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AI voice journaling for future language teachers: A path to well-being through reflective practices

Bora Demir[1] | **Duygu Özdemir**[2]

[1]School of Foreign Languages, Çanakkale Onsekiz Mart University, Çanakkale, Turkey

[2]Department of English Language Teaching, Çanakkale Onsekiz Mart University, Çanakkale, Turkey

Correspondence
Bora Demir, School of Foreign Languages, Çanakkale Onsekiz Mart University, Çanakkale, Turkey.
Email: dbora76@gmail.com

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Abstract

This study aimed to explore the perceived impact of using an AI-powered voice journaling app in overcoming the challenges and stressors encountered by senior students enrolled in teaching practicum at an English Language Teaching Bachelor's programme. The main objective of this study is to examine the perceived effect of an AI-powered audio diary app known as the 'Audio Diary' on the general well-being of prospective English language teachers. The study employed a qualitative methodology focusing on the themes created by the extensive data provided by the pre-service English teachers. Through the Audio Diary app, eight volunteer prospective English language teachers documented their daily and professional experiences, emotional states and encountered challenges over the period of 4 weeks. We collected data through the app in order to understand the participants' reflections about their daily and professional experiences. Participant entries and AI-generated output were stored by the app and used for content analysis. Participants characterised the AI-powered Audio Diary app as a helpful tool for reflecting on their personal and professional well-being, according to thematic analysis results. Furthermore, it made it easier for them to communicate and comprehend more deeply, and it gave them insightful information about their own experiences throughout the study. Additionally, the app's AI-categorised feedback assisted users in

recognising trends and areas where their teaching methods needed to be improved. It demonstrates, for instance, how AI-powered apps can be used to promote the well-being and reflective practice of pre-service teachers in learning environments.

KEYWORDS
AI, coping with stress, teaching practicum, voice journaling, well-being

Key insights

What is the main issue that the paper addresses?

This paper investigates the impact of an AI-powered voice journaling app on the well-being of senior pre-service English language teachers during their teaching practicum. It explores how such technology can support emotional expression, stress management and professional development.

What are the main insights that the paper provides?

The study highlights two key benefits of the AI-powered voice journaling app. First, its accessibility and motivating feedback, which facilitated reflection and emotional well-being; second, its role in helping pre-service teachers manage time, balance responsibilities and cope with practicum-related stress. The findings emphasise the potential of digital interventions to enhance resilience and mental health in teacher training programmes.

INTRODUCTION

Teacher education plays a crucial role in shaping the future of education, preparing candidates not only with pedagogical knowledge but also with the psychological resilience needed to navigate the demands of the profession (Mansfield et al., 2016). As teaching is inherently a complex and emotionally demanding career, the well-being and self-regulation of pre-service teachers are essential components of their professional development (Demir et al, 2025). In recent years, positive psychology (PP) has emerged as a significant framework for understanding and enhancing well-being in various domains, including education (Dewaele et al., 2019). Seligman's PP theory (Seligman & Csikszentmihalyi, 2000, 2014) emphasises the cultivation of well-being through positive emotions, engagement, relationships, meaning and accomplishment (PERMA). By shifting the focus from deficits to strengths, this framework offers a proactive approach to personal and professional development. In educational contexts, PP has been widely applied to enhance resilience, motivation and overall psychological well-being, making it particularly relevant for teacher candidates navigating the challenges of their training. By focusing on strengths, resilience and personal growth, PP provides valuable insights into how teacher candidates can develop adaptive coping strategies (Jin et al., 2021). At the same time, rapid technological advancements

are transforming the ways individuals engage with self-regulation and reflective practices (van Zyl & Salanova, 2022). This study explores the intersection of PP and digital tools, investigating how an AI-supported audio diary can serve as an innovative approach to fostering well-being and self-reflection among pre-service teachers.

Technology has become an integral and indispensable part of everyday life. Hence, understanding the effect of technological advancements on the well-being and self-regulation of teacher trainees is of most importance (Navarro et al., 2023). Currently, teacher candidates are mostly considered as digital natives living in a digital world. The generation born during the digital age has been labelled in various ways, such as the Net Generation, Homo zappiens (Veen, 2007), iGeneration (Rosen, 2010) and iGen (Twenge, 2017). However, the term 'digital natives', coined by Marc Prensky in his 2001 piece 'Digital natives, digital immigrants Part 1', stands out as the most widely recognised. Prensky (2001) argued that the influence of digital technology has led younger generations to become proficient in computer language, video games and the internet, fundamentally changing how they think and process information. Prensky (2001) suggested that digital natives have quick information processing, multitasking, prefer visual content, thrive in collaboration, seek immediate rewards and prioritise leisure activities over traditional work. This new way of thinking employed by the digital natives of today requires a deeper understanding of their psychological well-being and resilience as well (Small et al., 2020). Consequently, the third wave of psychology comes out as a valuable field of research, particularly as it explores the impact of technological advancements on human well-being (Büchi, 2024). Given the unique cognitive and behavioural traits of digital natives, it is crucial to explore modern, adaptable tools that align with their preferences and needs for self-regulation and psychological well-being (Dienlin & Johannes, 2020).

From this perspective, we provide a dual definition of well-being. First, it is a general state of health including emotional and psychological dimensions (Seligman, 2011). Second, it is defined as life satisfaction, meaningful life experiences and a sense of purpose (Mercer, 2019; Smid et al., 2024). Recently, as an important factor for teachers, teacher well-being is generally defined as the mental, psychological and emotional health of teachers, as a significant factor that affects their professional development and occupational satisfaction (Demir, 2024; Mercer & Gregersen, 2020). This definition points out the importance of supporting educators' well-being to create positive educational settings.

LITERATURE REVIEW

Positive psychology

PP is an important and modern approach that must be taken into consideration when it comes to teacher training (Jin et al., 2021). Although defined in many ways, PP can be defined as the scientific study of the strengths and virtues that enable individuals and communities to thrive, focusing on fostering positive emotions, resilience and overall well-being (Seligman & Csikszentmihalyi, 2000). In other words, PP emphasises the exploration of what makes life most worth living, aiming to understand and enhance the factors that contribute to a fulfilling and meaningful life, beyond the alleviation of suffering (Golab et al., 2025; Peterson, 2006). The evolution of PP reflects a series of shifts in psychological thought, each wave building upon the one before to address different dimensions of human experience. From this perspective, PP emerged as a result of the need for a shift in the standpoint of conventional psychology (Wissing, 2022). The first two waves of psychology complemented each other by expanding our consideration of cognition, emotions and behaviours (Lang et al., 2025; Seligman & Csikszentmihalyi, 2000). Following that, the second trend extended

our conception of well-being and the complexities of life (Lomas & Ivtzan, 2016; Saxer et al., 2024). Finally, the third movement gave us a deeper understanding of the systems, innovations, groups and organisations that impact human psychology (Lomas et al., 2021). The third trend characterises a major change in how we perceive our individual experiences (Wissing, 2022).

Parallel with the popularity of PP for teacher research, researchers have shifted their focus from individual to more complex structures around well-being practices (Lomas et al., 2021). PP, the fastest-growing subdiscipline within psychology, has received significant attention in practice (Martín-del-Río et al., 2021). Its rapid growth over the last two decades indicates that the subject is entering a new period of pioneering research, creative concepts and ground-breaking inventions (Ryff, 2022). This next generation of research will be distinguished by the quick integration of new technical breakthroughs such as AI and machine learning, necessitating more sophisticated models, techniques and metrics to explicate complicated psychological processes (van Zyl & Salanova, 2022).

For many years, educational research has focused on negative emotions such as anxiety (Çelik et al., 2024; Marcos-Llinás & Garau, 2009) and burnout (Beirat et al., 2025; Vaezi & Fallah, 2011) in teaching contexts. On the other hand, more recently, researchers inspired by the PP movement have recognised the need for considering the positive aspects of human psychology and started to examine and promote eudaimonic well-being (Jin et al., 2021). Introduced initially by Seligman and Csikszentmihalyi (2000), supporters of PP underline that psychology should focus on developing positive qualities rather than addressing only negative and challenging aspects (Gao et al., 2020). Seligman and Csikszentmihalyi (2014) argued that psychology should shift from problem-setting and problem-solving approaches to exploring subjective experiences such as love, hope and peace that individuals value. This approach has resulted in an increased interest in such concepts, namely well-being, mindfulness and resilience, which have become integral parts of educational psychology research in the field of teacher education (Lomas et al., 2021). By integrating such concepts, researchers aim to improve the overall quality of teacher education by focusing on developing strengths and positive qualities in educators rather than seeking ways only to reduce their stress (Campoamor-Olegario et al., 2025).

In applied linguistics, researchers' attention has shifted from a cognitive perspective to an innovative perspective focusing on the role of emotions in foreign language teaching (Derakhshan et al., 2024; Dewaele et al., 2019). The unique demands of language teaching—such as cultural sensitivity, technology integration and dynamic classroom interactions—have forced applied linguists to examine the specific challenges experienced by language teachers and provide support to enhance their well-being (Kostoulas & Lämmerer, 2020; Mercer, 2019; Demir & Köksal, 2025). Stress levels increase with professional life, eventually leading to burnout, emotional exhaustion and lack of teaching motivation (Chang, 2009; Gao et al., 2025; Onan & Aydın, 2024).

