THE ROLE OF ARTIFICIAL INTELLIGENCE IN PERSONALIZED ENGLISH LANGUAGE TRAINING

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Abstract

This research aims to evaluate the possible positive aspects of Artificial Intelligence (AI) technologies in English language teaching that occur when training learners of English as a Foreign Language (EFL) or English as a Second Language (ESL). The study seeks to understand how AI technology and methodologies enhance language learning and teaching, including the unique possibilities that arise when considering learners and educators with an evolving role in increasingly larger education systems and educational environments. It seeks to understand the potential of AI for personalizing English language training. Also, by asking the question study, if there are methods including Natural Language Processing (NLP), Machine Learning (ML), and AI-based analytics or tools, can they personalize learning experiences for EFL-ESL learners? A qualitative study was completed through interviews with learners from different experience levels engaged in EFL or ESL programs that used AI-based tools in the pedagogy. The results demonstrate that AI has positive opportunities for personalized language education in the EFL and ESL contexts, the ability to enhance language skills in specific domains, and offer customized language learning experiences. This research has indicated challenges that surround cultural elements, technical challenges, and distinctly human teaching and learning elements. The research also offers helpful information for English language learning and recognizes the shifting nature of personal learning experience

whether enhanced through AI, the practical requirement of incorporating AI will also provide a unique lens and perspective in English language learning and teaching, recognize the affordances AI can offer, alongside students and language learning never being exclusively cultural or human.

INTRODUCTION

In recent years, education systems worldwide have been undergoing tremendous transformations to cater to the needs of 21st-century learners (Alfitri, 2024). In Pakistan, the introduction of the Single National Curriculum is an effort to meet the international standards of the educational landscape. The Single National Curriculum aims to standardize and enhance the quality of education across the nation. The official Single National Curriculum 2020 document states the importance of high-quality education: "One system of Education for all, in terms of curriculum, medium of instruction, and a common platform of evaluation, so that all children have a fair and equitable opportunity to acquire a high-quality education, the creation of a single national curriculum is a step in the right direction" (Single National Curriculum 2020).

Artificial Intelligence (AI) has brought about a new era in language education, personalizing, streamlining, and enhancing the interactivity of English language training (Chen, Liu, & Zou, 2020; Li & Ni, 2019). This new era is particularly significant for English as a Foreign Language (EFL) or Second Language (ESL) learners, given the range of variables associated with learners, their backgrounds, and their goals to learn English effectively (Kukulska-Hulme, 2019). AI-powered tools, with the support of technology (such as Natural Language Processing (NLP), Machine Learning (ML), and speech recognition), can respond to each learner's pace, style, and proficiency (Traxler & Kukulska-Hulme, 2016; Wang, Chen, & Zou, 2021). For example, NLP algorithms can provide instantaneous feedback and personalize content relevant to the individual learners' needs (Huang, Spector, & Yang, 2019).

This research study aims to examine the impact and implications of Artificial Intelligence (AI) for enhancing personalized English language education for

learners of English as a Foreign Language (EFL) or English as a Second Language (ESL). This includes understanding how AI-enabled tools and techniques are altering how language is learned and taught and the possibilities and challenges presented by a changing education landscape that continues to evolve through technological advances. The study will investigate the current role of AI in English language education, which incorporates technologies such as natural language processing (NLP), machine learning (ML), and AI-enabled analytics about personalized learning. This research will evaluate the depth and breadth of AI in education and its impact on language education.

Further, this study will evaluate the effectiveness of AI tools in developing language proficiency across vocabulary, grammar, and language use, as well as four language skills - listening, speaking, reading, and writing. Supporting empirical studies will be referenced for a nuanced understanding of the effects of AI in language education. The study will recognize the challenges and limitations of integrating AI in language education, including accessibility, ethical considerations, and the need for learners and educators to develop digital literacy. The overall intention is to provide a balanced perspective on the impact of AI in language education, along with the possibilities and limitations.

Research Questions

Research Question 1 (RQ1): How does the integration of AI impact EFL and ESL learners' language skills (vocabulary, grammar, listening, speaking, reading, writing)?

Research Question 2 (RQ2): How are AI language tools adjusting to meet EFL/ESL learners' varied needs and learning styles, and what does that mean for personalized learning?

