

DIGITAL HEALTH

Digital implementation: Developing digital mental health skills in the psychological workforce using e-learning.

Journal:	<i>Digital Health</i>
Manuscript ID	DHJ-26-2540
Manuscript Type:	Original Research Article
Date Submitted by the Author:	28-Jul-2026
Complete List of Authors:	Pote, Helen; Royal Holloway University of London, psychology Moulton-Perkins, Alesia; University of Oxford, clinical psychology Rides, Gemma; Royal Holloway University of London, psychology
Keywords:	psychological workforce, digital mental health, e-learning, digital competencies, digital implementation
Abstract:	Background: Digital mental health (DMH) delivery is expanding across psychological services, yet many practitioners lack the digital skills and confidence required for safe and effective online practice. In order to support digital implementation within mental health governmental and professional bodies emphasise the urgent need to develop digital competences in the workforce and the need for scalable training solutions. Aims: To develop and evaluate a national e-learning package designed to improve digital mental health competences, confidence and attitudes among novice psychological practitioners in the UK. Methods: A four-module e-learning package was produced using Sheth et al.'s five-phase e-learning development framework. Content aligned with the British Psychological Society's Digital Competence Framework. First-year students from three clinical psychology doctoral training programmes participated in the e-learning and completed pre- and post-training measures of digital competence (Digital Competences for Applied Psychological Practitioners, DCAPP), attitudes towards digital interventions and confidence. Quantitative data were analysed using paired t-tests. Qualitative user feedback was gathered and synthesised using deductive thematic analysis. Results: Eighty-three students completed the e-learning and 52 provided matched pre-post data. Overall digital competences significantly improved, including students' digital mental health knowledge and abilities. Attitudes towards digital interventions became more favourable and confidence in practising digitally increased. Qualitative findings indicated the modules were comprehensive, relevant and engaging, with valued interactive elements such as reflective exercises, quizzes and video content. Some students found modules lengthy and suggested shorter videos, improved time estimates, and downloadable summaries. Minor technical issues and diversity considerations were also identified. Conclusions: The e-learning package effectively enhanced DMH competences, attitudes and confidence among novice psychological

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

	practitioners. Embedding competence-based digital training into preregistration curricula supports workforce readiness and contributes to scaling digitally enabled care pathways. Keywords: psychological workforce, digital mental health, e-learning, digital competences



Title – Digital implementation: Developing digital mental health skills in the psychological workforce using e-learning.

Short running Head: Digital psychological practice e-learning

Authors -

Helen Pote, Department of Psychology, Royal Holloway, University of London, Egham, Surrey, TW20 0EX

h.pote@rhul.ac.uk

CRedit: Conceptualisation, Funding acquisition, Investigation, Methodology, Project Administration, Supervision, Visualisation, Writing – original draft

Alesia Moulton-Perkins, Oxford Institute for Clinical Psychology Training and Research and Oxford Health NHS Foundation Trust

alesia.moulton-perkins@psy.ox.ac.uk

CRedit: Conceptualisation, Funding acquisition, Investigation, Methodology, Project Administration, Supervision, Visualisation, Writing – original draft

Gemma Rides, Department of Psychology, Royal Holloway, University of London, Egham, Surrey, TW20 0EX

gemma.rides@rhul.ac.uk

CRedit: Data curation, Formal analysis, Investigation, Project Administration, Visualisation, Writing – original draft

Acknowledgments: The Division of Clinical Psychology, British Psychological Society funded the development and evaluation of the Digital Mental Health e-learning described in this paper.

Abstract

Background: Digital mental health (DMH) delivery is expanding across psychological services, yet many practitioners lack the digital skills and confidence required for safe and effective online practice. In order to support digital implementation within mental health governmental and professional bodies emphasise the urgent need to develop digital competencies in the workforce and the need for scalable training solutions.

Aims: To develop and evaluate a national e-learning package designed to improve digital mental health competencies, confidence and attitudes among novice psychological practitioners in the UK.

Methods: A four-module e-learning package was produced using Sheth et al.’s five-phase e-learning development framework. Content aligned with the British Psychological Society’s Digital Competence Framework. First-year students from three clinical psychology doctoral training programmes participated in the e-learning and completed pre- and post-training measures of digital competence (Digital Competencies for Applied Psychological Practitioners, DCAPP), attitudes towards digital interventions and confidence. Quantitative data were analysed using paired t-tests. Qualitative user feedback was gathered and synthesised using deductive thematic analysis.

Results: Eighty-three students completed the e-learning and 52 provided matched pre-post data. Overall digital competencies significantly improved, including students’ digital mental health knowledge and abilities. Attitudes towards digital interventions became more favourable and confidence in practising digitally increased. Qualitative findings indicated the modules were comprehensive, relevant and engaging, with valued interactive elements such as reflective exercises, quizzes and video content. Some students found modules lengthy and

suggested shorter videos, improved time estimates, and downloadable summaries. Minor technical issues and diversity considerations were also identified.

Conclusions: The e-learning package effectively enhanced DMH competencies, attitudes and confidence among novice psychological practitioners. Embedding competence-based digital training into preregistration curricula supports workforce readiness and contributes to scaling digitally enabled care pathways.