Regarding this shift, to understand the emotional aspects of language teaching, it becomes critical to study how these unique challenges affect both in-service and pre-service language teachers (Spiteri, 2024). As the focus of the present study, pre-service language teachers who study for their teaching careers also experience similar challenges and stressors when they start their practicum experience. They often have to manage the burdens of their training, academic workload (including exams and assignments) and the difficulties of their practicum placements, leading to a stressful life affecting their overall well-being (Fan & Xie, 2024; Mahmoudi, 2016). Therefore, pre-service teachers who experience those challenges earlier can better be prepared for their future profession and maintain a healthy and effective teaching practice (Kostoulas & Lämmerer, 2020). To be able to manage these challenges, pre-service teachers often employ practices such as keeping reflective journals or diaries (Abednia et al., 2013; Altalhab et al., 2021; Zulfikar & Mujiburrahman, 2018).

These journals or diaries help them document their experiences and reflect on them. By recording their feelings regularly, they can identify the sources of stressors and develop their own coping strategies to cope with these sources. Besides their contribution in helping to handle stress, such reflective practices function as a helping mechanism that contributes to their development as future teachers (Spiteri, 2024). Hence, addressing these issues by integrating such reflection techniques becomes vital in preparing prospective teachers for their future roles by equipping them with effective experiences to cope with the stressors of teaching practice (Fan & Xie, 2024).

Traditional journaling in education

Journaling records personal thoughts, experiences and insights, fostering conversations with oneself or others and allowing for the review and clarification of these reflections (Boud, 2001). In adult education, journaling aids personal growth and reflection on new information. It can promote critical self-reflection, challenge evolving worldviews and assist in professional development (Brownhill, 2024). Maintaining journals, diaries or logs offers several benefits. Personal growth and development are enhanced as journaling integrates life experiences with learning, stimulates mental development and fosters new insights (MacIsaac et al., 2023). Additionally, journaling aids in visualising and solving problems through personal insights, often leading to epiphanies. Writing about traumatic experiences can improve physical health and psychological healing (Adams, 1998). It also increases critical reflection on studies, clarifies values and enhances professional development. According to Progoff (1975), there are multiple types of journaling methods, each with its own advantages and disadvantages. Learning journals are typically handwritten or recorded on tape/computer, capturing thoughts, reflections and personal opinions during educational experiences, helping students become organised and focused (Potts et al., 2024). While diaries are unstructured, chronological recordings of daily experiences, which help sort out personal feelings and facilitate changes through instructor feedback and personal reflection (Progoff, 1975, p. 87), autobiographies, life stories and memoirs encourage self-reflection and sharing of experiences, enhancing understanding of personal development and promoting interaction with others (Boud, 2001). Besides, professional journals document professional growth and development, often included in a professional portfolio and critiqued by peers and instructors (O'Hanlon, 1997, p. 168). As a result of advanced technology and mobile devices, electronic journaling became popular in that these kinds of digital platforms allow their users to share insights and facilitate discussions, enhancing understanding through technology.

AI-supported interactive journaling

Despite its potential benefits, journaling and keeping diaries are under-utilised in educational settings. Students often view it as an additional chore and are reluctant to engage in such practices (Crozier & Cassell, 2016). The structured nature of traditional journals can feel restrictive, deterring consistent use (Angenius & Ghajargar, 2023a). Considering the current generation as digital natives who are eager to use mobile devices and online apps, asking them to keep pen-and-paper journals would be misaligned with their preferred modes of communication and interaction. However, considering the availability and accessibility of technology and mobile devices, digital journaling tools might be more effective by supporting the habits and preferences of the current generation (Schulz, 2024). While traditional journaling methods have provided numerous benefits in education, the

evolving preferences and habits of today's learners call for more modern and flexible approaches.

Linked to the digital habits of today's digital natives, AI-supported journaling emerges as an encouraging method (Nepal et al., 2024). Utilising this new perspective offers many advantages. AI-supported journal apps are capable of providing personalised feedback and guidance with their flexible and responsive algorithmic designs (Angenius & Ghajargar, 2023b). Compared with pen-and-paper journaling, these tools are capable of generating rapid personalised output (Torres, 2024). As a result of this dynamic working principle, AI apps become more engaging for users. Also, with the help of AI algorithms and data storage facilities, AI tools have the ability to recall previous entries and track users' development (Schulz, 2024). In this way, AI-based journaling becomes an appealing reflective tool for digital natives as future teachers, leading to reflective practice (Mishra et al., 2023). Despite these innovative features of the AI technology, there is little attempt to explore its effectiveness and benefits in educational settings (Wissing, 2022), suggesting the need for research on the effectiveness of AI-supported journaling apps in educational settings. On the other hand, some recent studies have investigated the effectiveness of AI-supported interactive tools for student engagement. Angenius and Ghajargar (2023a) investigated the effects of interactive journaling with AI. They examined the potential applications of conversational agents in reflective practices by utilising interactive journaling with conversational agents (CAs). They concluded that the variety of materials involved in creating interactions with CAs leads to special obstacles. However, words have unique qualities (e.g., tone and intent) that help designers externalise and refine concepts. As a result, they suggested that the primary design materials be words, language and conversations.

Another study by Torres (2024) analysed a digital self-management system aimed at empowering individuals with emotional self-regulation issues. Focused on enhancing self-efficacy in specific areas or goals, the study suggests an 'AI-prompted future selfie-video journaling tool' that leads users in recording video selfies with future-self narratives. During a 5-day experiment including individuals aged 24–77 from the United States and Peru, insights were acquired by utilising a simulated WhatsApp AI-assistant chatbot. Participants formulated concrete goals and empowering emotions, recorded videos at night and replayed them upon waking during the 15-min window of theta brain waves. Those who completed the assignment reported greater self-reflection on emotions, leading to more positive ideas about daily activities. A critical difficulty found was the necessity for individualised adaptation to ensure the large language model (LLM) properly recognised both general patterns and individual mental health preferences for optimal user engagement and education.

The gap and the present research

When all these factors are considered, it is evident that there is a need for a more inventive approach when it comes to diary and journal keeping and a deeper understanding of how AI comprehends and responds to human requirements in terms of psychology. Since it is a new area of research, it is crucial to comprehend the LLMs so that we can benefit from them in the future. Although a lot of research has been carried out on journal writing, not a lot of research has been conducted on AI journaling. This new reflection approach can be a fantastic way to remove the problems associated with journal writing, such as storage and needing an outline, and it is also a great way to save time. While there is research on various journaling methods (e.g., video journaling and interactive journaling) within the field of technology, there is limited research in the educational context. As a result, this research is significant since it introduces a novel reflection method designed to assist pre-service English teachers. From this perspective, this study aims to explore the experiences of pre-service

English language teachers as they navigate the difficulties and stressors encountered during their practicum, using an AI-supported audio diary app (Nepal et al., 2024). By doing so, we hope to gain insights into how this innovative method can benefit prospective teachers by answering the following research questions:

1. What are the problems encountered by teacher candidates in their daily lives?
2. What are the challenges encountered by teacher candidates in their teaching practicum?
3. What are the perceived setbacks and benefits of using an AI-based voice diary for self-reflection?
4. Is the AI-supported voice diary app effective in enhancing the well-being of teacher candidates?
5. For what purposes did the participants use the AI-supported voiced journaling app?

To answer these research questions, the present study is structured as follows. First, the theoretical framework establishes the foundation of the study by drawing on PP (Seligman, 2011) to contextualise the potential role of AI-supported journaling in fostering teacher candidates' well-being and reflective practices. This is followed by a discussion of the research context, detailing the participants, setting and technological intervention. The findings are then presented thematically, corresponding to the research questions, before concluding with a discussion of the implications for educational technology and teacher training. By structuring the paper in this way, we aim to provide a comprehensive understanding of the perceived impact of AI-supported journaling on pre-service teachers, offering valuable insights for future research and practice.

METHODOLOGY

Participants and setting

The study sample consists of eight teacher candidates studying in the English Language Teaching Department at a university in Turkey. The average age of students was 22.8 years. These participants were randomly selected among 25 voluntary students. All the students were enrolled in the teaching practice course, which involves a 12-week active school practicum including both classroom observations and teaching experience. In this context, with the cooperation of the Ministry of Education and the Faculty of Education, senior pre-service teachers are randomly appointed to public schools in groups of five and start teaching after at least 6 weeks of classroom observation. During the practicum, the student teachers must plan and deliver three 40-min lessons, all of which are observed. During their teaching, each group of students is supervised and they receive feedback both from the classroom teacher and the faculty member. Table 1 provides demographic information about the participants and their former experiences with journaling or diary keeping.

Instrumentation

Pre- and post-intervention question forms

This research collected and analysed qualitative data from four different sources. First, a demographic information form was used to get more detailed information about the profiles of the participants. The form included questions such as age, gender and the grade levels they teach for the teaching practicum.

TABLE 1 Demographic information and former experiences of the participants with journaling or diary keeping.

