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Teacher attitudes towards evidence-based practices for social, emotional and mental health difficulties in school and association with teacher academic research engagement

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ABSTRACT


The study examined the association between teacher engagement with academic research to inform practice for pupils with Social Emotional Mental Health Difficulties (SEMHD) and teacher attitudes towards the adoption of evidence-based practices (EBP) for pupils with SEMHD in a sample ($n = 79$) of undergraduate and postgraduate primary school trainee teachers in England, UK. A questionnaire was used to assess teachers' academic research engagement operationalised as positive attitudes towards academic research, use of academic research, and knowledge about research. The Evidence-based Practice Attitude Scale (EBPAS) was used to examine attitudes towards EBP. The findings showed that while appreciation of academic research in the sample was high, the use of academic research to inform practice and knowledge about research was low. A positive attitude towards academic research, less scepticism towards the value of academic research to inform school practice, and high research knowledge was associated with a more positive attitude towards EBP. More scepticism towards academic research to inform school practice for SEMHD and weaker understanding of research methods was linked to more scepticism about the relevance of EBP for school practice. The findings have implications for pre-service and in-service teacher training on SEMHD and the implementation of EBP for SEMHD in schools.

KEYWORDS

Evidence-based practice; evidence-based practice attitude scale (EBPAS); academic research engagement; social, emotional and mental health difficulties; teacher training; schools and teachers

Social, emotional and mental health difficulties in schools: a growing concern

Social and emotional development refers to the processes through which children develop important social and emotional skills such as getting along with peers, forming positive relationships, sharing, perspective taking and regulating emotions (Durlak et al. 2011; Goodman et al. 2015; Humphrey, Lendrum, and Wigelsworth 2014). Significant disruption in those processes can put children at risk of social, emotional and mental health difficulties (SEMHD). Children and young people (CYP) with SEMHD are reported to be at higher risk of long-term psychosocial disadvantage including substance abuse, unemployment, welfare dependence and the development of mental health disorders (Fergusson, Horwood, and Ridder 2005; Tejerina-Arreal et al. 2020). Additionally, children and youth with SEMHD have been reported to be disproportionately excluded from schools. For instance, in the UK, disruptive behaviour was found to be the most common reason of permanent school exclusions and suspensions (Office for National Statistics 2022). Moreover, all

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forms of school absenteeism (unexcused absences/truancy, school refusals) were reported to be more common amongst CYP with SEMHD than CYP without those difficulties (Finning et al. 2019). In the school setting children with SEMHD were reported as the hardest to include in the curriculum and were viewed by teachers as the most difficult form of special educational needs (Ellis and Tod 2014).

SEMHD in the school population are common. An earlier meta-analysis based on 41 studies representing 27 countries estimated that at least 11% to 16% of all CYP had one or more mental disorder (Polanczyk et al. 2015). The COVID-19 pandemic added another layer of concern about CYP mental wellbeing as it increased the risk of poor mental health in the school population and exacerbated pre-existing SEMHD (Kauhanen et al. 2023). The negative consequences of SEMHD for pupils and the prevalence of SEMHD in the school population have caused concerns over the scale of the impact of SEMHD on students and the implications for teaching practice (Lowry et al. 2022).

Educational settings, as a universal provision, can provide effective early intervention to pupils with SEMHD. Because of their broad reach schools are often the first point of contact to raise concerns over a child's wellbeing (Green et al. 2004). Most of their time teachers encounter those pupils whose needs are not considered significant enough to qualify for specialist support (Ellis and Tod 2014). As result, for many children the school system provides the only form of support they will ever receive (Ellis and Tod 2014; Hoagwood et al. 2001).

Evidence-based practices for social, emotional and mental health difficulties in schools

In recent years there has been a documented growing interest in the use of evidence-based practices (EBP) in education. The term EBP commonly refers to intervention programmes or teaching strategies supported by methodologically rigorous scientific studies for their effectiveness to improve pupil outcomes (Kallitsoglou 2020). Conventionally, rigorous studies meet specific quality standards including the use of experimental approaches to examine intervention effectiveness. A randomised controlled trial (RCT) is an experimental approach that can help establish causality between an intervention and change in an individual's outcome and is often considered the *gold standard* approach in measuring intervention effectiveness. However, the use of RCTs as an impact measuring method in education may be complex (Bryk 2015; Norwich 2014). For instance, RCTs require random allocation of students and families to intervention groups which may not always be feasible in the context of schools and classrooms. To overcome some of the challenges posed by RCTs, well-conducted quasi-experimental designs are a viable alternative (Bonell et al. 2011). When the focus is on the *how* the intervention works, rather than *whether* it works, naturalistic methods, such as observations and interviews, can be used instead (Davies 1999).

Teacher/school-led research, such as action or practice-based research, and school-level data, such as pupil and school information, are as important as researcher – led research in informing educational practice (Brown, Schildkamp, and Hubers 2017). However, teacher/school generated research may have limited scope for generalisability and may lack methodological rigour due to restricted research capacity and access to resources. Additionally, lack of access to findings by researcher -led research can lead to the implementation of practices that are not beneficial for the students. For instance, earlier research in the UK found that the students who received the most support from teaching assistants (TA) made the least progress in core academic subjects even after controlling for characteristics that interfere with progress such as prior attainment and special educational needs (Webster, Blatchford, and Russell 2013). To this end, UK-based leading educational organisations and universities reviewed TA deployment and generated evidence-based practices to help schools make the best of the support offered by TA. Arguably, by following closely research developments in the field of education teachers and schools can enhance capacity to support children's outcomes successfully. In the present study, we draw on the conventional operationalisation of EBP according to which the measurement of the impact of an intervention or practice is based

on the findings generated by experimental or well-conducted studies that are typically produced by researchers.

A literature review of the most effective interventions and practices for pupils with SEMHD is beyond the scope of this study. To help our readers consider the concept of EBP in the context of SEMHD in schools we provide a few examples of intervention approaches which are found to be consistently effective in improving social and emotional outcomes in CYP across several research studies. One such intervention approach is social and emotional learning. One of the most influential studies in this space, the meta-analysis by Durlak et al. (2011), examined the effectiveness of universal SEL programmes in 213 controlled studies of a total of 270,034 children from kindergarten up to high school. The findings showed a significant improvement in social and emotional skills, along with a reduction in behaviour problems among the children who underwent the intervention, compared to those who did not. A follow-up meta-analysis examined the long-term impact of social and emotional learning interventions (Taylor et al. 2017). The findings showed that participant children had higher scores in social-emotional skills and wellbeing than children in the control group 6–18 months post intervention. The impact was not influenced by student's race, socioeconomic background or school location. Another example of an evidence-based practice that can help children with SEMHD is behaviour classroom management. A systematic review of 14 controlled trials of the effectiveness of teacher-led classroom-based interventions for SEMHD in primary school children found that some classroom-management programmes can successfully decrease children's disruptive behaviours, such as aggression, disobedience, off-task behaviour, non-compliance and symptoms of oppositional defiant disorder (Whear et al. 2013).