Keywords: psychological workforce, digital mental health, e-learning, digital competencies, digital implementation

Digital implementation: Developing digital mental health skills in the psychological workforce using e-learning.

Introduction

Digital psychological treatments have immense potential to address global health challenges (Patel et al., 2018; Löchner et al., 2025; World Health Organisation, 2022), increasing access for patients unable to attend in-person services because of work/caring commitments, disabilities, remote location or limited resources. They provide greater flexibility and empowerment for users of health services, providing choices concerning how, where, and when they access services (MIND, 2021; Pote et al., 2021). We know many effective digital psychological interventions already exist (Bennett et al., 2020), and in the UK, successive governments have issued policies urging digital transformation in healthcare. Most recently, the National Health Service 10-year strategic plan (Department of Health and Social Care, July 2025) set a goal of moving care from analogue to digital delivery, with increased use of data, AI, and robotics to improve service delivery, digital accessibility and patient outcomes. Workforce policies have also supported this agenda (Foley & Woolard, 2019; Topol, 2019), with the Darzi Report (2024) most recently emphasising the development of the healthcare workforce's digital skills as a key strategic aim to support digital implementation.

Digital implementation is limited by the highly variable level of staff skills and confidence in digital practice (Dobson et al., 2022). Unless this is addressed, the ambitious policy initiatives for digital transformation will not be achieved. Staff need time and training to support their digital practice, improve their competencies, and offer effective digital healthcare. Since 2017, the British Psychological Society's (BPS) Division of Clinical Psychology (DCP) Digital Mental Healthcare Subcommittee has been engaged in a

programme of work to support the development of competent and confident applied psychologists to deliver safe, effective and ethical digital practice. This paper will detail the development and evaluation of a successful e-learning package to develop digital skills and confidence in the psychological workforce.

Achieving digitally enabled care

Workforce development and training are key to achieving the government's vision for digitally enabled care. The Topol Review (Foley & Woolard, 2019; Topol, 2019) assessed the impact technology would have on the health workforce over the next 20 years and concluded that the digital competence and confidence of healthcare staff is a challenge to implementation. Topol recommended that *'Healthcare professionals will need to access training resources and educational programmes in digital healthcare technologies to assess and build their digital readiness'* (Topol, 2019, p.16). Currently, professional bodies and pre-registration training courses are not doing enough to prepare students for digital health services in physical and mental healthcare, and this inhibits practitioners in using technologies to assess, intervene, and monitor the progress of clients' difficulties.

Given the rapidly expanding evidence base and the deployment of effective digital psychological interventions, there is some urgency to train the future workforce in digital practice at scale, particularly at pre-registration levels. In the U.K., national surveys suggest that among adults and adolescents who recently received mental healthcare, 67% were offered services digitally, via phone or online, with 80% of clients taking up this opportunity (MIND, 2021). Yet, previous research suggests that the majority of novice practitioners are not receiving any digital skills training at a pre-registration level, and nor is it a requirement of professional training standards later in practitioners' careers (Pote et al., 2021).

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Importantly, the trainers of these practitioners may not be in a position to implement digital skills training given limitations in their own digital knowledge, skills and attitudes (Perle et al., 2013). In a UK survey of clinical psychology training providers, the majority of providers (64%) viewed developing digital mental health competencies as very important, but they were not integrating this routinely into teaching or clinical placement activity (Pote et al., 2021). Providers called for practice guidelines and a digital psychological practice competence framework to address a range of training barriers and support training delivery in this area.

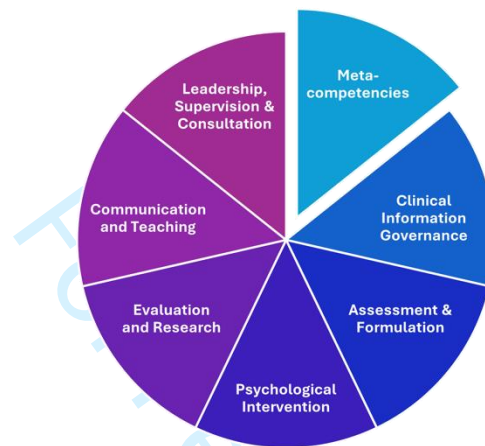
Competencies for digital psychological practice

Recent revisions of training curricula for psychological professions have included digital practice competencies for the first time (British Association for Behavioural & Cognitive Psychotherapies, 2021; British Psychological Society, 2025; Dopp et al., 2021; Perle et al., 2022). Development of accessible digital mental health skills training is required to deliver these broad curriculum learning goals. With the support of the British Psychological Society, a group of psychological practitioners, experts by experience, trainers, digital industry experts and health-care managers co-produced a Digital Psychological Practice Competence Framework (Pote et al., 2020; Pote, Moulton-Perkins, & Rides, 2025). The aim of this competence framework was to support the development of digital practice skills for all applied psychologists and psychological practitioners and it aligns with recent NHS principles for using digital technologies for mental health. It was important that profession-specific guidance was developed to match the full range of psychological practitioners' job roles, thus enabling consideration of a broad range of skills across eight domains (see Figure 1.), including digital approaches to direct clinical assessments and interventions, indirect consultancy, teaching and research. This addressed the needs of pre-registration practitioner psychologist curricula, which demand indirect as well as direct

psychological competencies: a broader remit than training programmes for psychological therapists, such as CBT therapists.