Participant	Gender	Age	Practicum grade	Previous school journaling experience	Previous personal journaling/diary-keeping experience	Patterns and purposes of personal journal/diary keeping
Amelia	F	22	9, 10, 11, 12	No	Yes	*I usually keep a diary. I keep dates, memories, etc. in my agenda.*
Brenda	F	24	5, 6, 7	No	No	None
Chloe	F	22	10, 11	No	Yes	*I kept a diary throughout the primary and secondary school years. However, as I grew up, I lost this habit. In this process, keeping a diary made me feel good because I was able to write my thought without hesitation.*
Daisy	F	23	10, 11	No	Yes	*I keep a personal journal currently. I also used to keep a journal when I was a kid. My family read it, and I didn't want to write in my journal again until last year. I keep a journal now, and don't care if they read it.*
Emily	F	23	5, 7, 8	Yes	Yes	*I had a few attempts at journal writing in primary school. But they weren't long-term.*
Freddie	M	23	5, 6, 7, 8	No	Yes	*Yes, I have. However, it was a long time ago. So, I don't remember much detail.*
Grace	F	23	7, 8	No	No	None
Helen	F	23	10	Yes	Yes	*Yes, I like keeping a diary. I start and stop keeping a diary from time to time.*

Second, a pre-intervention question form was developed by the researchers in parallel with the aim of the research. A question pool was created by the researchers and the items to be used underwent blind selection by both researchers. The following is the final form of pre-intervention question form seeking information about the former journaling and diary-keeping experiences of the participants along with their opinions and expectations from the intervention:

1. Have you ever kept a personal journal? Write about your experience in detail.
2. Have you ever kept a journal for a school subject? Write about your experience in detail.
3. Do you think reflective practices are necessary for well-being? Why? Why not?
4. What are your expectations from this intervention?

Third, a post-intervention question form was developed by the researchers following the same development procedures as for the pre-intervention question form and the following four questions were compiled to be able to identify the participants' opinions about the whole procedure and their experiences with the AI-supported audio diary tool:

1. What was your experience like? What were the drawbacks and benefits of using such an app? Talk about your experience in detail. If you have any suggestions, please include them in this section.
2. Are you going to use this app in the future?
3. How would you rate your experience in terms of enhancing your overall well-being?
4. In what ways has your experience influenced your self-reflection practices?

Before starting the 4-week intervention, all the participants signed a consent form including statements that the obtained data would be used solely for research purposes, and any concerns volunteers may have had were addressed throughout and after the research. The forms were delivered via Google Forms. Throughout the diary-keeping process, students were only managed by AI. Therefore, the only intervention during this period was AI intervention. Table 2 visualises information about the data collection tools.

The intervention tool

The intervention tool was an AI-supported app called Audio Diary (Audio Diary, n.d.) developed by Soliloquy Apps. It is an AI-based voice diary tool which captures, organises and analyses life's moments and responds to users' entries. It also helps with goal setting, mood tracking and storing diaries digitally. The voice-recording aspect of the app can be used for diary keeping; however, the app also has a writing feature. Therefore, entries can be recorded through voice or writing. Although Audio Diary is available on iOS, Android, MacOS and the Web, all the participants decided to use the app on their smartphones.

TABLE 2 Procedures for data collection.

Source of data	Time
Demographic information form	5 min
Pre-intervention question form	20 min
Application of AI-supported Audio Diary app	4 weeks
Post-intervention question form	20 min

A protocol between the developer company and the researchers was made for eight free accounts, which would be valid during the intervention. This helped the researchers to make sure that all participants started and ended using the app at the same time so that all conditions were equal.

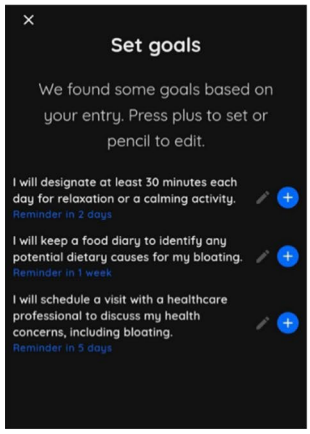
Prior to the intervention, the participants were briefed about the app tool. The researchers provided real-time demonstrations about the use, features and overall working principles of the app. Their questions were elicited and replied to by the researchers to make sure that all participants were sure about the procedures they would follow.

The Audio Diary app is designed with a simple and user-friendly interface. After a typical greeting page with an entry button where users can easily add a photograph, a memory or a diary entry, the app records the user's mood with reference to their self-reports on a daily basis. This feature enabled the participants to track their own moods throughout the intervention, as well as the researchers to see the participants' development over the whole project. Figure 1 shows various screenshots of the user interface. This visualisation property helped the researchers see the perceived effect of the tool from a wider perspective.

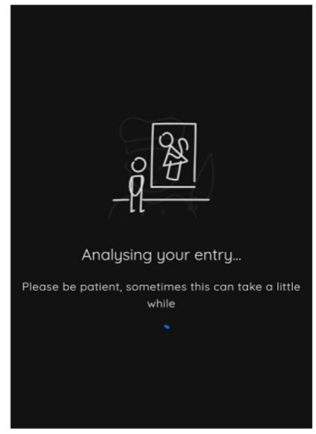
The app includes features such as filling in ongoing goals, good days, shared entries, memories, gratitude, ideas and dreams with user-friendly buttons (screenshot c). Figure 2 shows some screenshots of the user interface. Participants were able to reflect on different aspects of their lives and could receive feedback from the app as a self-reflection tool to enhance their well-being daily (screenshot f).

For the intervention, participants were asked to record their days using this app for 4 weeks. During these 4 weeks, they recorded daily entries which were analysed by the app. Basically, each participant used the ‘set goals’ section for goal setting. These goals were selected by AI, using the diary entry. The participants were then able to select their goals and set a date for recollection of this goal. Later, the app provided notifications to remind of these goals. After the goal-setting part, the tool usually provides a summary of the entry with suggestions and motivational quotes. Participants were able to reflect on their day using this summary part. The app enabled participants to receive feedback either in written or oral format and ask further questions about the AI-generated suggestions. This interaction with the AI makes the app more appealing for users with a sense of real-life consulting.

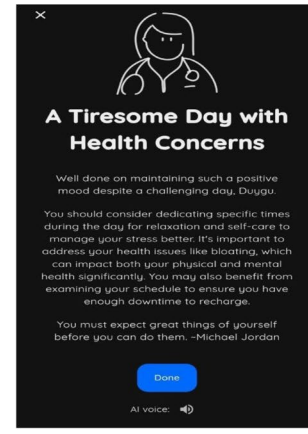
FIGURE 1 Screenshots of the app's interface. (a) Greeting page. (b) Mood-tracking page. (c) Menu screen.



(d) Entry analysis and goal setting screens



(e) Entry analysis and goal setting screens



(f) A summary of the diary entry

FIGURE 2 Screenshots of the app's interface. (d) Goal setting. (e) Entry analysis. (f) Summary of the diary entry.

Data analysis

The study employed a qualitative methodology, focusing on the perceived effect of using an AI-powered voice journaling app in overcoming the challenges and stressors encountered by senior students enrolled in an English Teaching Bachelor's programme during their teaching practicum. As a commonly used research method, qualitative research aims to gather data for detailed descriptions and explanations of human activities (Miles et al., 2014). We applied a two-step approach, namely inductive content analysis (ICA) and thematic analysis (TA), to analyse the qualitative data. First, we used ICA as the initial stage to reduce and organise the data into descriptive categories. Second, TA was applied to identify broader conceptual themes. This two-step approach enabled the organisation of the data and then its interpretation through TA. The aim of using both methods was to provide a deeper understanding of the participants' perspectives (Vears & Gillam, 2022).

As a commonly used qualitative technique, we utilised ICA, which aimed to systematically reduce the data into meaningful categories and provide an initial descriptive framework (Hsieh & Shannon, 2005). For the ICA, we followed the five-step procedure suggested by Vears and Gillam (2022). In the first step, we read and familiarised ourselves with the data. In the second step, we carried out first-round coding to identify big-picture meaning units. Following that, in the third step, we did second-round coding in order to develop subcategories and fine-grained codes. That was followed by the fourth step, where we refined the fine-grained subcategories. Finally, the fifth step involved the synthesis and interpretation of the findings. Following that, the present paper followed the procedures of Braun and Clarke's (2006) six-phase framework for thematic analysis to systematically analyse the qualitative data as shown in Figure 3.

The data analysis followed a structured process. First, we thoroughly familiarised ourselves with the interview transcripts. Using MAXQDA, we applied open coding to assign meaningful labels to text segments. These initial codes were then grouped into broader categories based on recurring patterns. Code maps were created to visualise relationships between codes and categories. From these, overarching themes were developed to capture key insights. Finally, the findings were compiled into a report, integrating identified themes with representative participant quotes.

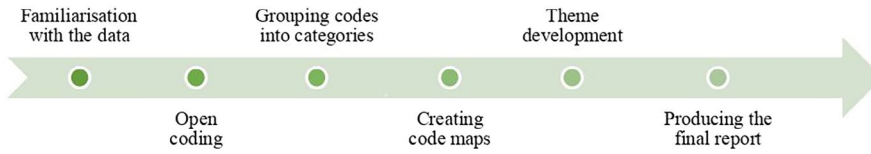


FIGURE 3 Overview of the thematic analysis process (adapted from Braun & Clarke, 2012).

