THE SELF-EFFICACY OF PRE-SERVICE TEACHERS: LESSONS LEARNED DURING THE COVID-19 PANDEMIC IN THE NORTHWEST OF ENGLAND

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Abstract

Bandura's pivotal work [1] on self-efficacy proposed four factors affecting its development: mastery, persuasion and vicarious experiences; and individual affective states. Initial teacher education (ITE) programmes should intend to develop and maintain stable, high levels of teacher self-efficacy, and their structure support this [2]. During the Covid-19 pandemic, ITE programmes in England were severely disrupted by two national lockdowns. The first lockdown terminated school experience placements for all trainee teachers in the United Kingdom. When schools were fully open, there were unpredictable and localised disruptions to school experience placements due to a variety of anti-Covid-19 measures. This changed the nature of ITE programmes and, presumably, the relative importance of Bandura's [1] influential factors.

Tynan and Mallaburn [3] [4] investigated the self-efficacy of pre-service teachers on ITE programmes leading to qualified teacher status (QTS) at a Higher Education (HE) provider working in partnership with schools in the northwest of England. They utilised three anonymous on-line surveys [3] [4] to monitor the teaching skill self-efficacy scores of respondents from two intakes of trainee teachers whose ITE programmes were disrupted by anti-Covid-19 measures. They invited open responses to further explain those scores and collected demographic data that included participants' experiences of the effects of the Covid-19 pandemic on their ITE programme and placements.

In this proceedings paper, Tynan and Mallaburn's findings [3] [4] are compared to similar pre-Covid-19 studies (e.g. [2] [5]) that use Bandura's influencing factors [1] to explain self-efficacy findings in different contexts. During the pandemic investigation [3] [4], open responses indicated the increased importance of maintaining high self- efficacy through positive affective states. Participants appreciated the steps taken by schools and the HE provider to provide additional vicarious experiences to compensate for reduced or disrupted opportunities for mastery and persuasion experiences in school. However, they were able to fully articulate the areas where the disruption had been highly detrimental to their development of teaching skills. Some respondents reported other compensatory factors, unrelated to teaching skills, that bolstered their individual affective states to maintain their confidence to teach.

Keywords: pre-service teachers, self-efficacy, ITE, Covid-19, QTS, England, mastery, persuasion, vicarious, affective states.

1 INTRODUCTION

The purpose of this paper is to use Bandura's proposed framework of factors influencing self-efficacy [1] to explain the experiences of two cohorts of pre-service teachers achieving qualified teacher status (QTS) in the northwest of England during the Covid-19 pandemic. In the process, the framework's utility is considered. Bandura [1] proposed four main factors influencing the development of self-efficacy or confidence to teach: mastery experiences, persuasion experiences, vicarious experiences, and individual affective states. Bandura [1] considered mastery experiences the most powerful influencing factor and expected self-efficacy to develop and increase as pre-service teacher education programmes progressed and the number of occasions when mastery was achieved accumulated. Bandura's framework [1] is used to discuss the quantitative and qualitative data from a self-efficacy study involving three anonymous on-line surveys conducted by Tynan and Mallaburn [3][4] during the pandemic and this is compared to several similar recent pre-covid studies [2][5][6]. Tynan and Mallaburn's data and initial findings [3][4] have been described and discussed previously, but some elements are worth revisiting briefly to introduce the discussion of the potential role of Bandura's [1] influential factors in building self-efficacy for pre-service teachers qualifying to teach in the northwest of England during the pandemic.

The timing of the three surveys in relation to the anti-Covid-19 measures adopted in England and the intended pre-pandemic structure of the initial teacher education (ITE) programmes participating in the study is shown in Fig. 1.