Figure 1. British Psychological Society (Clinical Division) Digital Competence Framework:

8 Domains



The full outline of the Digital Competence Framework is available at

<https://digitalhealthskills.com/digitalcompetencies/>

Developing Practitioners' Digital Skills using e-learning

Traditional, in-person training models for psychological practitioners are often preferred (Doorn et al., 2022; Mallonee et al., 2018) but hybrid or digitally delivered education offers a number of advantages and is known to be effective (Singh & Reyes-Portillo, 2020; Mullerpattan et al., 2025). Digital methods allow training programmes to scale easily in order to meet current demands for increasing numbers of new psychological practitioners, and regular upskilling of existing practitioners in evidence-based therapeutic interventions. In addition, digital and blended learning methods are more flexible for learners, with fewer restrictions geographically and physically. This makes it easier to offer

personalised learning for all students and is especially helpful for those with specific learning needs or students requiring reasonable adjustments due to disabilities. Furthermore, a systematic review by Mikkonen and colleagues (2024) suggested that e-learning can be cost-effective while maintaining quality in terms of learning outcomes. To date, no profession-specific e-learning packages exist to support the psychological workforce in developing their digital mental health skills and this is slowing the implementation of digital innovation in psychological services.

Project aims

The Digital Healthcare Subcommittee was commissioned by the DCP to develop a free e-learning package for psychological practitioners in the UK. The present study presents three aims:

1. To develop a comprehensive and engaging e-learning package for psychological practitioners based on the BPS, DCP Digital Competence Framework for Psychological Practitioners.
2. To conduct a pilot evaluation of the e-learning package regarding its usefulness and functionality.
3. To evaluate the impact of the e-learning package on digital mental health competencies, confidence and attitudes, using amongst other measures, a newly developed self-report measure of knowledge and skills (DCAPP).

Methods

This study was granted ethical approval from the Psychology Ethics Committee at Royal Holloway, University of London.

Procedure

The production of the e-learning package followed Sheth and colleagues' (2020) five phase framework; planning, development, production, implementation and pilot-evaluation. The initial version of the e-learning was developed by an expert reference group and a pilot evaluation conducted. Revisions were made and the final version was then released. This study presents the development of the e-learning and results of the initial pilot evaluation.

1. Planning

A working party of 13 digital mental health experts, including psychologists, researchers, service users, trainees, and industry representatives, convened to design an e-learning package for psychological practitioners. Learning outcomes were developed and aligned with published DMH competencies (www.digitalhealthskills.com). Content was organized into four modules, with their structure and scope reflecting clinical psychology competencies:

Module 1: Starting the journey of client & therapist

Module 2: Working with the client

Module 3: Therapeutic Interventions, evaluation and endings online

Module 4: Supervision, teaching and reflecting on digital practice.

Each module was designed to take approximately an hour to complete, covering adaptations of psychological practice for online delivery, including psychological assessments (such as psychometrics and neuropsychological assessment), direct and indirect interventions, supervision, research, and leadership activities. Legal, ethical, and information governance issues related to safe and effective online practice were also addressed. References to relevant UK policy guidelines and the evidence base were integrated throughout.