The reliability of the ICA process was ensured by a team coding approach, involving the independent analysis of the data by two coders as suggested by Miles and Huberman (1994). The inter-rater reliability coefficients for the pre-service teachers' pre- and post-intervention interview questions were calculated as 0.88 and 0.91, respectively, following Altman's formula (1991): (Number of agreements/Total number of agreements and disagreements) × 100. These coefficients, which surpass the established benchmarks for high agreement within the 0.80–1.00 range (Altman, 1991; Landis & Koch, 1977), demonstrate the robustness and validity of the research instruments in ensuring accurate data interpretation. Besides, researcher triangulation (in which multiple researchers analyse the same data independently) was applied to enhance reliability. Multiple researchers independently coded the data and discussed discrepancies until a consensus was reached, ensuring a consistent and rigorous analysis process (Nowell et al., 2017). Additionally, the data that compiles all the activities and entries of the participants using the app were stored and documented automatically by the app.

Trustworthiness

By applying sound strategies implemented throughout the research, trustworthiness of the findings was ensured. According to Lincoln and Guba (1985) and Shenton (2004), the data were carefully examined by two researchers through a blind coding process to increase reliability. Regular peer debriefing sessions were conducted to reconcile differences in interpretation and ensure consistency in our analyses (Morse et al., 2002). Additionally, we maintained a detailed audit trail of all analytical procedures and engaged in member checking with participants to verify that our interpretations accurately reflected their experiences (Lincoln & Guba, 1985). These measures helped to reinforce the transparency and reliability of our study, establishing a robust basis for the reported findings.

FINDINGS

The themes and categories for the pre- and post-intervention question forms and the intervention are presented and discussed for each research question in the following subsections. Figure 4 presents a hierarchical code–subcodes model generated using MAXQDA that briefly outlines the key themes and subthemes, offering readers a clear framework before exploring the detailed findings.

Research Question 1: What are the problems encountered by teacher candidates in their daily lives?

A thematic study of the experiences of teacher candidates revealed that the participants faced a variety of obstacles in their daily lives. Three main themes were identified as a result

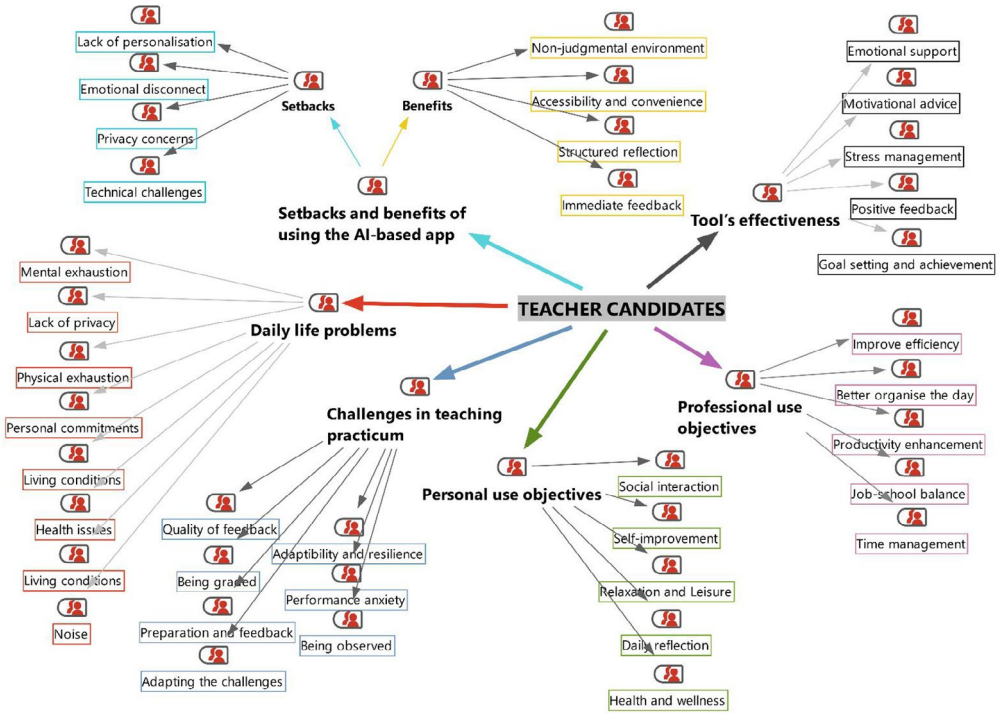


FIGURE 4 The hierarchical code–subcodes model.

TABLE 3 Problems encountered by teacher candidates in their daily lives.

Category	Theme	Description	Count	*f* (%)
Problems encountered in daily life	Living conditions	Issues with dormitory life, noise and lack of privacy	4	50
	Balancing responsibilities	Difficulty managing academic and personal commitments	4	50
	Health and exhaustion	Descriptions of physical and mental exhaustion	3	37.5

of the content analysis, namely *living conditions*, *balancing responsibilities* and *health and exhaustion*, as presented in Table 3.

Half of the participants reported significant challenges with dormitory life, with half of those ($f = 4$) specifically mentioning noise and privacy concerns. Emily agreed, emphasising the ongoing disruptions that made living in a dormitory difficult:

> *Dorm life can be really challenging. There's always some kind of noise or disturbance.*

Another major issue was the challenge of balancing personal and academic responsibilities, with 50% of participants reporting difficulties in managing both. Chloe reveals how difficult it is for student teachers to balance personal obligations, teaching practice and classes:

> *It's difficult to find time for everything. Between classes, teaching practice and personal commitments, I often feel overwhelmed.*

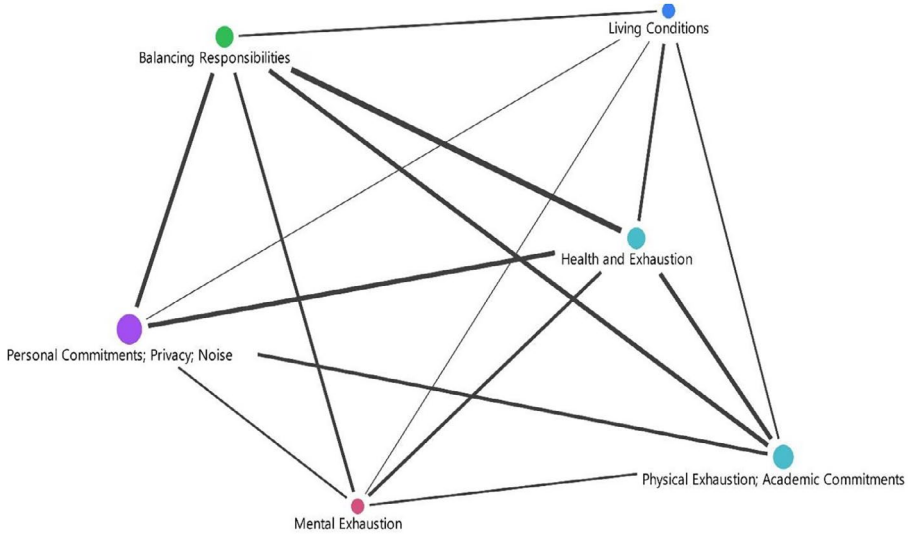


FIGURE 5 Code map for the themes and categories visualising problems encountered by teacher candidates in their daily lives.

As for the last theme (health and exhaustion, both physical and mental), three participants underlined the perceived impact of health factors on their general well-being. Freddie explained how everyday activities were affected by the inability to get enough sleep:

> *I woke up early. I couldn't sleep well. My roommates made noises for a while. This lack of sleep is affecting my daily performance*.

These findings suggest that pre-service teachers have various difficulties they are exposed to. These challenges are poor living conditions, balancing responsibilities and exhaustion. The code map in Figure 5 shows the interaction between the codes.

The code map in Figure 5 displays the interconnections for the challenges faced by pre-service teachers in their daily lives, with four key themes: *living conditions*, *balancing responsibilities*, *health and exhaustion* and *academic commitments*. These themes are directly inter-related with each other. The figure shows that living conditions play a foundational role. Issues like dormitory noise and lack of privacy impact both personal and academic responsibilities, contributing to mental and physical exhaustion. Another dominant theme is balancing responsibilities. This factor reflects the difficulty of managing academic, personal and extracurricular demands, which often results in exhaustion. Additionally, the codes of health and exhaustion represent the crucial effects of academic and personal burdens, which were reported by student teachers as factors causing mental and physical fatigue. All these interconnections across the themes reveal the multifactorial nature of the challenges, where one issue often exacerbates another. Hence, addressing these challenges involves a holistic approach, in order to create a more supportive environment for pre-service teachers.

Research Question 2: What are the challenges encountered by teacher candidates in their teaching practicum?

During their practicum, teacher candidates reported that they encountered a range of obstacles as they worked towards becoming teachers. These difficulties were

categorised under three themes: *performance anxiety*, *preparation and feedback* and *adaptation and resilience*. These themes show the difficulties and demands of being a successful teacher.

As shown in Table 4, performance anxiety was found to be a substantial difficulty, affecting 62.5% of participants. One of the main causes of anxiousness was the pressure of being watched over and evaluated when practicing teaching. Daisy reported on the anxiety of being watched, worrying about making mistakes and falling short of expectations:

> *Being observed during my teaching practice makes me very nervous. I worry about making mistakes and not meeting the standards*.

Another vital aspect was getting feedback and preparing classes; 50% of participants noted that lesson preparation takes a lot of time. Although the input was thought to be beneficial, it also highlighted the necessity of ongoing development. Emily detailed a thorough planning process:

> *Preparing for each lesson is so time-consuming. Most of the time I cannot find suitable material for my teaching and have to prepare it from scratch. Making lesson plans is another time-taking obligation. My supervisor asks for detailed lesson plans… almost planning every moment of the whole class*.