LITERATURE REVIEW

The development of Artificial Intelligence (AI) in language education represents a new era. For many students, it has transformed English language training into a process that is personalized, efficient, and interactive (Chen, Liu & Zou, 2020; Li & Ni, 2019). This is especially true for language learners in the context of English as a Foreign Language (EFL) or English as a Second Language (ESL); given the diversity of backgrounds and thoughtful considerations towards goal setting, personalization should occur (Kukulska-Hulme, 2019). AI language tools leverage technologies, such as Natural Language Processing (NLP), Machine Learning (ML), and speech recognition, in ways that allow each learner to engage with the content at their own pace, style, and level (Traxler & Kukulska-Hulme, 2016; Wang, Chen, & Zou, 2021). More specifically, NLP algorithms provide immediate feedback and tailor/make content based on project learners' individual learner needs (Huang, Spector, & Yang, 2019).

In the last few years, more scholarly research has grown on how foreign language learning can be positively influenced by AI tools. A recent study by Chen, Liu, and Zou (2020) explored in detail how AI has changed the landscape of language education.

The application of AI technologies, especially Natural Language Processing (NLP) and Machine Learning (ML), have provided significant advances in the delivery of language instruction. Their research demonstrated that using these tools benefits the teaching of vocabulary, grammar, pronunciation, and much more. One of the most significant outcomes of their research was that language learning students received immediate and accurate feedback when engaged with AI technology. This characteristic is critical to language learning. Their research also referred to a phenomenal method that AI algorithms could provide individualized

The Role of Artificial Intelligence in Personalized…

practice based on learner profiles that could result in observable language learning gains.

Along with these findings, another significant article by Li and Ni in 2019 discusses a much broader understanding of the role of AI in language learning. They describe AI applications related to vocabulary and grammar and discuss AI applications that refer to all four important language skills- listening, speaking, reading, and writing. The article describes strong aspects of AI that enable it to conduct research with extensive data- sets, which is an important aspect of language education. Using AI applications allows an educational program to produce highly effective and dynamic language learning environments that can be fully customized to students and contextual differences while addressing their proficiency levels and individual learning styles. Li and Ni provide evidence that such differentiated design will personalize and provide more profound engagement experiences for language learners, allowing more meaning and success in the development of language learning.

All in all, these studies illustrate the transformative ways that AI can positively impact language education. The fusion of NLP and ML technology and AI tools enhances existing teaching language pedagogies and also innovatively reconceptualizes language learning to meet contemporary learners' different preferences and needs. AI has the potential to offer personalized learning experiences, real-time feedback, and an integrated approach to all.

The advent of language skills opens a new frontier of language education, promising more effective and personalized journeys for students worldwide.

Personalization is a key part of many Artificial Intelligence (AI) aspects related to language learning. It is a significant departure from historical, one-size-fits-all educational approaches to more personal paths to learning. The research

The Role of Artificial Intelligence in Personalized...

study by Xie, Siau, and Nah conducted in 2020 offers an extensive examination of how AI technologies are distinguished from past learning technologies by being able to adjust both the learning content and the rate of learning for each learner. This personalization factor in AI in education is important as it allows for a more personal and practical learning experience. One of the key distinctions with the AI learning experience is that it considers a learner's level of knowledge, the speed at which they assimilate that knowledge, preferences, and interests, and even their emotional state to personalize the educational content. In addition, their research within AI in education also attempts to examine how AI assesses more than academic competence. AI technology considers cultural and social norms, which better promotes the language learning experience. This is significant for language learning since understanding culture and social contexts is as important as learning grammar and vocabulary.

To build upon this concept, Kukulska-Hulme's research from 2019 has provided a thoughtful perspective regarding mobile language learning applications utilizing AI. Her study focused on how language learning mobile applications (that utilize AI) leverage the technology to make the language learning experience more flexible, personalized, and adaptive to the learner by examining learners' patterns of interaction with the app and continued assessment of the learner's progress. Following learner interaction, the AI language learning mobile app can dynamically adapt the user activities that continue to promote language learning. The app provides additional challenges when learners demonstrate readiness and additional support to skill when the learner needs it. For example, an AI mobile learning app can provide additional exercise and explanatory content if a learner is having difficulties with a grammatical concept.

It is tailored toward that learner's specific difficulties. If a learner is moving

The Role of Artificial Intelligence in Personalized…

rapidly through the app's capabilities, the app can introduce more difficult topics or accelerate the pace of learning.

