Belief in the power of teaching to drive social change	✓			
	Passion for working with young people	✓			
	Ability to balance competing objectives	✓	✓		
	Understanding the role of a teacher	✓			
You as a person	Empathy and/or cultural sensitivity		✓		✓
	Perseverance in the face of challenges	✓	✓		
	Reliable, responsible and committed				
	Reflective and committed to self-improvement	✓		✓	

Appendix B – Teacher practice tool items

Creating a positive climate	*The teacher demonstrates high expectations* *The teacher treats all students fairly* *The teacher recognises pupils with Special Educational Needs and Disabilities and provides them with relevant support*
Structuring and organising lessons	*Lessons are well-structured* *Learning time is maximised*
Teaching with dialogue	*The teacher's explanations and instructions are clear* *The teacher asks questions in ways that engage students* *The teacher asks questions that encourage students to think* *The teacher responds to students' answers to provide feedback and encourage discussion*
Providing well-designed learning tasks	*Learning tasks engage and provide appropriate challenge for all students (all subjects)* *The teacher provides a variety of learning tasks that enable students to see, understand and master the content they are learning (all subjects)* *The teacher provides a variety of learning tasks that enable students to see, understand and master the content they are learning (subject specific)*
Assessing learning continuously	*The teacher continuously assesses students*

Appendix C – Statistical tables

Table 1. Simulation activity (classroom roleplay). Assessment centre measures that predicted later classroom practice as measured by the *Teacher Practice Tool* (N = 146)[41]

Ability to explain mathematics or physics concepts	r_s
The teacher demonstrates high expectations	.567***
The teacher responds to students' answers to provide feedback and encourage discussion	.340***
The teacher provides a variety of learning tasks that enable students to see, understand and master the content they are learning (all subjects)	.265**
Lessons are well-structured	.200**
Learning time is maximised	.196*
Passion for maths or physics	r_s
Learning time is maximised	.342***
The teacher demonstrates high expectations	.322**
Lessons are well-structured	.276**
The teacher provides a variety of learning tasks that enable students to see, understand and master the content they are learning (all subjects)	.205**
Perseverance in the face of challenges	r_s
Learning tasks engage and provide appropriate challenge for all students (all subjects)	.355***
The teacher continuously assesses students	.222**

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[41] *** = $p < .001$; ** = $p < .01$; * = $p < .05$

Initiative and problem-solving ability	r_s
The teacher demonstrates high expectations	.208**

Ability to balance competing objectives	r_s
The teacher demonstrates high expectations	.225**

Empathy and/or cultural sensitivity	r_s
The teacher recognises pupils with Special Educational Needs and provides them with relevant support	.180*

Table 2. Competence-based interview. Assessment centre measures that predicted later classroom practice as measured by the *Teacher Practice Tool* (N = 146)

Ability to explain mathematics or physics concepts	r_s
The teacher demonstrates high expectations	403***

Table 3. Group problem-solving. Assessment centre measures that predicted later classroom practice as measured by the *Teacher Practice Tool* (N = 146)

Initiative and problem-solving ability	r_s
The teacher asks questions in ways that engage students	.227**

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