Year	2019	2020				2021				
Month	September	December	January	April	July	September	December	January	April	July
ITE Programme	Start				End	Start				End
School Placements	4 days a week	5 days a week				4 days a week	5 days a week			
Phase of Training	Induction	Practice		Demonstrating competence		Induction	Practice		Demonstrating competence	
Covid-19 Measures			All schools closed, placements terminated			Social distancing, hygiene and other measures		All schools closed, placements interrupted	Social distancing, hygiene and other measures, absences, and localised closures	
Questionnaires distributed online					2019-20 Cohort End of Programme Survey	2020-21 Cohort Start of Programme Survey				2020-21 Cohort End of Programme Survey

Figure 1 The timeline for the study, ITE programme structure and anti-Covid-measures affecting secondary schools in England.

Fig. 1 indicates that the participating ITE programmes were intended to be a blend of school placement teaching experience and qualified teacher status (QTS) provider led contact days. ITE in England is school led with QTS provider days delivered away from placement schools. However, most of the pre-service teachers' time is spent in school gaining teaching experience. The pre-service teachers have subject mentors who observe and give feedback on lessons and act as guides and coaches. Subject mentors are ultimately responsible for the final assessment of pre-service teachers and their recommendation for QTS. Senior mentors and the QTS providers share responsibility for the delivery of the ITE programme and the quality assurance of formal assessments against The Teachers' Standards in England [7]. Fig.1 also indicates that the intended ITE programme was terminated early for the first cohort of respondents and affected in a more unpredictable and varied way for the second cohort. This is described further by Tynan and Mallaburn [3][4].

Quantitative and qualitative responses to the survey items are reported in some detail by Tynan and Mallaburn [3][4]. However, in brief, the quantitative data was collected to answer the question: What are the levels of teacher self-efficacy amongst successful Postgraduate (PG) ITE students preparing to take up first teaching posts at schools, who trained during the height of the pandemic? [3]

Table 1 [3] indicates the maintenance of high self-efficacy scores for teaching skills during the disruption due to the pandemic. There was a significant increase in mean self-efficacy scores for respondents from the second cohort of pre-service teachers for the three teaching skill areas both separately and combined. The increase in mean self-efficacy scores between the end of programme surveys in 2019-20 and 2020-2021 was significant for the pedagogy and engagement skill areas but not behaviour management. There were few individual skills where respondents ascribed above average or below average self-efficacy scores and few demographic differences in scores [3].

Table 1. Mean self-efficacy scores /10 where 10 is the highest level of confidence [3]

Survey	*Section*	*Mean self-efficacy scores*			
		N	*M*	*SD*	*95% CI*
End of ITE Programme 2019-2020	All	166	7.7	1.2	[7.6, 7.8]
	Pedagogy	166	7.6	1.3	[7.5, 7.7]
	Behaviour management	166	7.9	1.4	[7.8, 8.0]
	Engagement	166	7.5	1.5	[7.4, 7.6]
Start of ITE Programme 2020-2021	All	78	6.7	1.8	[6.6, 6.8]
	Pedagogy	78	6.6	1.8	[6.5, 6.7]
	Behaviour management	78	7.0	1.6	[6.9, 7.1]
	Engagement	78	6.4	1.9	[6.1, 6.6]
End of ITE Programme 2020-2021	All	110	8.0	1.6	[7.9, 8.1]
	Pedagogy	110	8.1	1.4	[8.0, 8.2]
	Behaviour management	110	8.0	1.6	[7.9, 8.1]
	Engagement	110	7.9	1.7	[7.8, 8.0]

The qualitative data was intended to answer the question: Do the open answer questionnaire responses explain the high levels of confidence expressed as self-efficacy scores by trainees, and the areas where they expressed less or more confidence? [4] Respondents were fully aware of, and articulated clearly, the negative impacts of the anti-Covid-19 measures that they experienced during their ITE programmes compared to the intended ITE programme. They were also able to describe the positive experiences that partially compensated for the curtailment or disruption of their school placements and QTS provider contact days. These did not balance out equally and it was difficult to explain the maintenance of their high levels of confidence in their ability to teach once the impact of the pandemic lessened and they returned to face-to-face teaching with reduced or no anti-Covid-19 measures. It was also difficult to theorise the possible reasons for the increase in self-efficacy scores during the second cohort's ITE programme from their open responses, which repeatedly emphasised the detrimental effects of many specific anti-Covid-19 measures on their face-to-face classroom teaching.