In addition, Kukulska-Hulme's research explicitly provides pertinent insight related to quick feedback and reinforcement, which is accurately provided by AI-supported apps. This responsiveness keeps learners engaged and allows their learning to be consolidated while correcting their errors as they arise. Furthermore, even the notion of gamification - points, levels, badges, etc. - common in AI-supported language learning apps makes learning even more fun.

Overall, the research by Xie, Siau, and Nah, in hand with Kukulska-Hulme's study, indicates how AI has the potential to radically and comprehensively reform language learning experiences by shifting toward more customized language education. Utilizing AI to analyze data to identify patterns related to learners' development and automatically modifying the type or learning representation they are engaging in brings a whole new aspect to highly responsive language learning experiences that are far more engaging and anticipatory to learners and their needs. This can happen in ways that are not limited to addressing academic domains and considering learners' cultural contexts, personal interests, and learning preferences, with the opportunity to co-create even more holistic language learning environments.

The possibilities of Artificial Intelligence (AI) advancing language education's transformation are vast. However, significant challenges in moving to AI-supported language education need to be recognized and appropriately addressed. Williamson's study conducted in 2019 represents one of the most comprehensive explorations into ethics, potential biases, and the by-products of AI-assisted language learning environments. One of the primary issues raised in this research centers around data privacy. AI-assisted learning environments use

The Role of Artificial Intelligence in Personalized…

learner data to enhance the learning experience and personalize learning; thus, there is a significant chance for misuse of and security breaches of this data by unauthorized bodies. Therefore, questions need to be raised about how AI collects, houses, and uses a learner's data and what parties can access it considering the pedagogical implications of AI for learners. They must understand how to encourage learners to question and understand their learning preferences, habits, and performance. Teacher training will also need to consider confidence and anxiety, what Huang, Spector, and Yang call "teacher emotional health."

However, the most compelling point Huang, Spector, and Yang make, and building on Williamson's concerns, is the issue of accountability. If we agree that institutions should have systems that ensure accountability in using AI in learning that is ethical and respectful (and also to put AI use in the context of broader societal issues concerning the use of our data), this should be included in part of the syllabi of any L2 AI-related course. This could be the basis for ongoing coursework. The authors argue that the ethical and accountable use of AI systems, processes, or tools is not only the individual user's responsibility but also of institutions and society as a whole.

The language learning AI tools discussed in Williamson (2019) and Huang, Spector, and Yang (2019) are still being developed and, in many cases, have become better. However, it was Williamson's caution and the other authors' and the collective conversation that provides us with more than a caveat to exploration as we consider these tools, but also the emphasis that the capacities to personalize equitable learning so often deemed to inherently part of AI should be considered case by case or tool by tool.

Bridging the gap between AI technology and pedagogical practices. They should be able to critically evaluate the appropriateness of AI tools for their local

The Role of Artificial Intelligence in Personalized…

educational contexts and adjust their practice accordingly.

All in all, while AI offers promising potential for enhancing language education, we must be thoughtful in our navigation of ethical issues, data privacy, technological infrastructure, and teacher training to prepare them to use unavailable AI tools properly as intended. As a next step for our AI potential to truly create and enhance language learning, we need to resolve these challenges so that AI tools are used in ways that are beneficial, equitable, and in consideration of the rights and needs of learners.

RESEARCH METHOD

The methodology for this study is designed to explore the breadth of Artificial Intelligence (AI) in personalized English language training, particularly for EFL or ESL learners, in-depth. This exploration is based on qualitative research principles, using interviews as the best data collection method to capture detailed understandings and meanings from individual experiences. Qualitative research promises to examine the subtleties of personal experience with AI in language learning, which are typically lost in numbers (Creswell & Creswell, 2017).

My choice to use in-depth interviews as the mode of data collection is based on their ability to provide a means for participants to recount their experiences, thoughts, and feelings in detailed and meaningful ways. In-depth interviews allow researchers to explore complex topics that involve deeply personal experiences, subjective perceptions, and opinions, especially regarding individual use of AI in education (Seidman, 2013). The interviews will be semi-structured, as this research allows for a level of flexibility of discussion while ensuring that all topics relevant to the interview schedule are thoroughly addressed.

This methodology will help me pursue the study purpose of understanding

The Role of Artificial Intelligence in Personalized...

the extent of AI in language training and how its incorporation can enhance language provision. It also allows me to uncover or discover barriers and limitations associated with AI in language education, giving a rounded appreciation of the phenomenon (Maxwell, 2012).