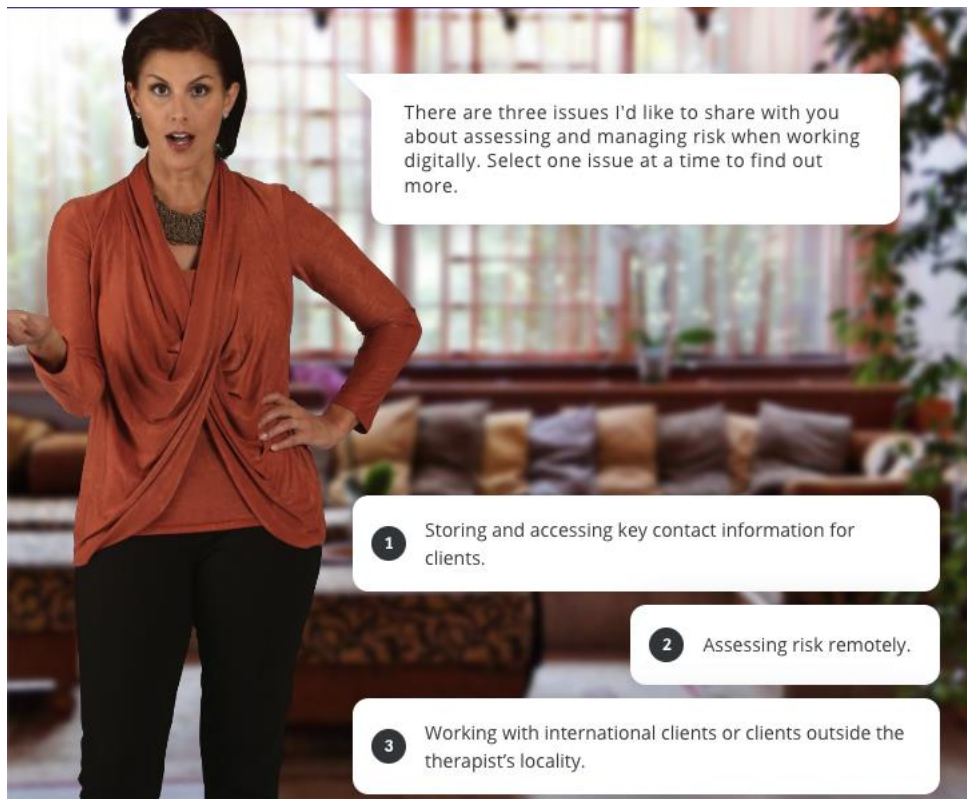
2. Development

A BPS-sponsored specialist e-learning company was contracted (referred to as ‘the company’), and an e-learning authoring tool, Articulate Rise, was selected. The working party finalised the first draft of the textual content and submitted it to the company for review. The company made instructional design edits and identified opportunities for incorporating engaging media and interactive content. After the working party made further edits, the final draft of the pilot version was submitted to the company for production.

3. Production

Visually attractive, culturally diverse, interactive, and engaging media was jointly created. The company uploaded it along with the final draft of the pilot version of the textual content to Articulate Rise. An internal review of the initial online version of the modules revealed overly lengthy sections of text. The company suggested chunking it to reduce readers’ cognitive load by utilizing features such as Accordion Interactions, Tabs, and Buttons. They identified opportunities to enhance interactivity by introducing quizzes and interactive scenarios with avatars (see Figure 2).

Figure 2: Interactive scenario from Module 1 (section 4.3 on Risk)



4. Implementation

The completed trial version of the package was distributed to working party members for internal review. The company revised the package based on feedback before submitting it to the BPS for publication on their BPS Learn platform, prepared for external piloting.

5. Pilot evaluation

Instructions on accessing the package on BPS Learn were distributed to first-year trainee clinical psychologists at the start of their doctoral training courses. Feedback on each module was collected through an online survey. Participants were given 1-2 months to complete the e-learning, pre-post measures. The results from the present study were then used to inform final revisions of the package.

Participants

Four clinical psychology training programmes were invited to participate in a pilot evaluation of the e-learning. Three programmes chose to take part and provided data. Eighty-three first year trainee clinical psychologists, from three clinical psychology training doctoral programmes completed the e-learning (University of Leeds N = 15, University of Surrey N = 12, and Royal Holloway, University of London N = 25). Fifty-two participants (female = 43, male = 6, undisclosed = 4), provided feedback on its usefulness and functionality. Most were in their late 20s ($M = 27.31$, $SD = 3.45$) and White (White =42, Black, Asian and other ethnic backgrounds = 7, Non-disclosed = 4). Thirty-seven participants also provided qualitative feedback on the usefulness and functionality of the e-learning package. The majority of trainees had some prior digital mental health experience, but no previous training (see Table 1).

INSERT TABLE 1 HERE

Materials

Assessing usefulness and functionality

Following completion of the four modules, participants were asked to rate the e-learning on a five point Likert scale across 5 areas; ease of use, level of engagement, comprehensiveness, sensitivity to diversity and relevance to practice. Participants also had the opportunity to provide open-text responses to give qualitative feedback on each module.

Assessing effectiveness

The effectiveness of the e-learning in increasing confidence and competence in digital mental health was assessed by administering two questionnaires pre and post completion of the e-learning.

Digital Competencies for Applied Psychological Practitioners (DCAPP). The DCAPP (Pote, Moulton-Perkins, Rides, et al., 2025) was developed based on the digital competence framework for psychological practitioners (as described above). Participants rated their knowledge and/or ability on fourteen statements using a five-point Likert scale, with five indicating a high level of knowledge or skills. The statements were based on the eight domains of the competence framework (see Open Science Framework <https://osf.io/z9dre/files/ycx35> for a copy of the DCAPP). The minimum score for the questionnaire was 24 and the maximum score was 120, with higher scores reflecting a stronger knowledge and ability to enable safe and effective digital clinical practice.

The Mental Health Practitioners' Attitudes Towards Computer-Based Interventions (adaptation from Perle (2013)). Participants completed an adapted version of Pearle et al.'s (2013) questionnaire (hereafter referred to as the 'Pearle Digital Attitudes Questionnaire') to examine attitudes towards various aspects of digital therapies and interventions. The questionnaire wording was adjusted to ensure that it included all digital interventions. Participants rated their confidence in working in digital mental health on a five-point Likert scale, and rated their agreement with eight statements on a five-point Likert scale, labelled (1) 'I disagree', (2) 'I somewhat disagree', (3) 'I neither agree or disagree', (4) 'I somewhat agree', and (5) 'I agree'. Participants also reported their attitudes towards delivering therapy to various age groups, therapy formats (e.g. 1:1, group, couple), as well as how knowledgeable they felt about research and the literature base for digital interventions. An additional single-item measuring practitioners' confidence in working digitally in mental health was also included.

Design and Analysis

A concurrent mixed methods design (Creswell & Clark, 2007) was employed. The quantitative part of the study utilised a within-subjects experimental design. Practitioner knowledge and ability (as measured by the DCAPP), and attitudes and confidence (as measured by the Perle measure) were analysed using descriptive statistics and repeated t-tests. The qualitative part of the study employed deductive thematic analysis (Braun & Clarke, 2006; Clarke & Braun, 2017) on free-text responses.