These results serve as an insight into the complex issues that teacher candidates deal with when doing their teaching practicum. The main components of the experiences include performance anxiety and the demanding requirements of lesson preparation.

In order to visualise the relationships between codes, the code map in Figure 6 was generated using the MAXQDA software program.

The code map highlights the multifaceted challenges faced by teacher candidates during their teaching practicum, centred around three interconnected themes: *performance anxiety*, *preparation and feedback* and *adaptability and resilience*. Performance anxiety, driven by the high-stakes nature of evaluations, emerges as a dominant theme, exacerbating self-doubt and stress. Closely tied to this is the difficulty candidates face in lesson preparation and processing feedback, which often reveals a gap between theoretical training and classroom realities, particularly when feedback lacks constructive delivery. Adaptability and resilience reflect struggles in responding to unexpected classroom dynamics, underscoring the need for flexibility and emotional strength. These challenges are deeply inter-related, as deficiencies in one area often amplify difficulties in another, creating a cumulative effect. The findings highlight the need for holistic support systems that address both the emotional and practical aspects of the practicum, enabling candidates to navigate their experiences more effectively.

TABLE 4 Challenges experienced during the teaching practicum.

Category	Theme	Description	Count	*f* (%)
Challenges in teaching practicum	Performance anxiety	Anxiety about being observed and graded during teaching practices	5	62.5
	Preparation and feedback	Preparing for lessons and receiving feedback	4	50
	Adaptability and resilience	Adapting to challenges and learning from experiences	3	37.5

Note: $n = 8$.

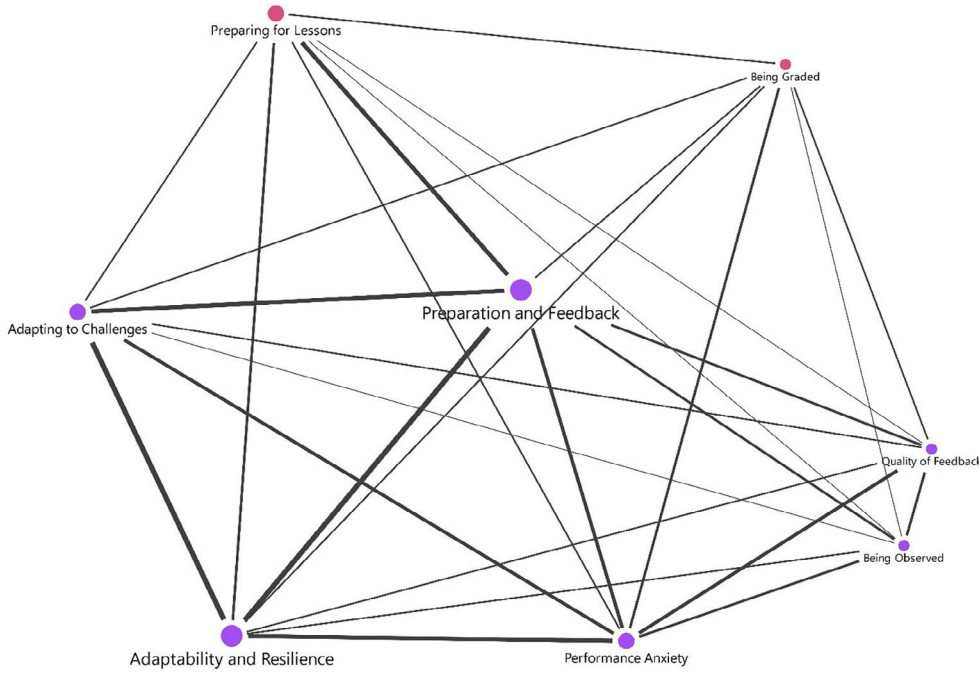


FIGURE 6 Code map for the themes and categories visualising challenges experienced by teacher candidates during the teaching practicum.

Research Question 3: What are the perceived setbacks and benefits of using an AI-based voice diary for self-reflection?

To answer the third research question, a question form was sent to the participants. They were asked to evaluate the intervention regarding its setbacks and benefits.

The analysis identified two main categories, shown in Table 5 as *perceived setbacks* and *perceived benefits* of using an AI-based voice diary for self-reflection. Within the setbacks, participants expressed concerns about *privacy*, *technical challenges*, *lack of personalisation* and *emotional disconnect*, with privacy concerns being the most frequently mentioned issue. On the other hand, the benefits included *non-judgmental environment*, *accessibility and convenience*, *structured reflection* and *immediate feedback*, with the non-judgmental environment being the most appreciated advantage. While some challenges were noted, the overall findings suggest that the benefits, particularly the supportive and accessible nature of AI-based reflection, outweighed the drawbacks. Thematic analysis was conducted to reveal reoccurring themes. The participants were mostly content with the intervention ($N = 8$). Amelia highlighted the value of reflection on daily experiences, setting goals and gaining insights into personal achievements:

> *Seeing and reflecting on my day was a good experience. I was able to look at what I had done and what kind of goals I had.*

In a similar sense, Brenda appreciated the motivational aspect of the app, focusing on its ability to find positive aspects even in entries relating to problems:

> *Even when I mostly write about my problems, it finds something in my entry and talks about it. It motivated me. The goals were awesome.*

Overall, participants were mostly intrigued by the app since it was helpful with quotations, questions and they found it very convenient. However, the process was not free from setbacks. Amelia highlighted how hard it was to record each day due to tasks and obligations:

> *Sometimes, unfortunately, I could not find time, and it would not be possible to do it because of daily tasks and obligations*.

In order to visualise the relationships between the codes, the code map in Figure 7 was generated using the MAXQDA software program.

From the map, it appears that the central theme could be related to the overall *use of AI-based tools for self-reflection*, with subthemes branching out into specific perceived *benefits* and *setbacks*. Themes such as *accessibility*, *convenience* and *structured prompts* might be closely connected to positive outcomes, while *privacy concerns* and *technical issues* could form another cluster reflecting setbacks. The map highlights the interconnectedness

TABLE 5 Perceived setbacks and benefits of using AI-based voice diary for self-reflection.

Category	Theme	Description	Count	*f* (%)
Perceived setbacks	Technical challenges	Issues related to software bugs, connectivity or usability difficulties	4	50
	Privacy concerns	Worries about confidentiality and data security	5	62.5
	Lack of personalisation	Perception of generic or irrelevant AI prompts	3	37.5
	Emotional disconnect	Lack of emotional connection compared to human interaction	2	25
Perceived benefits	Accessibility and convenience	Ease of use and availability without time/place limitations	6	75
	Structured reflection	Provision of guided prompts for better organisation of thoughts	5	62.5
	Immediate feedback	Instant suggestions provided by AI	4	50
	Non-judgmental environment	Comfort in expressing thoughts without fear of judgment	7	87.5

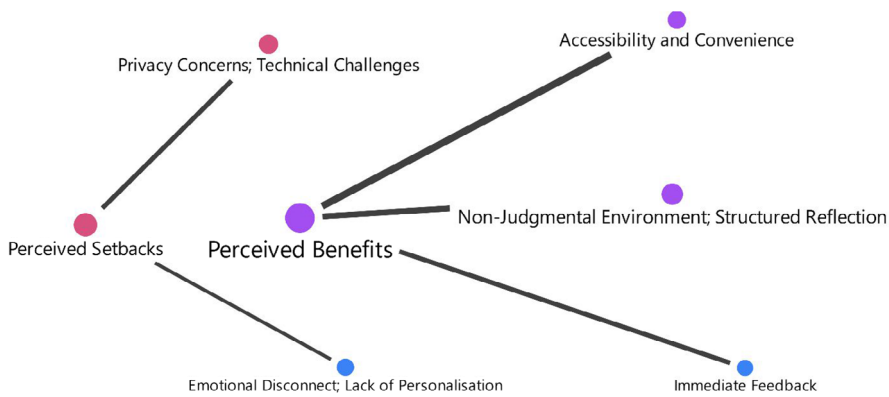


FIGURE 7 Code map for the themes and categories visualising perceived setbacks and benefits of using AI-based voice diary for self-reflection.

of these ideas, showing that while participants recognised benefits, their experiences were nuanced and layered with challenges.

Research Question 4: Is the AI-supported voice diary app effective in enhancing the well-being of teacher candidates?

Through goal setting, emotional support and stress management, the app proved successful in improving well-being. Five individuals reported feeling stressed about their daily lives and their teaching practicums, indicating that stress management was a common theme. Chloe wrote about how utilising the voice journal helped her feel less stressed:

> *Using the voice diary to talk about my worries helps reduce my stress. It feels like chatting with a close friend*.

Three participants expressed gratitude for the AI's emotional support in the form of encouraging remarks and suggestions. Freddie emphasised how the AI's inspirational quotations are upbeat:

> *The AI offers motivational quotes that really uplift me when I'm feeling down*.

Table 6 highlights the tool's perceived effectiveness in enhancing well-being among teacher candidates. The most prominent category is stress management, with 62.5% of participants reporting reduced stress related to teaching practicums and daily life. Under positive perceived effects, themes such as emotional support ($f = 37.5\%$) emphasise the app's role in providing motivational advice and feedback, while goal setting and achievement ($f = 25\%$) highlights its contribution to helping candidates set and achieve goals, further promoting well-being. Overall, the tool is perceived as a supportive resource for managing stress and fostering emotional and goal-oriented growth.