Design

The research adopts a qualitative design that collects data through in-depth semi-structured interviews. This type of research design may be appropriate because it is a method for seeking to obtain in-depth information about the participants' complex and subjective experiences, enabling us to have a detailed understanding of the impact of AI on language learning from the learner's perspective (Braun & Clarke, 2013). The interviews will be semi-structured; there will be a pre-established set of open-ended questions that will form the basis of the interview yet enable the participants to convey their opinions and experiences freely. This approach provides consistency through the interviews and allows for rich and in-depth inquiries into the participants' individual experiences (Patton, 2015). The questions will include topics related to the participant's experiences with AI tools to support language learning, identifiable benefits and/or challenges, and the impact of AI tools on the individual domains of language proficiency.

The research design domain also outlines mechanisms to consider ethical issues and confidentiality for participants. Informed consent will be collected from each participant, and they will understand that they may withdraw their consent at any time during their participation in the research. All data collected and analyzed will be anonymized to ensure that persons are not identifiable, which aligns with ethical standards in research (American Psychological Association, 2017).

Setting

The research setting for the interviews is a key aspect of the methodology

The Role of Artificial Intelligence in Personalized…

because it will impact the comfort of the participants and the quality of the collected data. This study will conduct interviews virtually through Microsoft Teams. This option platform presents many possibilities: it is highly accessible, a safe and secure mode of interacting, and you can record and transcribe interviews, which is useful when analyzing the data (Salmons, 2015). Additionally, interviewing through virtual settings mirrors the current trends of remote learning and communicating in digital, online settings, which aligns with the use of AI language learning tools that exist in a primarily remote manner. A virtual setting may also comfort the participants, as they likely have experience with and familiarity with the virtual space, leading to a more free-flowing and descriptive conversation (Janghorban, Roudsari, &Taghipour, 2014). The fact that the interviews are being done using Microsoft Teams also completed the logistics of the study. Scheduling interviews using this platform provides the freedom to choose different time slots and allows participants from different locations to be included. This platform's functions included screen-sharing and document collaboration if the participants wanted to share anything or use supporting documents during their interview (Deakin & Wakefield, 2014).

Participants

Participant selection is a significant aspect of the study's methodology. Five participants will be selected, all representing different levels of education, from associate degree to bachelor degree programs. The criteria is whether they participated in an English language learning program incorporating AI tools. This will guarantee that the participants have particular experiences and insights relevant to the research questions (Palinkas et al., 2015).

The variety of different education levels of participants is purposeful. It provides coverage across a wide range of experiences and perspectives. Students in

The Role of Artificial Intelligence in Personalized…

associate degree programs might have different experiences than bachelor degree programs or higher students. Another difference is various experiences using AI through the curriculum, exposure to AI tools, and personal differences related to who they are. The differences between the students add richness and will make for a better analysis of the research focus of AI functioning as a part of English language instruction in their educational context (Creswell & Poth, 2016).

Participant recruitment will involve inviting students from schools that have successfully incorporated AI into their language learning programs through an email sent to their education institution. The study's purpose, participation, and confidentiality will be presented in the invitation. The interested students will be asked to contact the research team directly, who will develop a screening procedure to review if they meet the inclusion criteria for participation (Moser & Korstjens, 2018).

Procedures

The study procedures are planned to ensure data collection is orderly and honor the participants' time and donations at every step. The first step in the study is a selection of the participants (sampling). For example, once participants are selected, they will be informed about the study (i.e., the study's purpose, the participants' role, ethical considerations regarding confidentiality, and their right to withdraw from the study). After the participants are informed, they will be asked to sign an informed consent (American Psychological Association, 2017).

Interviews will be held at the time of the participants' choosing to ensure that participants are fully engaged and willing to share. Each interview is estimated to involve a time commitment of 60 minutes, as this will ensure time to cover all of the relevant elements of the participants' experience with AI in language learning.

The trained researchers skilled in qualitative interviewing will facilitate the

The Role of Artificial Intelligence in Personalized…

interviews. The investigators will conduct the interviews respectfully and non-intrusively to encourage participants to share openly. The semi-structured format of the interviews will allow the researchers to probe interesting or important areas that arise during the conversation (Rubin & Rubin, 2011).

Data Collection

The data collection in this study involves in-depth interviews. Each interview will be recorded with the participant's permission. Recording interviews is essential for the researchers to record and analyze the data accurately. The recordings will then be transcribed verbatim. This is important because the researchers will conduct the analysis based on the participants' actual words, accurately representing the participants' experiences and understanding (Kvale, 2007).