Results

Evaluating the e-learning’s usefulness and functionality

Participant ratings of each e-learning module for ease of use, ability to engage the user, comprehensiveness, sensitivity to diversity and relevance to practice are summarised in Table 2.

INSERT TABLE 2 HERE

Participant free-test responses were then subjected to a deductive thematic analysis. Three main themes emerged (Comprehensiveness and usefulness; Interactivity of modules and engagement; Length of modules) as well as some additional considerations which did not fit into a particular theme.

Theme 1: Comprehensiveness and Usefulness

Participants reported that the e-learning package was very informative and helpful when learning about working digitally. One participant especially appreciated its comprehensiveness, noting that it is "especially useful for those who have not been doing online therapy." Overall, the modules were considered "excellent - clear, concise and thought-provoking" [module 3], providing comprehensive information applicable across different levels of digital work links to app websites. Trainees found it interesting to consider

the role of a supervisee in maintaining the supervisory alliance online and appreciated explicit guidance on what to expect from supervision. They also recognised the guidance that might be applicable later in their careers, expressing interest in returning to this training again in the future. However, in contrast, some feedback indicated that completing all of the content was too comprehensive, with one participant noting “If you were to read all of the links and complete each reflective activity you could spend hours on just the one module, which felt a little overwhelming.” Participants also highlighted repetition across the modules, especially in the introduction paragraphs, which they felt made the training unnecessarily longer.

Theme 2: Interactivity of module and engagement

The participants felt that the modules were engaging and accessible. One participant described the module as “very straightforward to follow”, and another as it as being “engaging and easy to navigate”. They also appreciated the layout of the e-learning, noting it was clear, uncluttered, and included a side tab to keep track of progress. The resources and tasks within the modules were consistently related to how interactive and engaging they were. Participants noted resources were highly informative and that they “found the reflective practise exercises really helped to solidify my understanding of what I had just learnt”. They appreciated the use of different interactive elements, particularly the quiz at the end to check understanding. One participant commented, “I particularly engaged with the video of ... the service user, and I found her tips very useful in terms of applying to direct clinical practice. The included links to app websites were regarded as highly practical and useful.

Theme 3: Length of modules and videos

Some participants noted that the estimated length of the modules was underestimated given the amount of material included. After completing module 1, one participant mentioned

“It took me almost 1hr 45 minutes, with reading some of the attachments and saving some until later, and I wonder if the estimation of 60 minutes might be too little and could cause some users to feel they need to rush through.” Another noted that the videos felt too long, which affected their engagement. Regarding improvements, some suggested providing a downloadable summary at the end of the module that compiles the main points, or a list of all included references and videos that can be kept for future use.

Additional considerations

In addition to the themes identified within the thematic analysis, participants also highlighted some of the technical difficulties experienced whilst completing the pilot-version of the e-learning package. These included instances of broken links to webpages, or progress not saving when leaving the site. Furthermore, there were two comments surrounding the diversity representation within the module. One participant explained that in module 1, they would have liked to see “a wider range of... male individuals from BAME backgrounds”, and another participant wanted to see examples of deaf/hard of hearing clients.

Effectiveness of the E-Learning

Competence

As measured by the DCAPP, participants scored significantly higher on total competence ($t(51) = -11.61, p < .001$), knowledge ($t(51) = -12.15, p < .001$), and ability ($t(51) = -10.56, p < .001$) after the e-learning than before (See Table 3).

INSERT TABLE 3 HERE

Attitudes

The Pearle Digital Attitudes Questionnaire revealed that participant attitudes improved significantly ($t(51) = -3.18, p = .003$) after the e-learning ($M=28.48, SD=1.86$) compared to before ($M=27.00, SD=3.25$).

Participants were asked which age groups of patients and therapy formats they believed digital interventions would be effective for, and if they endorsed delivering therapy digitally. Numbers endorsing digital therapy remained broadly similar between pretest ($n = 48$) posttest ($n = 50$). However, participant attitudes about the breadth of clients they thought digital therapy would be effective for changed. For example, children 5-12 years, older adults, families and groups all saw greater endorsements at post-test compared to pretest (see Table 4).

INSERT TABLE 4 HERE

Reasons for not endorsing delivering therapy online remained broadly stable, with similar numbers mentioning confidentiality (pretest $n = 4$, posttest $n = 5$), lack of research (pretest $n = 2$, posttest $n = 2$), lack of ethical guidelines (pretest $n=2$, posttest = 3), and reduced effectiveness of interventions (pretest $n = 2$, posttest $n=3$). Three reasons showed greater changes: privacy concerns increasing (before $n = 1$, after $n = 7$), and concerns over crisis situations reducing (pretest $n = 9$, posttest $n = 6$) and potential negative impact on the therapeutic relationship reducing (before $n=10$, after $n = 3$).

Confidence

A Wilcoxon signed-rank test was conducted to compare confidence ratings before and after completing the e-learning training. Confidence ratings were significantly higher

following the e-learning ($V = 32, p < .001$). Median confidence was 4 (IQR = 2) before the intervention and 4 (IQR = 0) after the intervention, indicating a shift towards higher and more consistent confidence ratings.