In order to visualise the relationships between the codes, the code map in Figure 8 was generated using the MAXQDA software program.

The code map for the tool's effectiveness in enhancing well-being demonstrates the interconnected nature of key components that contribute to users' well-being. *Stress management* appears as a central hub, reflecting its prominence in addressing challenges related to teaching practicums and daily life. *Emotional support*, which is linked to stress management, highlights the role of the tool in providing motivational advice and positive feedback. *Goal setting and achievement* are connected to both stress management and emotional support, suggesting that the app's ability to help users set and achieve goals contributes to their overall well-being by alleviating stress and boosting emotional resilience. The map underscores how the components work synergistically, with stress management serving as the foundation

TABLE 6 Tool's perceived effectiveness in enhancing well-being.

Category	Theme	Description	Count	*f* (%)
Positive perceived effects	Stress management	Reports of stress related to teaching practicums and daily life	5	62.5
	Emotional support	Positive feedback and motivational advice from the AI	3	37.5
	Goal setting and achievement	The app helps candidates set and achieve goals, enhancing their well-being	2	25

Note: $n = 8$.

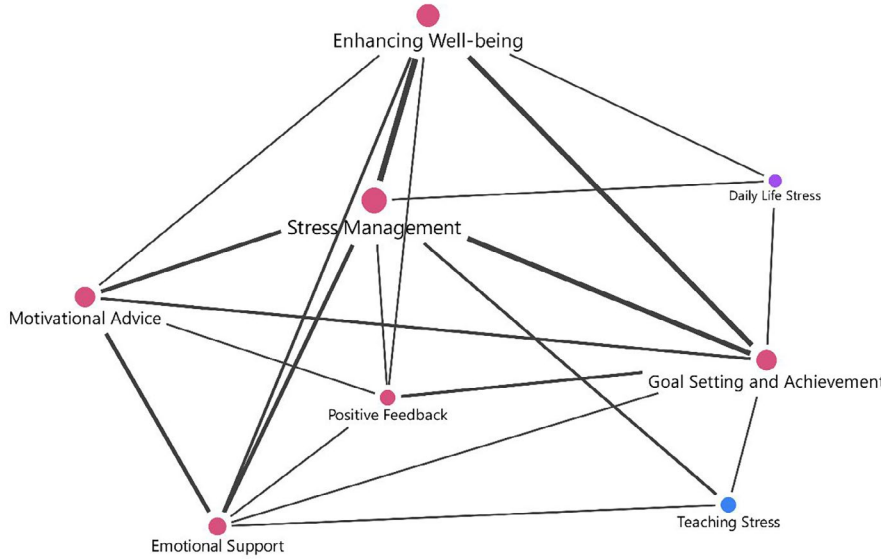


FIGURE 8 Code map for the themes and categories visualising the tool's effectiveness in enhancing well-being.

for fostering emotional support and goal accomplishment. These inter-relationships highlight the comprehensive nature of the tool in addressing different dimensions of well-being.

Research Question 5: For what purposes did the participants use the AI-supported voice journaling app?

This analysis aimed to address the fifth research question by exploring the motivations behind app usage. To understand why participants engaged with the app, a thematic analysis was conducted. The findings identified two main categories—*professional use* and *personal use*—and seven underlying themes.

Table 7 visualises the usage of the app for professional purposes, with three primary themes identified. The first theme, *job–school balance*, highlights how users leverage the app to manage the responsibilities between their job duties and academic demands, accounting for 50% of entries. The second theme, *productivity enhancement*, shows that learners use the app to improve efficiency and output in work or study settings, also constituting 50% of entries. The third theme, *time management*, represents how users apply the app to organise and plan their time effectively between various professional activities, though this is slightly less frequent, covering 38% of entries.

In order to visualise the relationships between the codes, the code map in Figure 9 was generated using the MAXQDA software program.

The code map highlights key components related to the use of the voice journaling app for professional purposes, emphasising its role in enhancing the daily practices of pre-service teachers. *Job–school balance* emerges as a crucial objective, reflecting the need to manage the dual demands of academic responsibilities and teaching-related tasks. This component connects closely with *time management*, as pre-service teachers aim to allocate their time effectively to maintain equilibrium between professional and academic commitments. Additionally, the app is seen as a tool for *better organising the day*, enabling users to structure their activities, set priorities and track progress systematically. This organisational support ties directly to *productivity enhancement*, suggesting that pre-service teachers value

TABLE 7 Objectives for using the app for professional purposes.

Category	Theme	Description	Count	*f* (%)
Professional use	Job–school balance	Using the app to manage and reflect on the responsibilities between job duties (part-time jobs, private tutoring, etc.) and academic demands	4	50
	Productivity enhancement	Leveraging the app to improve efficiency and output in work or study settings	4	50
	Time management	Utilising the app to better organise and plan time between various professional activities	2	38

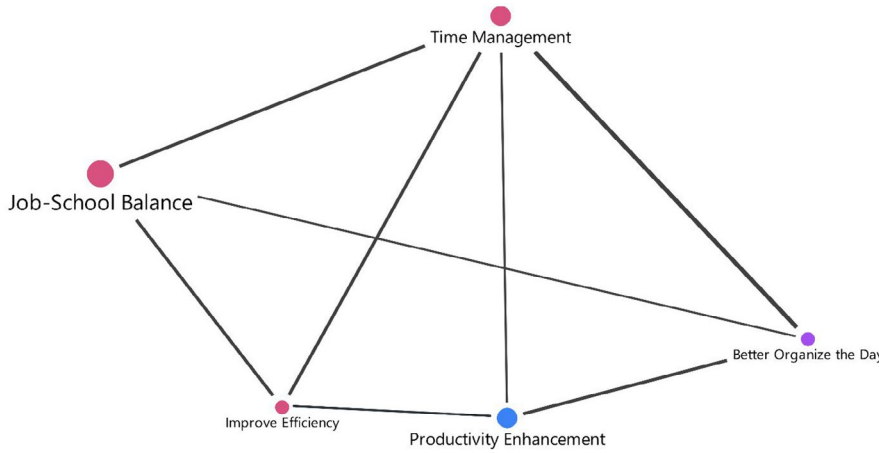


FIGURE 9 Code map for the themes and categories visualising objectives for using the app for professional purposes.

the app for optimising their workflow and ensuring that time is spent on meaningful tasks. Lastly, these components collectively contribute to *improving efficiency*, as the app helps streamline daily routines and minimise distractions. Together, these interconnected elements reveal that pre-service teachers perceive the app as an essential tool for fostering discipline, achieving balance and maximising their professional potential.

The results of the thematic analysis of the interactions for the professional use category are presented in Table 8. The table shows three themes: *time management*, *increased productivity* and *job–school balance*. The data analysis showed that a large number of users increased their productivity, successfully allocated their time and revealed their strategies to cope with the challenges faced in connecting their academic and professional responsibilities. In addition, the responses generated by the AI emphasised the protection of work–life balance, the focus on professional and personal development and the increase in the efficient use of time. The recurring themes suggest that the app served as a supportive tool, helping users organise their tasks, stay motivated and manage the pressures of their busy schedules.

Table 9 summarises personal use of the app under five key themes. The most important theme is found to be *self-improvement*, constituting 63% of the entries, reflecting how users engage with the app for personal growth, learning and self-development. Also, *relaxation and leisure* make up 63% of the entries, indicating that users often turn to the app for enjoyment. Additionally, *health and wellness* was found as another important theme, with 50% of entries showing how users utilise the app to enhance their physical and mental well-being.

TABLE 8 Sample prompts and suggestions provided by the AI.

Category	Theme	Prompt	AI suggestion/comment
Professional use	Job–school balance	*Hello digital diary, lately my days have been very busy. Sometimes I struggle to organise my schedule. I've started a new job. I'm currently working at English Express. Right now, the work at the institution and my school are conflicting with each other. But somehow, I'm managing. Sometimes I prioritise the job, and sometimes I prioritise school. However, I can't maintain the same balance in my personal development areas due to this business.*	You should continue to find a balance between your work and personal life. It is very important to protect your health, rest and not push yourself too hard. Also, remember the importance of not just working at your job but effectively showcasing your achievements and efforts. Keep up the good work!
	Productivity enhancement	*Today, I studied and prepared for my upcoming lecture. I spent my day productively, focusing on my studies and making progress.*	You had a productive day today, focusing on your studies and preparing for your upcoming lecture. While you experienced some uncertainty due to the lack of appointments and new exam processes, you managed to stay focused on your goals.
	Time management	*Today, I had class in the morning and took some time to rest this afternoon. I've been concerned about my approaching lectures and the busy schedule. I am stressed about keeping the balance between my everyday life and my responsibilities at school and teaching practicum.*	It sounds like you've had a productive day with a good mix of work and rest. It's great that you're already thinking ahead about your busy schedule and how to manage it. Remember to prioritise self-care and find moments to recharge. Balancing everything can be challenging, but with some planning and mindfulness, you'll handle it well.

TABLE 9 Objectives for using the app for personal purposes.