Our investigation of research on the effectiveness of discrete strategies that can be embedded in every-day educational practice for SEMHD suggested that it is smaller in volume compared to research that examines the impact of intervention approaches and packaged intervention programmes. Some of the existing studies point out to certain strategies that could be helpful in improving classroom behaviour including rule setting, problem-solving, modelling, promoting teacher–child relationship, scaffolding (McLeod et al. 2017), verbal praise, planned ignoring and redirection of inappropriate behaviour (Kern and Clemens 2007; Parsonson 2012; Simonsen et al. 2008).

Implementation of evidence-based practices in the school setting: teacher attitudes towards EBP

According to the theoretical and empirical underpinnings of intervention implementation, there are several stages involved in EBP implementation (Fixsen et al. 2005; Greenhalgh et al. 2004). The initial stage pertains to the decision to adopt a practice (Fixsen et al. 2005) and is influenced by professional's attitudes towards EBP. This is because the affective component of attitudes can shape the decision-making processes of practice adoption (Aarons, Green, and Miller 2012). Therefore, professionals' attitudes towards EBP can be a precursor to the decision to try a new practice.

Because teachers are key actors in the delivery of the curriculum (Hedges 2012; Purper 2016), consideration of their attitudes towards EBP implementation is critical. A few studies suggest that teacher attitudes towards EBP could be agents of implementation. For instance, more positive attitudes towards EBP amongst educators were found to be associated with higher levels of implementation of a multi-tier system of supports for pupils with SEMHD (Cook et al., 2015). Another study found that the teachers who were more concerned over the implementation of classroom-based intervention for early childhood behaviour difficulties were less likely to implement them frequently (Baker et al. 2010). The association was significant even after controlling for teacher experience, teacher education and type of setting. Finally, in another study, the intensity with which teachers implemented specific EBP for children with autism was found to be significantly associated with teacher views about the appeal of EBP (Locke et al. 2019). Therefore, the implementation of EBP for SEMHD in the school could be influenced by teachers' attitudes about the benefits of EBP for SEMHD.

Teacher engagement with academic research and teacher attitudes towards EBP in schools

Because of the potential of teachers' attitudes towards EBPs to influence the frequency that they are implemented in schools, it is important to understand the factors that shape them. Teacher research engagement has been proposed as a factor that might be implicated in teacher attitudes towards EBP. It is plausible that teachers who engage with research to support pupil outcomes hold more positive views towards the adoption of EBP because they appreciate the value of research evidence to inform educational practice (Kallitsoglou 2020). Typically, teacher research engagement takes two major forms (Brown, Schildkamp, and Hubers 2017). The first refers to *action research* or *practitioner-led* research where teachers carry out research to understand and inform practice. The second form refers to teacher engagement with existing research that is conducted externally by researchers and academics. Because EBP is often operationalised as use of academic type of research evidence generated by researchers, the study focuses on teacher engagement with academic research.

The study draws on earlier research by two leading education organisations in the UK, the National Foundation for Educational Research (NFER) and Education Endowment Foundation (EEF), to operationalise research engagement with academic type of research: teacher direct use of *externally produced academic research* that includes researcher-led resources such as articles, reports, books or summaries based on academic research and on-line evidence platforms or databases (Nelson et al. 2017). This type of engagement is to be differentiated by teacher/school generated resources (e.g. teachers' own ideas or action research) and professionally generated resources (e.g. CPD training). In a sample of teachers in secondary and primary schools in England, it was found that research engagement with academic research was reflected in teachers' positive attitudes towards academic research, appreciation of its value to inform school practice, and higher research use and research knowledge (Nelson et al. 2017).

Several studies suggest that many teachers have a positive attitude towards academic type of research (Alvunger and Wahlström 2018; Baidon and Ong 2022; Gaussel et al. 2021; Nelson and Campbell 2017; Thomm et al. 2021). However, use of academic research among teachers is not as common as use of other types of resources. Teachers' own professional networks (Cain 2015; Procter 2015), personal resources (Cook and Cook 2013), and informal personal knowledge and wisdom (Cain 2015; Hedges 2012) have been cited as the main sources used in education-decision making. To make research evidence more accessible to teachers, a few countries have set up knowledge-broker initiatives that provide teachers with easily accessible summaries of research on educational practices. These include the UK EEF (Nelson and Campbell 2017), the US *What Works Clearinghouse* (Purper 2016), and the Australian *Evidence for Learning* (Vaughan, Deeble, and Bush 2017). However, teachers do not always use them (Cooper, Klinger, and McAdie 2017; Purper 2016) or do not use them as often as teacher or school generated resources (Nelson and Campbell 2017). For instance, findings from England showed that while most teachers had positive views, only one in four used academic research or evidence from online evidence platforms such as the EEF *Learning and Teaching Toolkit* to inform teaching (Nelson et al. 2017). Another US-based study of Head Start and Early Head Start teachers found that early childhood practitioners had little knowledge of federal websites designed to disseminate EBPs, like the *What Works Clearinghouse* (Purper 2016). Instead, most teachers primarily relied on the Internet and general websites, including About.com or Pinterest, as a teaching resource. Likewise, a Canada-based study examined primary school teachers' awareness of EBP for classroom assessment and found that teachers did not know what resources were available to them (Cooper, Klinger, and McAdie 2017).

Research knowledge and familiarity with research methods has been linked to teacher capacity to access and use evidence from research studies. For instance, a literature review showed that having the research skills and knowledge to understand academic research and its outcomes is one of the factors that can facilitate teacher use of academic research (van Schaik et al. 2018). A recent study of a large sample of secondary education maths teachers sampled from German schools showed

a strong association between familiarity with research methods/statistics and capacity to access research evidence (Thomm et al. 2021). Additionally, a few studies suggested that a positive attitude towards research knowledge is an important condition for transferring findings into practice (Hemsley-Brown and Sharp 2003; Lysenko et al. 2014; van Schaik et al. 2018). Finally, engagement with research and developing an understanding of empirically supported interventions were related to more openness towards using EBPs in a sample of trainee psychologists (Aarons, Green, and Miller 2012).