Discussion

This study revealed the effectiveness and acceptance of the e-learning package on digital mental health practices among trainee clinical psychologists. The results showed the e-learning was effective, with participants meeting learning outcomes and enhancing their competencies. Thematic analysis revealed three key themes. First, participants found the modules comprehensive and useful, noting their relevance to their practice and the availability of helpful resources. Some commented that the content was overly extensive, causing overlap across modules. Second, participants viewed the e-learning as engaging and interactive, citing its ease of use, and well-designed layout. Third, feedback also indicated that some modules were longer than expected, suggesting shorter videos and more time-efficient content. Modifications were subsequently made to the final version of the e-learning based on this feedback to improve the package.

Furthermore, the study evaluated participants' Digital Competencies for Applied Psychological Practitioners (DCAPP) scores before and after completing the e-learning. Findings showed significant improvements in overall competence, knowledge, and ability with scores demonstrating the training's effectiveness in enhancing digital skills. Attitudes towards digital interventions also became more favourable. Significant concerns remaining included those related to privacy and confidentiality, but concerns regarding crisis management, and negative impact on the therapeutic relationship decreased. The concerns were amongst a minority of participants, and it is unclear if participants had gained the

opportunity to put the knowledge learnt into practice in real clinical settings to address issues of confidence with risk management.

The key strength of the e-learning package was its close mapping to a nationally endorsed framework for digital competence for psychological practitioners, which is closely aligned to professional standards. The framework of digital competence and the e-learning were both co-produced by an expert reference group of psychological practitioners, trainees, researchers, and experts by experience which ensured the content reflected real world digital practice needs. Strengths also lay in the evaluation of the package, which used mixed methods to understand both the effectiveness of the training and offer a rich exploration of the learner experience. Participants were diverse, from three training courses across the UK and as such the evaluation offered an ecologically valid assessment of implementing pre-registration workforce training to support digital implementation at a national level. Little research exists in this area and understanding how digital competencies can be effectively and efficiently rolled out across the workforce is critical for future health service development (Topol, 2019). Scalable online training such as the e-learning package evaluated in this paper clearly have a role to play in preparing the psychological workforce for digitally enabled care.

Some caution should be applied in interpreting the findings as this was not a controlled study, and it relied on recently developed self-report measures, as the measurement of workforce digital competencies and attitudes is still a developing area.

Implications and further research

It is clear more robust measures of digital competence are needed when measuring digital training. Initial psychometric analysis of the Digital Competencies for Applied Psychological Practitioners (DCAPP) measure used in this study is promising, but this new

measure is currently undergoing further validation in a multi-national study to ensure it is robust across clinical practice contexts. In the future, it will be important to develop controlled research, with larger samples, well-validated measures, and follow-up measurements to fully evaluate the sustained impact of digital training initiatives.

Confidence with digital practice also improved according to a single-item measure of digital practice confidence, but a comprehensive assessment of confidence was not possible. There is no robust measure of practitioner confidence with digital delivery, clearly an area for further development. In this study, practitioners were novice clinical psychologists, and additional clinical practice may be required to supplement training in order to develop confidence in this area.

To engage users and sustain user interest it is important that the e-learning was interactive and allowed individual reflection. Utilising Sheth and colleagues’ (2020) five-phase approach to e-learning development enabled an interactive and structured approach to developing both the content and format of the e-learning package. We also had support from a professional learning technologist and e-learning company. This enabled integration of pedagogical approaches which were specific to e-learning delivery (Govindasamy, 2001). Qualitative feedback from users suggested the Ux design was successful in this regard. It was more difficult, however, to monitor participants’ actual engagement with specific modules of the e-learning itself. One area for future development would be to enhance the engagement monitoring tools (Sheth et al., 2020) associated with these intervention packages to determine which are the active ingredients of training.

Accessibility is key in the rollout of training. This evidence-based resource is freely available which offers advantages, but implementation still requires significant marketing which was difficult to sustain. Usage data from the BPS website shows 1432 people have

undertaken the course since, but this has decreased over time, and sustained marketing is important.

One advantage of e-learning supported by a competence framework and endorsed by professional bodies was that implementation was enhanced by integrating digital competencies into UK national training curricula for Clinical Psychologists, (British Psychological Society, 2025). As developing digital psychological competence is now a pre-registration training requirement, we can anticipate increased rollout and monitoring of the e-learning package as a standardised method to help trainees develop skills in this area. This will be important for the individual development of practitioners and will also, in turn, support the expansion of digital care pathways in service delivery.

Resources like this require ongoing updates, especially in the rapidly evolving digital environment. For example, new modules on artificial intelligence and chatbots will become crucial as these tools get fully integrated into psychological practice. In a fast-paced digital world, this presents challenges due to funding and production constraints. The approach taken to address this in the current e-learning was to focus on principles of good digital practice which remain more stable over time.

Conclusion

This study demonstrated that a structured e-learning package to develop digital mental health skills in psychological practitioners at the start of their career can improve their competencies, attitudes and confidence. This is an important first step in rolling out scalable and accessible training solutions which will support implementation of digitally enhanced psychological care in line with healthcare policy directives in the UK and internationally. Embedding competence based digital e-learning packages within pre-registration healthcare

training is likely to be the most cost-effective way of preparing the future healthcare workforce.