2   METHODOLOGY

Three online surveys were constructed that conformed to the minimum risk requirements for educational research of the participating QTS provider. These were in line with British Educational Research Association (BERA) guidelines [8]. The surveys were based upon pre-validated self-efficacy items [9] [10] and conducted according to the timeline in Fig. 1. The survey structure has been described previously by Tynan and Mallaburn [3][4] but in summary contained:

- A Participant Information Sheet stating that making a return implied informed consent to analyse and report data anonymously, with the right to withdraw consent for any reason,

- Questions seeking anonymous demographic information from respondents,

- Questions exploring the impact of Covid-19 on the respondents' placement and ITE Programme,

- Self-efficacy questions comprising three sets of 8 items for teaching skills grouped together in the categories pedagogy, behaviour management, and learner engagement. Respondents scored each item 1-10 with 1-5 indicating less confidence, and 6-10 more confidence. Each was followed by an open response question allowing further explanation of the scores ascribed,

- A thank you page and invitation to participate in further research.

The further discussion of the data collected by Tynan and Mallaburn [3][4] and the findings was supported by literature review and document analysis and raises no additional ethical considerations [8]. The theorizing of teacher self-efficacy using Bandura's framework [1] is applied to Tynan and Mallaburn's pandemic self-efficacy findings [3][4] and compared to several recent pre-covid studies.

3   MAIN ARGUMENTS

3.1   Bandura [1] and ITE programmes

Fig. 2 shows a model for professional learning and assessment [11] applied to ITE programmes [12] and mapped to the intended ITE programme structure [13] for the participating pre-service teachers during the pandemic. The aim of ITE programmes should be to develop and maintain high levels of teacher self-efficacy [2]. The model in Fig. 2 demonstrates useful and clear conceptual links to Bandura's [1] influential factors for developing self-efficacy. The opportunities for mastery experiences arise from sustained classroom experience and solo teaching in school. Persuasion experiences are integral to the school placement through feedback to pre-service teachers regarding their lessons and general conduct from mentors and other supervising teachers following lessons and during scheduled mentoring sessions. Vicarious experience is gained by observing more experienced and expert teachers. This is supplemented by engaging with educational literature and research during reflection on practice in school and through masters-level assignments accredited by the QTS provider. However, the careful staging of the gradual adoption of solo responsibility for planning, delivery, and evaluation of lessons, and for the progress of learners is managed and adapted to individual pre-service teachers. The aim is to encourage independence and agency as soon as possible but avoid overloading the pre-service teachers too early. In this way individual positive affective states can be developed and maintained.

| Developmental Stage | Acquisition of knowledge, attitudes and skills | → | Simulated performance in practice domains | → | Demonstration of personal competence in real situations |

Developmental Stage	Acquisition of knowledge, attitudes and skills	Simulated performance in practice domains	Demonstration of personal competence in real situations