Study research aim and context

The study examined the association between teacher attitudes towards the adoption of EBP for SEMHD and teacher engagement with academic research evidence. Based on previous research, teacher academic research engagement was operationalised as *positive attitudes towards academic research*, *use of academic research*, and *knowledge about research*. To address the study aim, first, teacher engagement with academic research to inform practice for pupils with SEMHD compared to other resources was examined. Second, the association of attitudes towards EBP for SEMHD with attitudes towards academic research operationalised as *positive attitudes towards academic research*, *use of academic research*, and *knowledge about research* was examined.

The study was conducted in the context of initial teacher training in England, UK. The examination of the proposed association in the context of initial teacher training has many benefits ranging from understanding teacher behaviour to capacity building in the teacher preparation level. In England, UK teacher training is primarily offered at a postgraduate level, although there are some university-based undergraduate courses leading to qualified teacher status. The postgraduate route, referred to as the Postgraduate Certificate in Education (PGCE) route, typically involves one-year of full-time study and it is offered by Higher Education Institutions. But there are several school-based routes too, known as the School-Direct path. The traditional university-based route is often student funded. The school-based route is trainee funded, but there are also several salaried positions. An important distinction is that the school-based route is administered by the school although schools may partner with a university. Additionally, students do not have as much exposure as the PGCE students to subject knowledge, although they attend a few sessions at the university from time to time.

The examination of non-teacher/school generated research engagement and EBP in the context of initial teacher training in England is limited. Previous research has shown that many trainee teachers in England have positive views towards research (Medwell and Wray 2014). However, an earlier study suggested that the use of evidence-based resources may not be a preferable method of informing practice. Interviews with 25 trainee teachers attending a PGCE course in England showed that trainees engaged primarily with experiential learning while less than 1% used research (Hagger et al. 2008). These findings agree with research from other training contexts where it was found that pre-service teachers seemed to prefer anecdotal over peer reviewed empirical evidence (Menz et al., 2021). A few non-UK-based studies on the research training of trainee teachers suggest that understanding research may interfere with trainees' view and intention to use research. For example, in a study of second-year primary education student teachers, higher confidence in conducting and using research post-course was associated with a more positive outlook and intention to use research findings (van der Linden et al. 2015). Another study of early childhood student teachers in an Australian regional university showed that a research methods course increased trainees' understanding and appreciation of research (Harrison, Dunn, and Coome, 2006). In conclusion, engagement with academic research evidence in the context of initial teacher training in England is limited. Existing research mirrors the findings from the literature review on in-service teachers which suggest low use and understanding of academic research but positive attitudes.

Methods

Participant recruitment and characteristics

During the spring and summer academic term of 2020 and 2021 we approached leaders of undergraduate (Bachelor's degree (BA/BEd) in Primary Education with Qualified Teacher Status (QTS)) and postgraduate (university-led Postgraduate Certificate in Education (PGCE)/employment based (School Direct) with QTS) primary school teacher training programmes across England, UK to distribute an online survey. Additionally, we distributed the survey via social media (e.g. LinkedIn, Facebook). The response rate was low possibly because of the workload of trainee teachers just before graduation and the COVID-19 public health crisis. Of the 83 trainee teachers that accessed the questionnaires $n = 79$ consented to participate. More than half (64.4%) of the sample was between 18–29 years old, 17.7% between 30 and 39 years old, and 17.9% $40 \leq$ years old. Slightly more than half of the sample ($n = 45/57\%$) was third-year undergraduate students on a BA Primary Education programme, 24.1% ($n = 19$) was attending a PGCE Primary university-led programme, and 19% ($n = 15$) was attending the employment-based School Direct training programme.

Measures

Teacher engagement with academic research to inform practice for SEMHD in the school setting

An adapted version of the *Teacher Research Engagement Questionnaire (TREQ)* (Nelson et al. 2017): was used. The TREQ offers a measurable definition of teacher research engagement that is based on a) the use of externally produced academic research (e.g. articles, reports, books or summaries based on academic research and on-line evidence platforms or databases such as the EEF Teaching and Learning Toolkit) rather than *teacher-led/generated research or enquiry* (e.g. own ideas, ideas from other schools, action research conducted by themselves) or *externally professionally generated resources* (e.g. information gathered through train/CPD or literature based on teacher experience) and b) *explicit awareness of direct use of research* (rather than the various indirect means by which research can be communicated to teachers through conversations, social media and so on). A summary of the questionnaire adaptations can be found in Supplement 1.

To examine the level of academic research engagement in relation to other types of resources in the sample the following set of questions was used:

- (1) *Attitudes towards using research to support pupils with SEMHD (Q1)*: Participants were asked to rate to what extent they agree (1 = strongly disagree – 5 = strongly agree) with a range of statements about using research information to support pupils with SEMHD. A definition of research evidence was provided beforehand: *By 'research' we mean information from books, reports, articles, summaries, training or events that is based on academic studies.*
- (2) *Resources and factors that influenced the decision to adopt a specific approach to support pupils with SEMHD (Q2)*. Participants were asked to name the approach of their choice and answer the following questions:
 - (a) *Most important resources (Q2a)*: participants selected the two most important resources from a list of 11 options (0 = yes – 1 = no).
 - (b) *Most important factors (Q2b)*: participants rated the level of influence of eight factors on a 3-point scale (1 = no influence – 3 = strong influence).
- (3) *Most important resources participants consulted to decide on their general approach to support pupils with SEMHD (Q3)*: participants rated the extent they would consult a range of resources to inform their general approach to support SEMHD on a 3-point scale (1 = not at all – 3 = a lot).
- (4) *Resources easiest to understand (Q4)*: participants rated on a 4-point scale (1 = not at all easy – 4 = very easy) how easy they found to understand the information provided in a range of

resources including academic research and research from on-line databases (e.g. EEF Teaching and Learning Toolkit)

- (5) *Research methods knowledge (Q5)*: participants were asked to identify and match the most appropriate research method (i.e. literature review, correlational study, randomised controlled trial, interviews and/or questionnaires, longitudinal study) to three research purposes: 1) to provide an overview of the evidence base; 2) to determine whether an intervention or approach has a direct impact on pupil learning outcomes; 3) to understand how an intervention or approach works in practice. Participants were informed that *there were only three matches*.