For Peer Review

Tables

Table 1: *Frequency of reported experience and training in digital mental health.*

Frequency	
Experience	
No experience	6
Experience delivering assessments/ interventions in	
NHS or private practice, use of apps with clients,	43
running social media, or a digital champion	
Not disclosed	3
Training	
No training	45
Introductory training (1-2 days)	3
Intermediate training (3+ days)	1
Not disclosed	3

Table 2: *Summary of participant ratings for each module (1-5) on the ease of use, engaging to the user, comprehensiveness, sensitivity to diversity, and relevance to practice.*

Module		Mean	SD
Module 1	Ease of Use	4.06	.93
	Engaging to User	3.81	.98
	Comprehensiveness	4.50	.52
	Sensitive to Diversity	3.94	.57
	Relevant to Practice	4.31	.87
Module 2	Ease of Use	4.00	1.12
	Engaging to User	3.58	.79
	Comprehensiveness	4.55	.69
	Sensitive to Diversity	4.25	.87
	Relevant to Practice	4.25	1.06
Module 3	Ease of Use	4.22	.67
	Engaging to User	4.00	.71
	Comprehensiveness	4.22	.83
	Sensitive to Diversity	4.33	.71
	Relevant to Practice	4.33	.71
Module 4	Ease of Use	4.29	.49
	Engaging to User	3.43	.53
	Comprehensiveness	4.28	.49
	Sensitive to Diversity	4.14	.38
	Relevant to Practice	3.86	.69

Table 3: *Pre and post e-learning descriptive statistics for the DCAPP*

	Pre		Post	
	N =		N =	
	Mean	SD	Mean	SD
Total	71.08	13.95	91.81	10.58
Knowledge	29.81	5.89	39.69	4.35
Ability	41.27	8.47	52.12	6.76

For Peer Review

Table 4: *Frequency of digital therapy endorsement, and believed effectiveness for age group and therapy format.*

	Pre e-learning	Post e-learning
	N = 52	N = 52
	<i>Frequency</i>	<i>Frequency</i>
Endorsement of digital therapy		
Yes	48	50
No	4	2
Age Group		
Children (5-12 years)	19	30
Adolescents (13-17 years)	48	47
Young adults (18-25 years)	50	48
Adults (35-65 years)	50	47
Older Adults (65+ years)	25	35
It cannot be effective for any age	1	4
Therapy Format		
Individual	51	51
Couple	42	47
Family	28	41
Group Sessions	37	45
None	1	1

Note: Data from the questionnaire ‘Mental Health Practitioners’ Attitudes Towards Computer-Based Interventions’ (adaptation from Perle (2013)).

References

- Bennett, C. B., Ruggero, C. J., Sever, A. C., & Yanouri, L. (2020). eHealth to redress psychotherapy access barriers both new and old: A review of reviews and meta-analyses [doi:10.1037/int0000217]. *Journal of Psychotherapy Integration*, 30(2), 188–207. <https://doi.org/10.1037/int0000217>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- British Association for Behavioural & Cognitive Psychotherapies. (2021). *Core Curriculum Reference Document*. Retrieved from <https://babcp.com/wp-content/uploads/2025/06/Core-Curriculum-Jul-2022.pdf>
- British Psychological Society. (2025). *Standards for the accreditation of doctoral programmes in clinical psychology*. Leicester: BPS
- Clarke, V., & Braun, V. (2017). Thematic analysis. *The journal of positive psychology*, 12(3), 297–298. <https://doi.org/10.1080/17439760.2016.1262613>
- Creswell, J. W., & Clark, V. P. (2007). *Mixed methods research* (2nd ed.). Sage.
- Darzi. (2024). *Independent Investigation of the National Health Service in England*. Retrieved from <https://assets.publishing.service.gov.uk/media/66f42ae630536cb92748271f/Lord-Darzi-Independent-Investigation-of-the-National-Health-Service-in-England-Updated-25-September.pdf>
- Department of Health and Social Care, HM Government,. (July 2025). *Fit for the future: 10 year health plan for England. Presented to Parliament by the Secretary of State for Health and Social Care by Command of His Majesty*. London: UK Government
Retrieved from <https://www.gov.uk/government/publications/10-year-health-plan-for-england-fit-for-the-future>

- Dobson, R., Variava, R., Douglas, M., & Reynolds, L. M. (2022). Digital competency of Psychologists in Aotearoa New Zealand: A cross-sectional survey. *Frontiers in digital health*, 4, 951366. <https://doi.org/10.3389/fdgth.2022.951366>
- Doorn, A.-v., Békés, V., & Zweig, R. A. (2022). Clinical psychology graduate students: Lessons learned from a sudden transition to online education. *Scholarship of Teaching and Learning in Psychology*, 8(4), 279. <https://doi.org/10.1037/stl0000317>
- Dopp, A. R., Mapes, A. R., Wolkowicz, N. R., McCord, C. E., & Feldner, M. T. (2021). Incorporating telehealth into health service psychology training: A mixed-method study of student perspectives. *DIGITAL HEALTH*, 7, 2055207620980222. <https://doi.org/10.1177/2055207620980222>
- Foley, T., & Woolard, J. (2019). *The digital future of healthcare and its workforce: a report on a mental health stakeholder engagement to inform the Topol Review*. Health Education England Retrieved from <https://topol.digitalacademy.nhs.uk/the-topol-review>
- Govindasamy, T. (2001). Successful implementation of e-Learning: Pedagogical considerations. *The Internet and Higher Education*, 4(3), 287–299. [https://doi.org/10.1016/S1096-7516\(01\)00071-9](https://doi.org/10.1016/S1096-7516(01)00071-9)
- Löchner, J., Carlbring, P., Schuller, B., Torous, J., & Sander, L. B. (2025). Digital interventions in mental health: An overview and future perspectives. *Internet interventions*, 40, 100824. <https://doi.org/10.1016/j.invent.2025.100824>
- Mallonee, S., Phillips, J., Holloway, K., & Riggs, D. (2018). Training providers in the use of evidence-based treatments: A comparison of in-person and online delivery modes. *Psychology Learning & Teaching*, 17(1), 61–72. <https://doi.org/10.1177/1475725717744678>