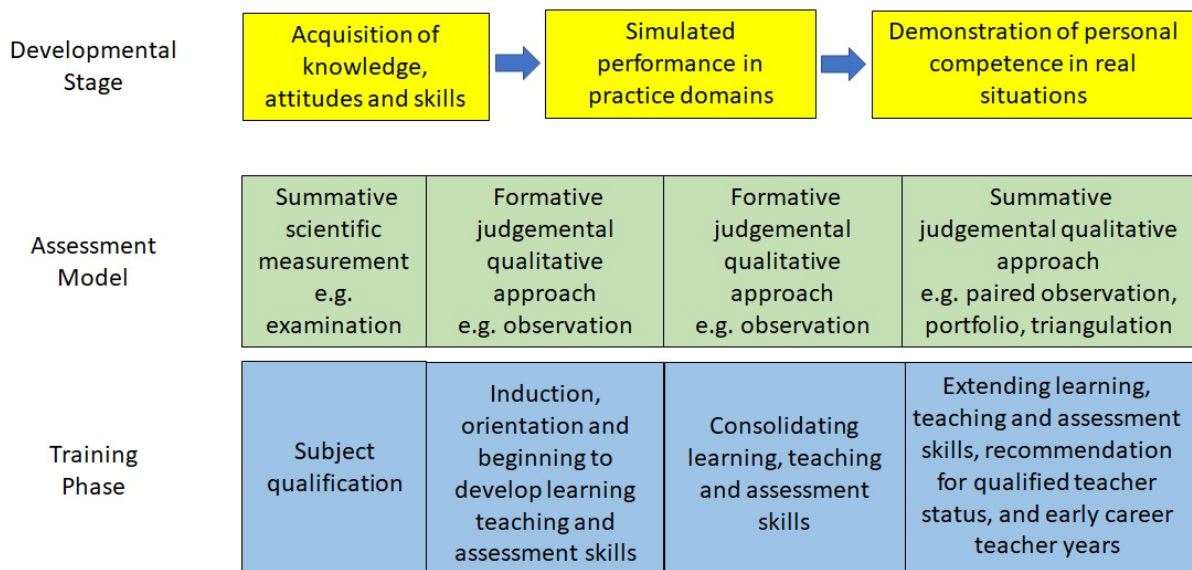| Assessment Model	Summative scientific measurement e.g. examination	Formative judgemental qualitative approach e.g. observation	Formative judgemental qualitative approach e.g. observation	Summative judgemental qualitative approach e.g. paired observation, portfolio, triangulation
Training Phase	Subject qualification	Induction, orientation and beginning to develop learning teaching and assessment skills	Consolidating learning, teaching and assessment skills	Extending learning, teaching and assessment skills, recommendation for qualified teacher status, and early career teacher years

Figure 2. A professional learning and assessment model [11] applied to initial teacher education in England [12] and mapped to ITE programmes in the northwest of England [13])

3.2 Some pre-covid teacher self-efficacy studies

The studies consulted so far all assume the utility and validity of Bandura's [1] influencing factors whilst noting differences between contexts and subjects that amplify the importance of the separate factors and diminish others. Gurvitch and Metzler [2] emphasised the need for authentic practical experience early in an ITE programme for maintaining pre-service teachers' self-efficacy. They reported that an approach starting with vicarious experience through introductory coursework resulted in high initial self-efficacy that reduced once practical experience started. Martins, Costa, and Onofre [6] emphasised the importance of persuasion experiences when mentors gave feedback to physical education pre-service teachers after lesson observations. They noted that negative persuasion experiences could potentially reduce self-efficacy independently of the other factors.

Pendergast, Garvis and Keogh [5] used methodology that overlapped with Tynan and Mallaburn's [3][4] pandemic study. They developed their questionnaires from the same pre-validated sources [9][10] and reported self-efficacy scores using the same skill categories. They also found high initial self-efficacy scores with no differences between demographic categories. These decreased after school placement experience started but recovered towards the end of the ITE programme. They suggested that, initially before teaching practice began, respondents had neither mastery nor persuasion experiences to help their evaluations of self-efficacy. They proposed that the scores could indicate an early overconfidence that decreased with practical experience and feedback on their lessons from more expert colleagues. This changed their success criteria for mastery and influenced later self-efficacy estimates. Confidence recovered and was high overall by the end, presumably because the trainee teachers increased their success rate and received positive feedback.

The findings of these studies are consistent with Bandura's [1] premise that mastery experiences are the most important factor influencing self-efficacy. However, their studies also suggest that early authentic practical experience rather than vicarious experience maximises the chance of progressively building and maintaining self-efficacy. In some subjects at least, avoiding negative persuasion experiences may be equally as important.