To examine teacher engagement with academic research the following scale scores were used:

- (1) *Positive disposition to academic research to inform teaching practice*: a score (range: 5-25) based on the sum of the 5 (i.e. *I know where to find relevant research that may help to inform teaching practice; Information from research plays an important role in informing my practice; I am able to relate information from research to my context; I feel confident about analysing information from research; I use information from research to help me to decide how to implement new approaches in the classroom*) out of the 6 items that comprise the original 5-point scale (1 = *strongly disagree* – 5 = *strongly agree*) was used. We excluded the item *ease to understand information from academic research* rated on 4-point scale (1 = *not at all easy* – 4 = *very easy*) because the reliability (Cronbach's alpha) of the scale score improved from .41 to .68 when this item was removed. Respondents were informed that the term academic research was used to refer to information from books, reports, articles, summaries, training or events that is based on academic studies.
- (2) *Perception that academic research is not useful to teaching*: a score (range: 2-10; alpha = .66) based on the sum of 2 items (i.e. *I do not believe that using information from research will help to improve the outcomes of pupils with SEMHD; Information from research conducted elsewhere is of limited value to the school setting*) rated on a 5-point scale (1 = *strongly disagree* – 5 = *strongly agree*). Higher scores show a higher tendency to believe that academic research is not useful.
- (3) *Use of academic research to inform selection of teaching approaches*: a score (range: 2 -9; alpha = .59) based on the sum of a) 3 items on the importance (0 = *no* – 1 = *yes*) of research use (i.e. *whether academic research was important in identifying a specific approach; whether information from online evidence platforms or databases was important; training based on academic research*); b) 1 item about *The extent to which the decision to adopt a specific approach was because it was based on academic research* rated on a 3-point scale (1 = *no influence* – 3 = *strong influence*); and c) 1 item about *consultation of academic research to decide on a general approach to supporting pupils with SEMHD* rated on 3-point scale (1 = *not at all* – 3 = *a lot*). Higher scores show higher level of research use.
- (4) *Research knowledge*: Two scores were used. A *research methods knowledge* score (range: 0 – 3) based on participants' answer (0 = *incorrect* – 1 = *correct*) to the research methods knowledge question (Q5). A higher score shows higher level of research methods knowledge. An *understanding of academic research* score based on the response to the question about how easy participants found to understand the information provided by articles, reports, books or summaries based on academic research (paper or web based) to support the progress of pupils with SEMH (1 = *not at all easy* – 4 = *very easy*).

Attitudes towards EBP for SEMHD

An adapted version of the original 15-item *Evidence-based Practice Attitude Scale* (EBPAS) (Aarons, 2004) was used to examine attitudes towards EBP for SEMHD. The EBPAS is comprised of four subscales and a total scale score which represent respondents' global attitude towards adoption of new types of intervention programmes. Scale items are rated on a 5-point scale (0 = *not at all* – 4 = *to a very great extent*). We adapted a few of the EBPAS items to be suitable for trainee teachers in England (for details on adaptation see Supplement 1). The *Openness* subscale assessed the extent to which respondents were open to trying new interventions and willing to try or use more structured or manualised interventions (4 items; range: 4–20). The *Divergence* subscale assessed the extent to which the respondents perceive interventions as not useful and less important than professional experience (4 items; range: 4–20). The *Appeal* subscale assessed the extent to which the respondent would adopt an intervention if it were intuitively appealing, could be used correctly, or was used by colleagues who were happy with it (4 items; range: 4–20). The *Requirements* subscale assesses the extent to which the respondent would adopt an intervention if it were required by an agency, supervisor, or local/central government (3 items; range: 3–15). The EBPAS total score is computed by first reverse scoring the *Divergence* scale item scores (higher scores show lower *Divergence*) and then computing the overall mean and reliability. Cronbach's alpha reliability for the EBPAS is good ($\alpha = .77$), with subscale alphas ranging from .59 to .90 (Aarons, 2004), and the measure's validity is supported by studies of EBPAS score associations with mental health policies (Aarons, 2004), culture and climate (Aarons & Sawitzky, 2006) and leadership (Aarons, 2006). In the present study the alphas were EBPAS = .58, *Openness* = .73, *Divergence* = .71, *Appeal* = .86, and *Requirements* = .95.

Procedures

We developed a 20-minute survey of 20 questions (for a copy see Supplement 2) which included participant information (i.e. age, programme of study, qualifications and training) and the questions from the adapted versions of the TREQ (Nelson et al. 2017) and EBPS (Aarons, 2004). The survey was piloted with two trainee and one in-service teacher. A revised version was shared with an experienced academic in initial teacher training for further refinement.

We used the *Online surveys* (formerly BOS) run by Jisc (<https://www.onlinesurveys.ac.uk/>) to develop an electronic version of the survey. The first page of the survey presented participants with information about the survey. After having read the information, participants were asked to consent to participate before proceeding by clicking a button. Once consent was provided, the participants were asked to provide details of basic sociodemographic information (i.e. age, degree, additional qualifications, and training). The study was approved by the University of Roehampton Research Ethics Committee (Ref: EDU 19/187).

Findings

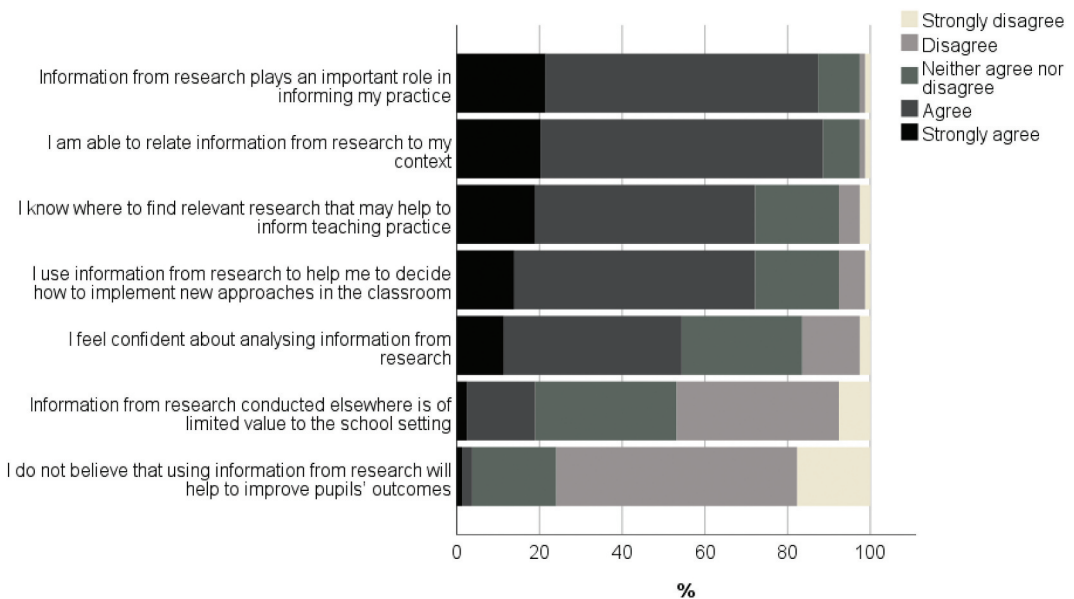
Variation in academic research engagement and attitudes towards EBP for SEMHD by sample characteristics

The findings (Table 1) showed no significant differences in research engagement scores by age or programme of study. Attitudes towards EBPs were not significantly associated with participant age. Participants on the undergraduate programmes (BA Primary Education) scored lower on the EBPAS Appeal scale (i.e. tendency to adopt a manualised teaching approach/intervention based on its appeal).