Category	Theme	Description	Count	*f* (%)
Personal use	Self-improvement	Engaging with the app for personal growth, learning and self-development	5	63
	Relaxation and leisure	Using the app for enjoyment and relaxation purposes	5	63
	Health and wellness	Using the app to improve physical and mental well-being	4	50
	Daily reflection	Using the app to reflect on daily events and personal experiences	4	50
	Social interaction	Employing the app to engage with others or reflect on social interactions for support	3	38

Lastly, *daily reflection* and *social interaction* represent more reflective and social uses of the app, with 50% and 38% of the entries, respectively, indicating users' tendencies to use the app to contemplate daily events and engage with others.

In order to visualise the relationships between the codes, the code map in Figure 10 was generated using the MAXQDA software program.

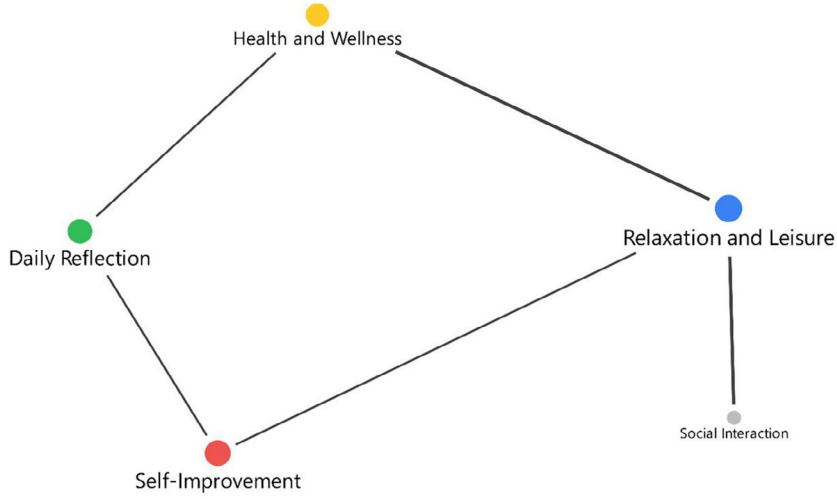


FIGURE 10 Code map for the themes and categories visualising teacher candidates' objectives for using the app for personal purposes.

The code map highlights the interconnected objectives of using the voice journaling app to support personal and professional well-being among pre-service teachers. *Health and wellness* serves as a foundational component, emphasising the importance of maintaining physical and mental well-being. This is closely tied to *relaxation and leisure*, suggesting that the app helps users manage stress and find balance in their routines. *Daily reflection* is essential because it promotes self-awareness and deliberate interaction with both personal and professional experiences. *Self-improvement* is linked to this reflective practice, suggesting that users see the app as a means of promoting both professional and personal development. *Social interaction* also emphasises how the app can improve teamwork and communication, fostering a feeling of belonging and mutual development. When combined, these elements show a comprehensive strategy for utilising the app to promote growth, preserve balance and improve overall well-being.

Table 10 shows five themes under the personal use category: *self-improvement*, *relaxation*, *health and wellness*, *daily reflection* and *social interaction*. Regarding individual app use, the prompts given to the participants show a range of activities and emotional states. Additionally, Table 10 shows that the AI-powered app generated favourable feedback by expressing gratitude and support for the participants' attempts to balance their personal development.

DISCUSSION

The purpose of this study was to investigate how pre-service language teachers perceived the impact of using an AI-supported voice journaling app in assisting them to overcome the difficulties and stressors they face in their daily lives and during their teaching practicum. The results offer strong support for the potential advantages of using AI-assisted journaling as a tool for both professional and personal reflection in teacher education. Although earlier studies have demonstrated the general benefits of reflective journaling for teachers' well-being (Farrell, 2024), this study offers fresh perspectives by showing how voice-based interaction and AI-generated prompts may improve the accessibility and depth of self-reflection, enabling more genuine and impromptu emotional expression. According to

TABLE 10 Sample prompts and suggestions provided by the AI.

Category	Theme	Prompt	AI suggestion/comment
Personal use	Self-improvement	*Today, I went to my internship where I felt very comfortable while teaching. It was a great feeling to know and feel that I was where I needed to be.*	You seem to have had a very successful and fulfilling day at your internship. It's clear that teaching is in line with your passion, and it's great that you felt so comfortable and confident in that environment.
	Relaxation and leisure	*Today, I relaxed in the dormitory after cleaning and grocery shopping. I also tackled the tiredness from the week. Although I was tired, I mustered the energy to study.*	You had a productive day balancing self-care and studying, which is really important to maintain a healthy, fulfilling lifestyle. It's good that you recognised the need for rest after a tiresome week and still managed to be productive.
	Health and wellness	*Today, I applied to the KPSS exam, which has three sessions in July and August. I also had a chance to be the thoughtful, caring friend that I am and express my gratitude about listening to others and being a good listener.*	You seem to be taking steps to prioritise your well-being by setting boundaries and cleaning your living space to your own standards. You also showed empathy toward others by expressing your gratitude for being a great listener.
	Daily reflection	*Today, I studied for KPSS and reflected on the teaching practice with the 11th graders. I also connected with a friend from my old dormitory who needed support. I am grateful for all the memories and experiences that have shaped me.*	You should focus on acknowledging the effort you're putting into your studies and supporting your friend during difficult times. Even though today was emotionally challenging, you remained thoughtful and kind throughout.
	Social interaction	*Today, I met someone new and discussed common interests with them, which I found exciting. Later, I watched a series and planned to study. I expressed reluctance to ask for help.*	You've had a positive and exciting interaction with someone new today and it seems you're looking forward to more exchanges with them. It's great that you found someone who shares your interests.

self-determination theory (Ryan & Deci, 2000), promoting relatedness, competence and autonomy can increase intrinsic motivation.

In line with self-determination theory (Ryan & Deci, 2000), which contends that encouraging relatedness, competence and autonomy can increase intrinsic motivation, reflective activities such as journaling powered by AI helps to overcome stressors and obstacles, supporting all facets of health and professional life. This result is consistent with earlier studies, demonstrating the value of AI-powered solutions for stress management and well-being enhancement in both personal and professional spheres. This is consistent with the findings of Schulz (2024), who emphasised the significance of striking a balance between technological innovation and the creation of meaningful and encouraging journaling experiences.

Finding out how AI-powered voice journaling aids in emotional processing in ways that conventional journaling techniques might not is one of the study's primary contributions. Unlike traditional journal writing with pen and paper, the app's voice-based format allowed pre-service teachers to express their emotions more freely and effectively. According to Kolb's (1984) theory of experiential learning, people learn by actively participating in a task over and over again. As a result, the app with AI support may help with the reflective part, which permits processing emotions. Furthermore, the results also demonstrate that

the AI-assisted app helped the participants build resilience by using an emotional support mechanism—one that hasn't been thoroughly examined in previous studies—to communicate the stressors and difficulties of their personal and professional lives. The positive effects of technology-assisted journal writing on mood enhancements and positive perceptions of students' mental health over time were also documented in a recent study by Sayis and Gunes (2024).

The results of the study show that a 4-week intervention using an AI-powered voice journaling app greatly improved participants' emotional expression and allowed them to reflect more deeply on their personal and professional lives. This is consistent with previous studies showing how AI-assisted journaling platforms can foster introspection and personal development. Platforms such as Lid, for example, provide users with tailored feedback that helps them become more emotionally aware and introspective (Lid, n.d.). High levels of stress are frequently linked to the teaching profession. By putting such AI-driven interventions into practice, educators can easily handle the many difficulties that come with their line of work.

This strategy aligns with earlier studies that highlight the value of reflective practices in teacher preparation. According to Farrell (2024), reflective practice helps educators evaluate their methods critically, which enhances both student learning and individual well-being. Furthermore, the app's ability to provide prompts and recommendations in response to user input probably encourages more in-depth introspection, strengthening emotional intelligence and resilience. Studies showing that AI-assisted journaling can offer insightful feedback, assisting users in reaching deeper levels of introspection and personal development, support this (Mindsera, n.d.). In conclusion, incorporating AI-powered voice journaling apps into teacher preparation courses can be a useful tactic to support teachers' resilience, self-awareness and emotional expression while tackling the many facets of the teaching profession (Waters, 2011). This is consistent with social cognitive theory (Bandura, 1986), which highlights the importance of self-efficacy in altering behaviour and fostering personal growth. Because AI-powered journaling offers structured self-reflection, it can improve self-efficacy.

The substantial perceived effects of anxiety and burnout on teachers' performance and well-being, as broadly conceptualised in the relevant literature, were also highlighted by this study. According to studies by Marcos-Llinás and Garau (2009) and Vaezi and Fallah (2011), these unfavourable sentiments can significantly impact teachers. Furthermore, teachers frequently suffer from elevated anxiety due to the ongoing pressure of being observed and evaluated by supervisors and classroom teachers, which has a detrimental effect on their mental well-being and efficacy as educators. To address these challenges, the literature emphasises the value of incorporating PP into educational settings. Furthermore, self-determination theory (Ryan & Deci, 2000) helps contextualise how PP interventions address teachers' basic psychological needs for autonomy, competence and relatedness, which are often compromised under conditions of high stress and anxiety. A large body of research has emphasised the importance of interventions that promote positive emotional and psychological states (Altalhab et al., 2021; Kostoulas & Lämmerer, 2020; Mahmoudi, 2016; Seligman & Csikszentmihalyi, 2000; Spiteri, 2024). PP seeks to improve well-being by emphasising strengths and cultivating merits such as resilience and optimism, which can help to reduce negative emotions and contribute to a more rewarding and effective teaching experience (Derakhshan et al., 2024; Dienlin & Johannes, 2020; Kelly et al., 2022; Nepal et al., 2024).