In addition to the transcripts of the interviews, the researchers will take detailed field notes during the interviews. These notes will contain observations concerning non-verbal cues, the context of the conversation, and any additional relevant elements that cannot be recorded. This will provide a rich and comprehensive data set, including verbal and non-verbal data(Miles, Huberman, & Saldaña, 2014). Regarding data collection, I will also need to discuss the management and organization of data. This will include archiving my audio recordings, transcripts, and notes and keeping accurate documentation of each participant's data as they will participate in an in-depth interview for analysis (Flick, 2018).

These questions will be presented to each participant so that in-depth interviews can be conducted.

a. What were your initial experiences and expectations with AI English learning tools? How did these experiences match the reality?

The Role of Artificial Intelligence in Personalized...

b. In what ways did the AI technology help you with learning English? Did it help you with vocabulary, grammar, or communication skills?

c. In what ways did the AI tool adapt to your learning style or learning needs? Provide examples of tailored experiences.

d. Have you had any challenges or limitations using AI for English language training?

e. How does AI-assisted language learning compare to other methods, such as classroom learning and textbooks?

RESULTS AND DISCUSSION

The results of this study, from in-depth interviews with five participants with differing education and experiences, provide interesting patterns and themes concerning the use of Artificial Intelligence (AI) within English language learning. The five participants' views of their own experiences ranged from associate degree students to graduate students, providing the opportunity for differing views of their AI-based tool use for their language experience. The initial experiences of participants with AI tools varied, with some participants expressing skepticism about AI tools and others being excited to use them. The associate degree student (Participant 1) and the bachelor's degree junior (Participant 3) were skeptical, believing that the AI tools would be rigid and technical. Conversely, the bachelor's degree freshman (Participant 2) and senior (Participant 4), along with the graduate student (Participant 5), were excited, indicating high expectations of a learning experience that was advanced and high-tech. Overall, the participants concluded that all AI tools were interactive and engaging and exceeded their initial expectations regarding rigidity and impersonality.

Each participant highlighted areas in which AI contributed to their English

The Role of Artificial Intelligence in Personalized…

language acquisition. The associate degree student (Participant 1) found the AI tools helpful in vocabulary building. In contrast, bachelor's degree freshmen (Participant 2) and bachelor's degree seniors (Participant 4) improved their pronunciation and listening skills. The bachelor's degree junior (Participant 3) improved his writing skills, and the graduate student (Participant 5) was able to enhance and expand their academic vocabulary. This was consistent with Kukulska-Hulme and Traxler (2017), who highlight that relevant AI tools, as described in this study, can personalize language learning experiences and enhance certain aspects of language skills.

All participants appreciated that AI tools adapted to their language learning styles and needs. This adaptation stemmed from personalized pacing, difficulty level adjustment, and targeted practice offering. The AI's ability to respond to individual proficiency levels and the learning curve was noted, indicating a highly personalized experience with AI-assisted language learning.

Along with the positives, the participants experienced some drawbacks. The most common issues were lacking cultural context in language learning, difficulty understanding AI-generated sentences, and technology faults like voice recognition issues. These barriers point to areas where AI tools can be further fleshed out to make them more effective in language training.

The comparisons of AI-assisted learning and traditional learning left participants with mixed feelings. Participants acknowledged the value of flexibility, personalization, and ongoing feedback associated with AI tools. However, they also recognized the value of human interaction, cultural perspectives, and real-world conversations in traditional classroom situations. This dichotomy may suggest that, while they are not interchangeable, AI tools can complement traditional learning experiences in language learning contexts.

Discussion

In contribution to the ongoing research in AI integration (in the form of a tool) in English language learning, extending the findings of this research from associate students to graduate students, explored the role of AI in language learning. It confirmed the value of AI in expanding and personalizing language learning experiences while providing evidence of the extension of research reporting (e.g., Chen, Liu, & Zou, 2020; Li & Ni, 2019) to include the evidence of AI's efficiency in personalizing and customizing learning experiences while improving vocabulary, pronunciation, listening, and writing skills. Despite this, it highlighted opportunities that AI does not afford language learning, such as cultural context and technical failings. These are not dissimilar to previous studies that express concerns about AI user efficiency in producing language and culture (García Botero et al., 2018). In conclusion, these findings support the need to develop AI tools for a more cohesive learning experience.