Table 1. Differences in academic research engagement, and attitudes towards EBP for SEMHD across participant age group and programme of study.

	Age				Programme of study			
	18 - 29 <i>M(SD)</i>	30-39 <i>M (SD)</i>	40 ≤ <i>M(SD)</i>	<i>F (2, 76)</i>	<i>BA</i> <i>M(SD)</i>	<i>PGCE</i> <i>M (SD)</i>	<i>School-Direct</i> <i>M(SD)</i>	<i>F (2, 76)</i>
<i>Academic Research Engagement</i>								
Positive disposition	19.22 (2.41)	18.79 (2.64)	19.29 (3.75)	1.57	19.13 (2.13)	19.68 (2.63)	18.53 (4.07)	.76
Research not useful	4.89 (1.45)	4.50 (.94)	4.71 (1.98)	.38	4.78 (1.17)	4.68 (2.00)	4.93 (1.62)	.12
Research use	4.45 (1.69)	5.07 (1.64)	5.00 (1.75)	1.07	4.53 (1.80)	4.95 (1.79)	4.67 (1.23)	.39
Research methods knowledge	1.04 (.82)	1.36 (.93)	1.21 (.89)	.85	.98 (.87)	1.37 (.83)	1.27 (.80)	1.68
				<i>F (2,75)</i>				<i>F (2,75)</i>
Understanding academic research	2.67 (.75)	2.67 (.75)	2.67 (.75)	2.14	2.74 (.73)	2.74 (.73)	2.74 (.73)	2.74 (.73)
<i>Evidence-based Practices (EBP)</i>								
Attitude	40.67 (8.25)	45.43 (8.33)	42.14 (9.08)	1.76	40.44 (8.37)	45.21 (7.36)	41.47 (9.48)	.04
Openness	11.20 (2.51)	12.00 (2.61)	10.64 (3.46)	.89	11.18 (2.51)	11.26 (3.12)	11.40 (2.97)	.29
Divergence	11.80 (2.51)	13.29 (3.69)	12.57 (2.85)	1.68	12.04 (3.04)	12.63 (2.59)	12.13 (2.53)	3.44
Appeal	10.09 (3.97)	11.57 (3.97)	11.29 (1.98)	1.22	9.84 (3.91)	12.42 (2.67)	10.33 (3.68)	1.37*
Requirements	7.61 (3.40)	8.5 (3.90)	7.64 (3.00)	.45	7.38 (3.30)	8.89 (3.30)	7.60 (3.74)	2.18

* $p < .05$, ** $p < .01$, *** $p < .001$.

**Figure 1.** Your views about using research information to support the learning of pupils with SEMHD.

Academic research engagement to inform practice for SEMHD in the sample

Regarding participant attitudes towards using research to support pupils with SEMHD (Q1), Figure 1 shows that most participants agreed or strongly agreed that: information from research plays an important role in informing practice (88%); they could relate information from research to their context (87%); they knew where to find relevant research to inform teaching methods/practice (72%); they used information from research to help decide how to implement new approaches in the

classroom (72%). However, compared to the other statements just over a half of participants reported that they felt confident about analysing information from research (54%). The examination of the negatively worded items showed that most participants *disagreed* or *strongly disagreed* with the statement that using information from research will not help improve pupil SEMH outcomes (76%). While many participants (46%) *disagreed* or *strongly disagreed* with the statement that non-school generated research is of limited value to the school setting, the majority (54%) either believed that non-school-based research information is of limited value to school (*agree* or *strongly agree*), or they were not sure about its value (*neither agree nor disagree*).

Regarding participant views on the *resources considered most important in the decision to adopt a specific approach for pupils with SEMHD (Q2a)*, Figure 2 shows that participants relied primarily on resources generated through teacher/school experience (i.e. ideas generated by themselves/school placement: 71%; other schools: 49%) or professionally generated resources (i.e. training: 34%; literature based on teacher experience: 22%). Action research had a smaller influence (18%) compared to the other teacher/school-based resources. The participants relied less often on externally produced research (i.e. literature based on academic research: 19%; on-line evidence databases: 16%) and policy resources (i.e. DfE and Ofsted: 14%).

Figure 3 shows that a combination of key stakeholder preference (i.e. popular with pupils: 50%) and practical considerations (i.e. good fit with existing practices: 49%) were amongst the *most influential factors in the decision to adopt a specific teaching approach for pupils with SEMHD (Q2b)*, followed by academic research (34%) and additional practical considerations (i.e. straightforward to implement: 30%; inexpensive: 31%). Stakeholder preference other than pupils (i.e. colleagues: 26%; parents: 18%; tutors: 8%) had a smaller influence.

Figure 4 shows the distribution of the *resources considered most important in the decision to adopt a general teaching approach for pupils with SEMHD (Q3)*: professional training (90%) and ideas and resources generated by the school (79%), followed by literature based on teacher experience (57%) and colleagues in other schools (43%) were the most popular. Research evidence (32%) and policy (31%) were not rated as important as other resources.