3.3 Using Bandura's [1] influential factors to explain pre-service teachers' self-efficacy during the pandemic

Respondents to Tynan and Mallaburn's surveys were subject to curtailed or disrupted opportunities for mastery and persuasion experiences [3][4], but at the end of each ITE programme, self-efficacy scores were high [3]. Similar to Pendergast, Garvis and Keogh's [5] interpretation of findings, Tynan and Mallaburn's respondents' high self-efficacy scores [3] might also represent an initial over-estimation of their teaching abilities. However, unlike Pendergast, Garvis and Keogh's [5] study, the second cohort surveyed increased their self-efficacy scores. The type of disruption they experienced was more variable

and unpredictable than the first cohort respondents, but the second cohort were more likely to stay in school throughout their ITE programmes. There would have been more opportunities to experience mastery and positive persuasion events, particularly during the crucial final phase of the programme (Fig. 2). This may also help explain the higher mean self-efficacy scores ascribed at the end of their ITE programmes by second cohort respondents compared to those from the first cohort.

The opportunities for increased vicarious experience through engagement with extra on-line materials and activities, and literature and research were noted appreciatively by respondents. This may have contributed to the first cohorts end of ITE programme high self-efficacy scores and to the second cohort's self-efficacy scores that increased as the ITE programme progressed. However, the pre-covid studies [2][5][6] consulted suggest that this would be a minor influence compared to mastery and persuasion.

The final consideration is factors contributing to individual affective states. Both cohorts' confidence may have increased due to Department for Education changes in the requirements necessary for recommendation for QTS. When the Covid-19 pandemic terminated the first cohorts' placements pre-service teachers could be confident of achieving QTS if their mentors had predicted that they would be recommended for QTS by the end of their programme. During lockdown they needed to maintain on-line engagement with school and provider activities, but many went far beyond the minimum requirement to support their schools and continue their professional development. The second cohort's QTS requirements were also relaxed with respect to the age and ability range to be covered by pre-service teachers' timetables and the guidance for the number of days to be spent in school. This took account of national and local temporary school closures and restrictions limiting movement and contact in schools that were fully open. Both cohorts' respondents reported many opportunities to act with professional initiative and agency that is not usual in more normal circumstances [4]. It is certainly possible that mastery was viewed differently by mentors during this period and feedback altered accordingly, but it is also possible that the need to work hard to maintain professional teacher identity in challenging contexts also altered the professional working relationship between pre-service teachers and their mentors in a way that enhanced positive affective states.

Tynan and Mallaburn's respondents [4] indicated that they were fully aware of the positive and negative influences impacting the context of their ITE programme and school placements during the pandemic. The generally high self-efficacy scores strongly suggest that, taking all things into account, the negative influences were downplayed when ascribing self-efficacy scores for teaching skills. This is articulated in a relatively few open responses, where some participants have cited the positive impact of individual personal attributes and previous teaching experience prior to the ITE programme when ascribing scores. Teacher competencies set out as skills profiles provide only a partial description of teachers and their professional learning. Korthagen [14] maintains that the context for teaching and the fundamental underlying attributes of teachers must also contribute to the behaviours that set apart the best teachers. Although the pre-service teachers responding to Tynan and Mallaburn's surveys [3][4] may have been asked to ascribe self-efficacy scores linked to teaching skills, their confidence may have increased because of the self-knowledge that they possessed personal qualities that would allow them to live up to those scores when given the opportunity. This may have been supported by the positive feedback they received from mentors and supervising teachers who observed them rapidly become useful and professional colleagues in challenging circumstances.

4 CONCLUSIONS

Bandura [1] provides a useful framework for theorising the impact of various aspects of ITE programmes on self-efficacy and is referred to in recent research.