- Mikkonen, K., Helminen, E.-E., Saarni, S. I., & Saarni, S. E. (2024). Learning outcomes of e-learning in psychotherapy training and comparison with conventional training methods: Systematic review. *Journal of Medical Internet Research*, 26, e54473. <https://doi.org/10.2196/54473>
- MIND. (2021). Trying to connect: The importance of choice in remote mental health services. https://www.mind.org.uk/media/8575/mind-20582-trying-to-connect-report-aw2-welsh-recommendations-lr.pdf?utm_source=chatgpt.com
- Mullerpattan, G. S., Pearala, N., Shetty, T., Hegde, P. R., Patley, R., Manjunatha, N., Math, S. B., & Kumar, C. N. (2025). Trainers' Perspectives Towards Digital Mental Health Training for Primary Care Providers: Insights from Focused Group Discussion. *Indian journal of psychological medicine*, 48(1 Suppl), S107–S116. <https://doi.org/10.1177/02537176251360938>
- Patel, V., Saxena, S., Lund, C., Thornicroft, G., Baingana, F., Bolton, P., Chisholm, D., Collins, P. Y., Cooper, J. L., & Eaton, J. (2018). The Lancet Commission on global mental health and sustainable development. *The lancet*, 392(10157), 1553–1598. [https://doi.org/10.1016/S0140-6736\(18\)31612-X](https://doi.org/10.1016/S0140-6736(18)31612-X)
- Perle, J. G., Langsam, L. C., Randel, A., Lutchman, S., Levine, A. B., Odland, A. P., Nierenberg, B., & Marker, C. D. (2013). Attitudes Toward Psychological Telehealth: Current and Future Clinical Psychologists' Opinions of Internet-Based Interventions. *Journal of Clinical Psychology*, 69(1), 100–113. <https://doi.org/10.1002/jclp.21912>
- Perle, J. G., Perle, A. R., Scarisbrick, D. M., & Mahoney III, J. J. (2022). Educating for the future: A preliminary investigation of doctoral-level clinical psychology training program's implementation of telehealth education. *Journal of Technology in Behavioral Science*, 7(3), 351–357. <https://doi.org/10.1007/s41347-022-00255-5>

- Pote, H., Moulton-Perkins, A., Holloway-Biddle, C., Rides, G., Cavanagh, K., Clarkson, L., Griffith, E., Jacques, C., Latchford, G. E., Richardson, G., Thew, G., Read, R., Priest, P., & Raczka, R. (2020). *Competence framework for digital clinical practice: Psychological practitioners*. British Psychology Society, Division of Clinical Psychology, Digital Healthcare Committee.
<https://digitalhealthskills.com/digitalcompetencies>
- Pote, H., Moulton-Perkins, A., & Rides, G. (2025). Frameworks for digital practice. In H. Pote, A. Moulton-Perkins, & S. Campbell (Eds.), *Psychological Digital Practice: The Basics and Beyond* (pp. 1–41). Open University Press.
- Pote, H., Moulton-Perkins, A., Rides, G., & Lai, S. (2025). Development of the Digital Competencies for Applied Psychological Practitioners (DCAPP)
<https://doi.org/10.17605/OSF.IO/Z9DRE>
- Pote, H., Rees, A., Holloway-Biddle, C., & Griffith, E. (2021). Workforce challenges in digital health implementation: How are clinical psychology training programmes developing digital competencies? *DIGITAL HEALTH*, 7.
<https://doi.org/10.1177/2055207620985396>
- Sheth, S., Ganesh, A., Nagendra, S., Kumar, K., Tejdeepika, R., Likhitha, C., Murthy, P., & Chand, P. (2020). Development of a mobile responsive online learning module on psychosocial and mental health issues related to COVID 19. *Asian J Psychiatr*, 54, 102248. <https://doi.org/10.1016/j.ajp.2020.102248>
- Singh, T., & Reyes-Portillo, J. A. (2020). Using technology to train clinicians in evidence-based treatment: A systematic review. *Psychiatric Services*, 71(4), 364–377.
<https://doi.org/10.1176/appi.ps.201900186>

Topol, E. (2019). *The Topol Review: Preparing the healthcare workforce to deliver the digital future*. London: Health Education England Retrieved from <https://topol.digitalacademy.nhs.uk/the-topol-review>

World Health Organisation (2022). *World mental health report: transforming mental health for all*. Geneva. ISBN 978-92-4-004933-8

For Peer Review