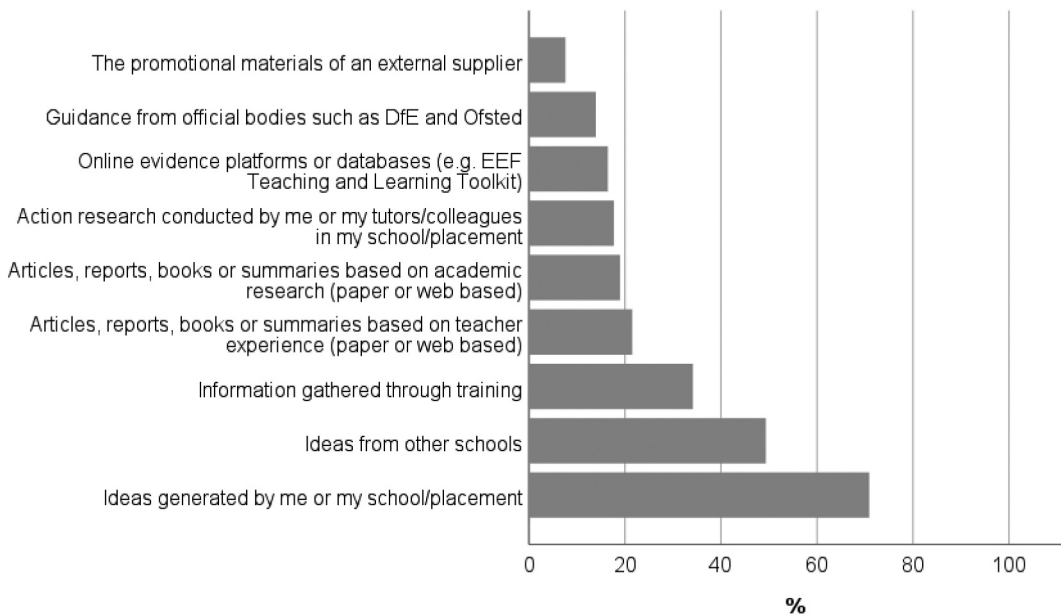


Figure 2. Which of the following were important in identifying a specific approach to teaching for pupils with SEMHD? Choose two most important. Note: DfE: UK Department for Education; Ofsted: Office for Standards in Education, Children's Services and Skills for England, UK

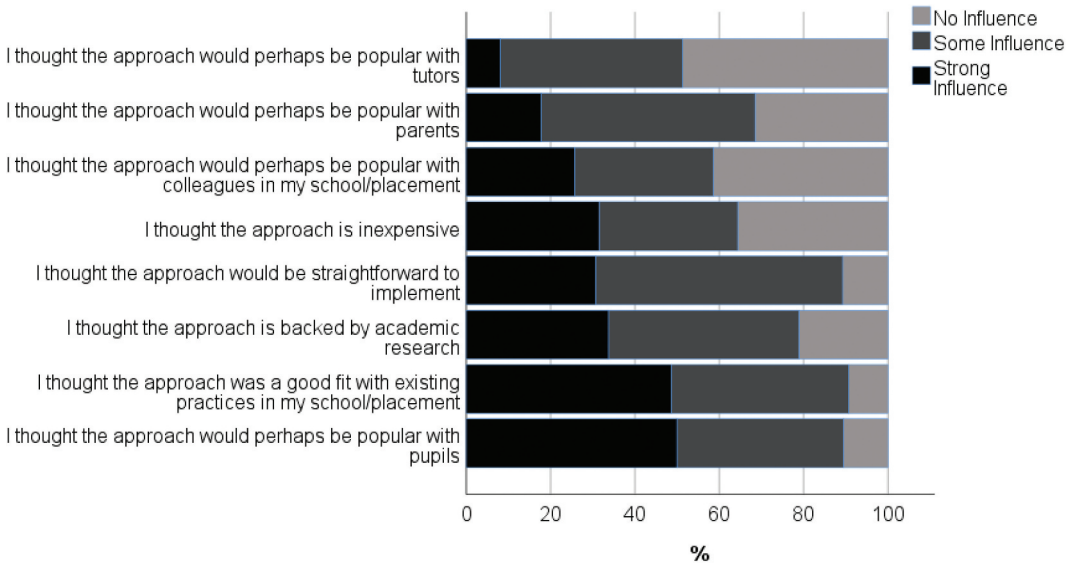


Figure 3. Factors that influence the decision to adopt a specific approach to teaching pupils with SEMHD.

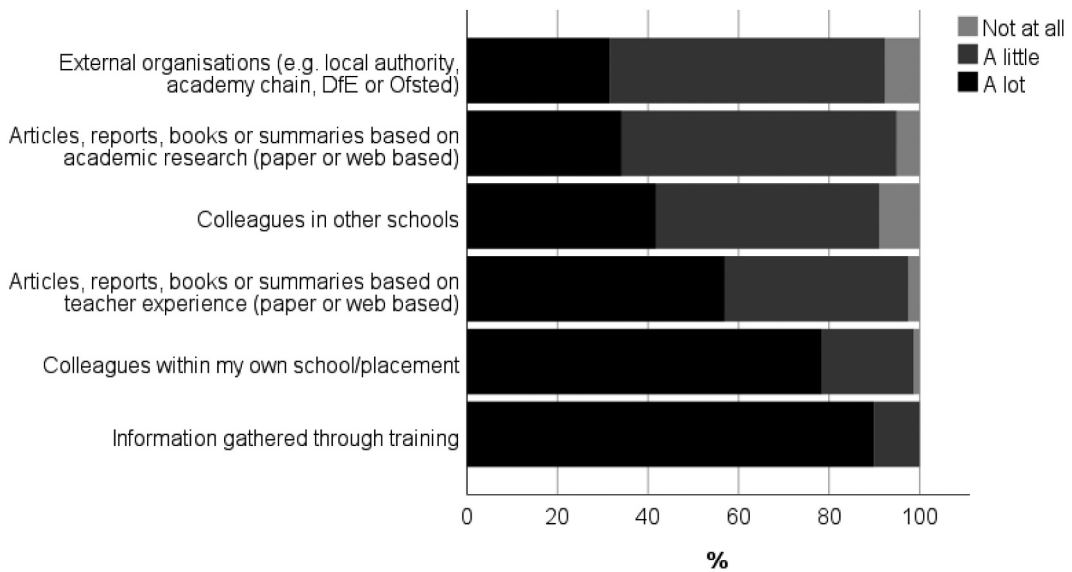


Figure 4. Resources you would consult to decide on your general approach to teaching pupils with SEMHD.

Figure 5 shows the distribution of participant response to the question about *what resources were the easiest to understand* (Q4). Teacher/school generated (i.e., colleagues within my own school/placement: 56%; colleagues in other schools: 40%) or professionally generated (i.e., training: 52%; literature of teacher experience: 30%) were rated the easiest resources to understand. When we added together the participant *very easy* and *quite easy* responses, information from training (95%) and from colleagues (94%) were the top two resources easiest to understand, followed by resources (e.g., articles, reports, books or summaries) based on teacher experience (79%), colleagues from other schools (78%), online evidence platforms or databases (i.e., EEF Toolkit) (77%), external information from local and central government (i.e.,