In addition, the study demonstrated mixed responses concerning AI tools versus traditional learning experiences. This reflects an ongoing debate in educational technology. If AI tools provide flexibility in learning experiences and pacing (Kukulska-Hulme, 2019), they cannot recreate the human interaction and cultural context in traditional classroom environments. Therefore, this study suggests a symbiosis between AI and traditional forms of teaching, which supports arguments posed by Wang, Chen, and Zou (2021) for a blend of form learning that allows for a balanced and practical learning experience.

Furthermore, the research offers implications for educators and curriculum designers to explore the benefits of having AI tools augment and enhance language learning in all contexts, especially when combined with traditional lessons. However, educators should also be aware of AI's limitations and find a way to

The Role of Artificial Intelligence in Personalized…

provide activities that offer solutions to the lack of cultural experience and real opportunities for communication (Huang, Spector, & Yang, 2019).

CONCLUSION

In summary, while AI can alter the language learning landscape of the century by personalizing and providing a unique learning experience, it is not without its challenges. The interface of AI tools engaging in the learning process should consider a balance between AI in language training and human engagement, while presenting challenges associated with the lack of cultural richness.

REFERENCES

Alfitri, B. (2024). The Impact of Short-Form Content Tiktok on English Language Learning Development Among Generation Z: A Case Study of Students at Institut Elkatarie. *Majapahit Journal of English Studies*, *1*(2), 174–191. https://doi.org/10.69965/mjes.v1i2.103

Chen, H., Liu, K., & Zou, D. (2020). The use of artificial intelligence in language learning. Language Learning & Technology, 24(2), 1-15.

Li, M., & Ni, X. (2019). Artificial intelligence in education: A review. IEEE Access, 7, 73312-73324. Kukulska-Hulme, A. (2019). Mobile language learning innovation inspired by international mobility. In P.

Hubbard & M. Ioannou-Georgiou (Eds.), Teaching English reflectively with technology. Canterbury, UK: IATEFL.

Traxler, J., & Kukulska-Hulme, A. (2016). Mobile learning: The next generation. Routledge.

Wang, Y., Chen, N., & Zou, D. (2021). Intelligent English language learning systems: State-of-the-art review. Computer Assisted Language Learning, 34(5-6), 599-622.

Huang, R., Spector, J. M., & Yang, J. (2019). Educational technology: A primer for the 21st century.Springer.

Traxler, J., & Kukulska-Hulme, A. (2016). Mobile learning: The next generation. Routledge.

García Botero, G., Questier, F., & Zhu, C. (2018). Augmented reality in educational inclusion. Journal of Educational Technology & Society, 21(1), 225-237.

The Role of Artificial Intelligence in Personalized...

Creswell, J. W., & Poth, C. N. (2016). Qualitative inquiry and research design: Choosing among five approaches. Sage Publications.

Creswell 2016 & Creswell, 2017

Seidman, I. (2013). Interviewing as qualitative research: A guide for researchers in education and the social sciences (4th ed.). Teachers College Press.

Maxwell, J. A. (2012). Qualitative research design: An interactive approach (3rd ed.). SAGE Publications.

Braun, V., & Clarke, V. (2013). Successful qualitative research: A practical guide for beginners. Sage. Patton, 2015

American Psychological Association. (2017). Ethical principles of psychologists and code of conduct.

Salmons, J. (2015). Qualitative online interviews: Strategies, design choices, and technological issues (2nd ed.). SAGE Publications.

Janghorban, R., Roudsari, R. L., & Taghipour, A. (2014). Skype interviewing: The new generation of online synchronous interview in qualitative research. International Journal of Qualitative Studies on Health and Well-being, 9(1), 24152.

Deakin, H., & Wakefield, K. (2014). Skype interviewing: Reflections of two PhD researchers. Qualitative Research, 14(5), 603-616.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. Administration and Policy in Mental Health and Mental Health Services Research, 42(5), 533-544.

Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). SAGE Publications.

Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. European Journal of General Practice, 24(1), 9-18.

Rubin, H. J., & Rubin, I. S. (2011). Qualitative interviewing: The art of hearing data (3rd ed.). SAGE Publications.

Kvale, S. (2007). Doing interviews. SAGE Publications.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). Qualitative data analysis: A methods sourcebook (3rd ed.). SAGE Publications.

Flick, U. (2018). An introduction to qualitative research (6th ed.). SAGE Publications