This study also clarifies the relationship between the psychological aspects of technology adoption and AI-driven reflection. Our findings imply that emotional benefits, such as stress relief, self-regulation and the development of optimism, may be just as important in determining sustained engagement with digital tools as perceived usefulness and ease of use, which have long been highlighted in the technology acceptance model (Davis, 1989). By taking into account both psychological well-being and functional utility as factors that influence adoption, this broadens the conversation about technology

integration in teacher education (Çelik & Baturay, 2024). These findings are corroborated by Nepal et al. (2024), who show how combining time series behavioural sensing with large language models can improve reflective practices by offering context-aware, individualised journaling prompts that promote resilience and emotional control. This study highlights how AI-powered tools have the potential to provide substantial emotional and psychological advantages in addition to practical ones. MindScape illustrates how AI can support stress reduction, self-regulation and the development of optimism by creating contextual and customised journaling prompts. This encourages consistent use of digital tools. The emphasis on psychological well-being as a crucial component in the adoption and successful application of digital interventions is in line with the larger conversation on technology integration in education.

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Conventional journaling methods are thought to take a lot of time, which can make English as a Foreign Language teachers see them as boring, even though they give them the chance to practice self-control and mindfulness. According to the mindfulness-based stress reduction theory (Kabat-Zinn, 2003), teachers can benefit from regular self-reflection through easier and more entertaining techniques like AI-supported tools. Therefore, these strategies may promote consistent use, especially for teachers who are overworked (Kelly et al., 2022). The pre-service teachers in this study expressed a preference for the AI-supported app over the laborious, conventional pen-and-paper journaling method. Our results imply that the AI-supported app's user-friendly features made it simpler for the participants to document their experiences with it. The app encouraged the participants to continue a regular practice of self-reflection rather than adding to the workload that comes with traditional journaling. Interactive AI-driven journaling changes the static nature of interaction into a more dynamic and conversational experience, as noted by Angenius and Ghajargar (2023b). By analysing user experiences, this research shows that AI-based apps can provide better reflective practices and facilitate journaling by reducing user effort. Thus, an AI-supported app reduces barriers to regular login and participation among educators by incorporating feedback mechanisms and responsive prompts.

The app encouraged participants to continue a regular self-reflection practice rather than adding to the workload which traditional journaling brings. As noted by

Angenius and Ghajargar (2023a), interactive AI-powered journaling transforms the static nature of interaction into a more dynamic and conversational experience. However, by analysing user experiences, it is shown that AI-based apps can provide better reflective practices and make journaling easier by reducing user effort. Hence, an AI-supported app reduces the barrier to regular entry and engagement among educators by incorporating feedback mechanisms and responsive prompts.

These findings are supported by MacIsaac et al. (2023), who offer strong evidence that the effects of journaling interventions on psychological well-being are considerably moderated by individual differences in dispositional self-reflection. According to their research, users who are more inclined to engage in self-reflection gain more from automated, personalised feedback because it allows them to explore their emotional experiences in greater detail. In contrast, people who are less self-reflective might find that such feedback doesn't fully capture the complexity of their emotional states because it lacks the nuanced understanding necessary. This is consistent with our research, which indicates that although AI-generated goal-setting ideas and prompts can empower certain people, they might not be able to completely replace the empathy and breadth of human understanding for others. Therefore, the work of MacIsaac et al. (2023) and our research both highlight the need for ongoing AI tool improvement to better meet the various, context-sensitive needs of users in educational settings.

Finally, our findings contribute to the discussion on PP in education by highlighting the intersection of technological innovation and emotional resilience. The participants' improved ability to reframe challenges, set future-oriented goals and harness reflective practices aligns with core PP principles. The participants' enhanced ability to reframe challenges can be understood through psychological capital theory (Luthans et al., 2007), which identifies hope, efficacy, resilience and optimism as key psychological resources that buffer against stress. Mindfulness theory (Kabat-Zinn, 1994) provides additional theoretical context for understanding how AI-supported reflective practices foster resilience through enhanced present-moment awareness and non-judgmental observation of teaching experiences. Given the documented issues of stress and burnout in the teaching profession (Marcos-Llinás & Garau, 2009; Vaezi & Fallah, 2011), these findings provide preliminary evidence that AI-powered journaling can serve as an effective PP intervention. This integration of technology with PP not only enriches our theoretical understanding but also offers practical pathways for embedding supportive interventions within teacher training programmes.

To sum up, our findings confirm the related literature that encourages the use of PP in improving teacher well-being (Mercer & Gregersen, 2020). The introduction of the Audio Diary app proved to be a valuable tool in alleviating some of the challenges pre-service teachers faced during their teaching practicum, contributing to a more supportive and reflective experience. This alignment highlights how crucial innovative and beneficial psychological interventions are to improving teachers' well-being. The incorporation of comparable tools into teacher training programmes may help create a more resilient and reflective teaching workforce in light of these reported profits. According to Lee and Thamrun (2025), understanding complex emotions, adapting to cultural differences and sustaining user engagement are all difficult tasks for current natural language processing systems. Such tools need to be continuously modified, with better AI models that have interactive features and frameworks that are culturally sensitive in order to get past this limitation. However, AI-supported journaling holds promise for better well-being, even though these systems still require improvement. Therefore, by connecting reflective journaling and technology-assisted well-being interventions, our findings are important for expanding on earlier research. By emphasising the psychological and emotional advantages of AI-supported voice journaling, the current study provides a fresh perspective.

Limitations

This study has several limitations. First of all, the small and homogenous sample size restricts the generalisability of the findings, as the participants were all senior students from a single English teaching programme. This narrow scope limits the generalisability of the findings to a broader population. Secondly, the relatively short duration of the study may not sufficiently reflect the long-term effects of using the AI-powered voice journaling app. Longitudinal studies should be carried out to find the potential effects of continuous use of the app and to see its effect on well-being and reflective practices over longer periods of time. Finally, the lack of a control group makes it difficult to establish a clear connection between the use of the app and the observed benefits, limiting the study's ability to relate these outcomes especially to the AI intervention.

CONCLUSION

In this study we found that participants valued the AI-powered voice journaling app for two main reasons. First, its accessibility and convenience allowed them to get reflections anytime, anywhere, and they appreciated the AI's motivating feedback. Although maintaining consistency in daily entries was challenging due to their busy schedules, the app's goal-setting and mood-tracking features positively affected emotional well-being, helping users feel less anxious and more comfortable. Second, the intervention aided participant teachers in managing time, balancing personal and professional responsibilities, and handling practicum stress by providing a systematic way to process emotions and develop coping strategies.

In summary, this study demonstrates the positive perceived impact of using an AI-powered voice journaling app on the well-being of senior pre-service English language teachers during their teaching practicum. Engaging the AI-supported app for 4 weeks assisted emotional expression and reflection as a useful and manageable tool for managing the stressors related to the teaching profession as a practitioner. By providing a user-friendly platform that integrates easily into daily routines, the app encouraged regular use, which in turn supported the mental health and professional development of the prospective language teachers. The findings support the literature on PP and teacher well-being, underlining the importance of innovative interventions that enhance resilience and hence reduce anxiety. Thanks to the evolving technology, integrating digital tools into teacher training programmes could be beneficial in promoting well-being among teachers. Future research should focus on exploring the long-term effects of AI technologies by considering their broader applications in several educational contexts.

Educational implications

Our findings underline the potential benefits of using AI-supported journaling apps in teacher education programmes to improve future teachers' well-being through reflective practices. By facilitating convenient, consistent self-reflection and providing motivating feedback, such tools can support prospective teachers in managing the challenges of practicum environments, balancing personal and professional demands, and fostering overall well-being. This study suggests that incorporating accessible, technology-based interventions like the Audio Diary app can play a crucial role in preparing resilient and self-aware teachers, ultimately enhancing the quality of teacher education and addressing the mental health needs of future educators.

Suggestions for further research

Future research should focus on expanding the scope and variety of participants to enhance the generalisability of the findings. In other words, conducting longitudinal studies to understand the long-term effects of the AI-powered voice journaling app, and incorporating mixed-methods approaches that combine quantitative and qualitative data for a more comprehensive analysis, might provide more empirical evidence about the outcomes of an AI-based tool in helping prospective language teachers both in their daily lives and during their school practicum.

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CONFLICT OF INTEREST STATEMENT
The authors report no conflicts of interest.

DATA AVAILABILITY STATEMENT
The data supporting the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT
This research (2024-YÖNP-0340) was approved by decision number 06/26 taken in the Scientific Research and Publication Ethics Board of Çanakkale Onsekiz Mart University. The research protocol rigorously ensured the confidentiality and anonymity of all participants.

INFORMED CONSENT
All participants provided informed consent prior to providing responses to the interview.

PERMISSION TO REPRODUCE MATERIAL FROM OTHER SOURCES
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DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS
In preparing this paper, the authors utilised Grammarly and ChatGPT to refine the language. After applying these tools, they thoroughly reviewed and edited the text as necessary and take full responsibility for the final published content.

ORCID
Bora Demir https://orcid.org/0000-0001-8187-3206
Duygu Özdemir https://orcid.org/0009-0004-0057-4335

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