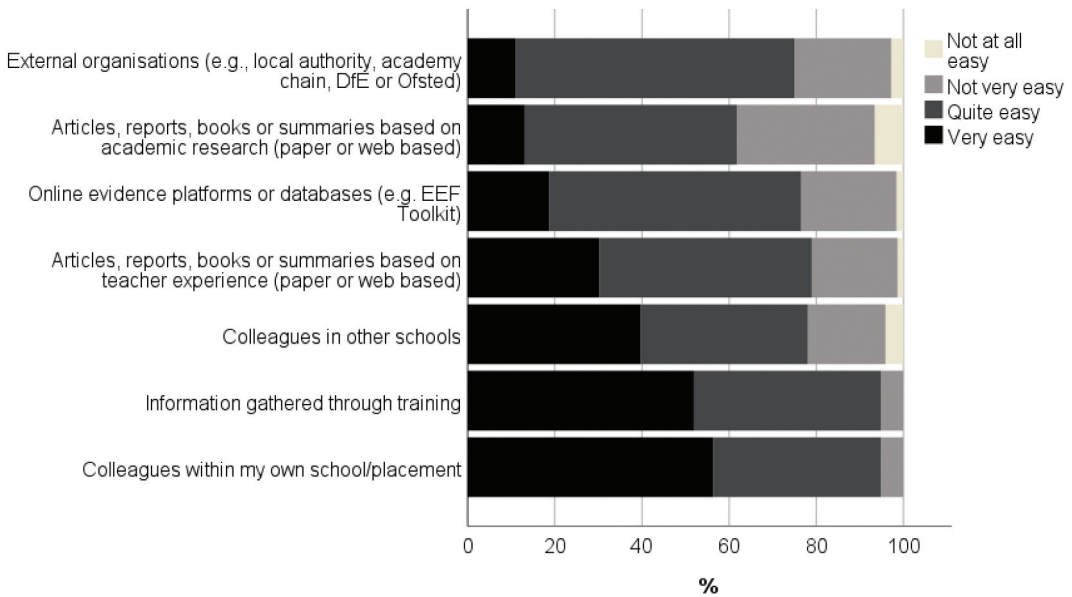


Figure 5. Resources easy to understand.

local authority, DfE) (75%). Academic research was the least likely resource to understand (62%).

Regarding *research methods knowledge* more than half of the participants (58%) correctly identified the literature method as the most appropriate to provide an overview of the evidence base. One third correctly identified interviews/questionnaires as the best method for understanding how an intervention works in practice (33%) and less than one third (22%) correctly identified the randomised controlled trial as the best method for determining whether an intervention has a direct impact on pupil outcomes.

Association between academic research engagement to inform practice for SEMHD and attitudes towards EBP for SEMHD

First, a correlation analysis was run to examine the association between participants' academic research engagement scale scores and EBP attitudes scale scores in the cases with full data on all variables ($n = 76$). The results (Table 2) showed that more positive views towards academic research were significantly associated with more positive attitudes towards EBP for SEMHD ($r = .29, p = .006$), lower scores on the Divergence scale (i.e. low tendency to believe EBP are not as important as teaching practice) ($r = -.30, p = .004$) and higher scores on the Requirement scale (i.e. would consider EBP if required by authorities) ($r = .22, p = .028$). More scepticism about the value of research to inform teaching (i.e. research not useful) was significantly associated with less positive attitudes

Table 2. Correlations between academic research engagement and attitudes towards EBP for SEMHD.

Academic Research Engagement	Attitudes towards EBP for SEMHD				
	Total Attitudes	Openness	Divergence	Appeal	Requirements
Positive disposition	.29**	.09	-.30**	.15	.22*
Research not useful	-.37***	-.38***	.44***	-.11	-.12
Research use	-.06	.05	-.05	-.16	-.06
Research methods knowledge	.10	.06	-.20*	.11	-.08
Understanding academic research	.16	.16	-.21*	.08	-.00

* $p < .05$, ** $p < .01$, *** $p < .001$.

towards EBP ($r = -.37, p < .000$), lower Openness ($r = -.38, p < .000$), and higher Divergence ($r = .44, p < .000$). A higher level of research methods knowledge ($r = -.20, p = .044$) and ease with understanding academic research ($r = -.21, p = .033$) were significantly associated with lower Divergence. Academic research use was not significantly associated with any of the EBP attitudes scale scores.

The Divergence scale score was associated with four out of the five academic research engagement variables (i.e. Positive Disposition, Research not Useful, Understanding Research, Research Knowledge). A regression analysis was used to examine the independent contribution of each of the research engagement variables to the Divergence score. The analysis showed that a stronger belief that research is not useful for informing practice for SEMHD ($b = .37, t(76) = 3.733, p < .001$) and a weaker research methods knowledge ($b = -.212, t(76) = -2.065, p = .04$) significantly predicted a higher Divergence score. There was a tendency for a more positive research disposition ($p = .08$) to be significantly associated with lower Divergence. Understanding research did not significantly predict Divergence scores. The model explained almost one third of the variance ($R^2 = .29, F(4, 71) = 7.188, p < .001$) in participants' Divergence score.

Discussion

Teacher academic research engagement to inform practice for pupils with SEMHD

The first aim of the study was to examine engagement with academic research to inform practice for pupils with SEMHD in relation to other resources. To address this aim, the participants reported on the following set of questions: attitudes towards research, resources and factors that informed practice decisions, resources easier to understand and research knowledge. The findings showed that participants were generally positive about using academic research to support pupils with SEMHD. This finding reflects earlier research which showed that teachers in England have positive views about the use of academic research to inform practice to promote pupil learning outcomes (Coldwell et al. 2017; Nelson et al. 2017).

Regarding the resources used to support pupils with SEMHD, the findings showed that participants' decision-making relied more on teacher/school generated (e.g. ideas generated by themselves and their school placement or other schools) or professionally generated resources (e.g. training and literature based on teacher experience) than research-based resources (e.g. academic research and information from on-line evidence-based databases). The findings agree with earlier research from both international and UK-based studies which showed that most teachers prefer teacher-generated resources over researcher-led resources and electronic databases to inform pupil learning outcomes (e.g. *EEF Learning and Teaching Toolkit*) (e.g. Cain 2015; Cook and Cook 2013; Hedges 2012; Nelson et al. 2017; Procter 2015; Purper 2016). Furthermore, combined with findings by Nelson et al. (2017), the results raise questions about who the users of the EEF research summaries are, if not the front-line educators, who are the implementers of EBP strategies in English schools. The findings agree with previous research that advises that the production of research summaries on its own may not be enough to change practice and urges the field to consider ways these can be disseminated effectively (Sheard and Sharples 2016). Regarding the most influential factors for practice decision making, one in three participants reported that they would use academic research to inform teaching practice for pupils with SEMHD. However, one in two prioritised practical considerations, such as approach fit with existing practice and pupil preferences. Intervention implementation research suggests that practical considerations are key ingredients for the successful implementation of school-based interventions (Gee et al., 2021). Therefore, while participants were less likely to use research to inform their decision making, they were accurate at identifying critical facilitators of school-based implementation of EBPs for SEMHD.