Bandura's [1] factors influencing self-efficacy were useful in linking the development of pre-service teachers' self-efficacy during the pandemic with reference to the ITE programme that was intended before its onset (Fig. 2).

Tynan and Mallaburn's [3][4] respondents' high self-efficacy scores during the disruption appear to be due to a combination of the following factors:

- Despite the disruption respondents received sufficient, but perhaps different, mastery and persuasion experiences in the context of the pandemic disruption to ascribe high self-efficacy scores.

- To a limited extent, additional on-line programme materials and access to in-service material increased vicarious experiences and partially compensated the impact of the pandemic disruption.

- Respondents maintained positive affective states, drawing upon personal and professional attributes.

- Respondents maintained positive affective states through the supporting schools and receiving the support of tutors, mentors, and other colleagues in school.

- Respondents recognised the unique but transferrable aspects of their ITE experience, and this helped maintain their positive affective states.

Although mastery, persuasion and vicarious experiences played their part in the maintenance of high levels of pre-service teacher self-efficacy during the pandemic, it is likely that a positive affective state was the major contributor.

REFERENCES

[1]   Bandura, A., *Self-efficacy: The exercise of control*, New York, NY: W.H. Freeman, 1997

[2]   Gurvitch, R. and Metsler, M., "The effects of laboratory-based and field-based practicum experience on pre-service teachers' self-efficacy," *Teaching and Teacher Education*, 25, pp. 437-443, 2009

[3]   Tynan, R. and Mallaburn, A., "The self-efficacy of trainee teachers who were recommended for qualified teacher status (QTS) in England during the Covid-19 pandemic," *EDULEARN22 Proceeding*s, pp. 484-489, 2022

[4]   Tynan, R. and Mallaburn, A., "The self-efficacy of trainee teachers recommended for qualified teacher status (QTS) in England during the Covid-19 pandemic: looking for explanations," *ICERI 2022 Proceedings*, pp. 6984-6993, 2022

[5]   Pendergast, D., Garvis, S., and Keogh, J., "Pre-Service Student-Teacher Self-efficacy Beliefs: An Insight Into the Making of Teachers," *Australian Journal of Teacher Education,* 36(12), pp. 46-57, 2011

[6]   Martins, M, Costa, J. and Onofre, M., "Practicum experiences as sources of pre-service teachers' self-efficacy," *European Journal of Teacher Education*, 38:2, 263-279, 2015 DOI: 10.1080/02619768.2014.968705

[7]   Department for Education (DfE), *Teachers' Standards: Guidance for school leaders, school staff and governing bodies (introduction updated June 2013, latest terminology update December 2021*, Crown Copyright, 2011

[8]   British Educational Research Association (BERA), *Ethical Guidelines for Educational Research, Fourth Editio*n, BERA, 2018

[9]   Friedman, I. A. and Kass, E., "Teacher self-efficacy: a classroom-organisation conceptualisation," *Teaching and Teacher Education*, vol. 18, pp. 675-686, 2002

[10]   Tschannen-Moran, M. and Hoy, A. W., "Teacher efficacy: capturing and elusive construct," *Teaching and Teacher Education*," vol. 17, pp. 783-805, 2001

[11]   Hager, P. and Butler, J., "Two models of educational assessment", *Assessment and Evaluation in Higher Education*, 21(4), 367–378, 1996

[12]   Martin, S. and Cloke, C., "Standards for the award of qualified teacher status: reflections on assessment implications", *Assessment and Evaluation in Higher Education*, 25(2), 183–190, 2000

[13]   Tynan, R. and Jones, R.B., "Assessing trainee secondary teachers on school placement: Subject knowledge and overall teaching grades," *Teacher Education Advancement Network Journal*, 10(1), pp 20-34, 2018

[14]   Korthagen, F., "Inconvenient truths about teacher learning: towards professional development 3.0, *Teachers and Teaching*," 23(4), pp 387-405, 2017