Finally, participants reported on how easy it was to understand academic research and respond to a question about their research methods knowledge. Most participants found information from research the least easy to understand compared to all other sources of information. Additionally,

many of them felt less confident understanding information from online platforms. Furthermore, most participants struggled to match the different research aims with the appropriate methodological approach. These findings mirror past research which showed low confidence engaging with research and evaluating its quality (Coldwell et al. 2017), low research literacy and low understanding of evidence from online research platforms (Nelson et al. 2017) in teachers in English schools. Educators require support from knowledge brokers in the form of unbiased and teacher-friendly reviews of research (Slavin, 2002). However, the findings suggest that accessing the resources covered by clearinghouse-type research summaries does not necessarily enhance teacher familiarity with research (Thomm et al. 2021). Together with previous research, the study raises questions about how the clearinghouse-type summaries of educational research can influence teacher practice for SEMHD and call for the evaluation of their effectiveness in bridging academic research and school-based practice.

Teacher attitudes towards EBP for SEMHD and association with teacher academic research engagement

Previous research has shown that attitudes towards EBP interact with practitioner characteristics (Aarons, 2004). The results showed that the participants who attended the undergraduate programme were more cautious adopting a manualised teaching method or intervention based on its appeal. One plausible explanation of the difference in EBP endorsement based on appeal is that trainee teachers in undergraduate programmes are less confident about their personal judgement. Low confidence could in turn make undergraduate trainee teachers more reluctant choosing a practice that seems intuitively appealing to them. It takes a few years until beginner teachers develop their professional identity and vision of how to teach (Murray & Male, 2005). Often, undergraduate trainee teachers have spent fewer years in education compared to postgraduate trainees. As a result, trainees across the two programmes may have accumulated different experiences, which could differentially influence their educational decision making. On the other hand, the variation in the training offered across undergraduate and postgraduate programmes may impact trainees' EBP attitudes differently. Future research should explore EBP attitude alignment across teacher training programmes and whether discrepancies predict EBP implementation outcomes.

The findings offer support for an association between a positive attitude towards academic research to inform practice for SEMHD and positive attitudes towards EBP for SEMHD in teachers. Specifically, participants with more positive views towards the use of research to inform practice for SEMHD were more positive towards the adoption of EBP for SEMHD, less sceptical of the value of EBP to inform school practice for SEMHD, and more open to try them if it was an official requirement. Additionally, participants who were more sceptical about the value of research to inform school practice for SEMHD were equally sceptical about the value of EBP, less open to try them and had a less positive global attitude towards EBP. Furthermore, the study showed that scepticism towards using academic research to inform school practice for SEMHD had a greater impact on shaping participants' scepticism towards EBP than a positive attitude towards academic research, irrespective of teacher research knowledge. Our study provides empirical support to the hypothesis that low teacher scepticism towards academic research to inform practice for SEMHD is associated with low scepticism towards the value of EBP for SEMHD in school. These findings resonate with previous research on the concept of resource *relevance* for teaching practice. Teachers tend to assign value to resources that they think are relevant to their practice and have the potential to improve it (Lysenko et al. 2014). However, often teachers may perceive academic research evidence to be unhelpful because it is detached from and inapplicable to their practice (Joram, Gabriele, and Walton 2020; Lysenko et al. 2014). Furthermore, research may fail to engage practitioners because it is perceived yet another performativity measure (Mahmud and Castro-Kemp 2022). In the same vein, the concept of EBP, rooted in a culture of evaluation and outcomes, may not be received well by educators who are sceptical towards an outcome-based education. Overcoming the problem of

relevance could entail supporting schools with small-scale change, providing help with procedures that already work, and exemplification of change management where required (Sheard and Sharples 2016).

The findings showed that a weak understanding of research methods was more likely to be associated with scepticism about the congruence of EBP for SEMHD with existing school-based practice. Until this finding is replicated, we should be cautious about the interpretation of the role of research literacy in educators' scepticism towards practices that come from a tradition of evaluation and research. Research in research-informed teaching indicates that teachers may downplay the relevance of academic research due to insufficient understanding of academic research information (Williams and Coles 2007). If research literacy is a prerequisite to appreciate the value of EBP to support the learning of pupils with SEMHD, teacher preparation programmes could focus on research capacity building.

Limitations

Our findings should be considered in the context of certain methodological limitations. First, the study was based on a sample of trainee teachers. Therefore, generalisation of the findings to non-trainee in-service teachers should be made with caution. The statistical power to detect statistically significant associations between the study variables might have been constrained due to the small sample size. Moreover, the sample size did not allow the examination of the factor structure of the research engagement and EBP scale scores. Additionally, the sample was not representative of the trainee teacher population in England. Furthermore, we did not have the opportunity to include secondary education teachers and the examination of a wider range of pre-service trainee teacher characteristics. Our study reflects the views of trainee teachers in training programmes in England, UK only. Therefore, we are limited in the generalisations we can make about the application of our findings in teacher training systems which are based on different training principles. If we adopted a broader definition of research engagement, which included action research and practice-based research, research could have played a greater role in determining trainee decision making for SEMHD. Therefore, the interpretation of findings should be relevant to the context of research engagement as operationalised in the present study (i.e. academic research or research that comes from on-line platforms of evidence-based resources). The conceptualisation of training may have influenced trainees' answers. To make the item applicable to trainee teachers we modified it by removing the part that indicated that training could be based on continuous professional development (CPD). However, this omission does not specify what the term training refers to. In the future, any studies that wish to use this questionnaire with trainee teachers should make explicit the definition of training. As well as frequency, future research should examine the processes whereby teachers consume and apply academic research.

Conclusion

The study showed that a positive attitude towards academic research, less scepticism about the relevance and value of academic research to inform school practice for pupils with SEMHD, and research knowledge understanding was associated with a more positive attitude towards EBP for SEMHD in a sample of trainee teachers in England, UK. The findings provide empirical support to the speculation that a research-engaged teaching workforce might be keener to embrace EBPs to augment the support for children with SEMHD. Given the established link between high-quality school based EBP and improvement in children's social and emotional outcomes (Murano et al., 2020; Taylor et al. 2017; Wigelsworth et al., 2022), we need research that will help understand whether teacher academic research engagement could be one of the tools to enhance EBP implementation for SEMHD. In this process, it is critical to consider the

ways we can address teacher scepticism towards the relevance and value of academic research and EBP for school practice and the benefits of teacher research literacy. Research-familiarity might support teachers to feel more confident in evaluating the impacts of EBP for SEMHD. Our research supports a teacher training model which provides teachers with the opportunity to appreciate the link between academic research and day-to-day school practice and to acquire the necessary skills that will augment understanding of information from research.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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