

INTEGRATING AI-POWERED TOOLS IN ONE-ON-ONE MENTORING MODEL IN LANGUAGE EDUCATORS' PROFESSIONAL DEVELOPMENT

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Abstract

This paper explores the integration of AI-powered tools into one-on-one mentoring models for language educators' professional development. The strategic use of AI technology can enhance the quality, efficiency, and impact of mentorship, ultimately improving language teaching and learning outcomes. The traditional one-on-one mentoring model for language educators' professional development faces limitations in scalability and personalization. Integrating AI-powered tools can address these challenges, offering a more effective and efficient approach. By leveraging AI-powered tools, mentors and mentees can access data-driven insights, personalized support, and streamlined communication, leading to more effective professional development and improved learners' outcomes. Mentors can improve mentees' teaching skills by offering individualized assistance, instant feedback, and data-driven insights by utilising AI's potentials. This paper argues for AI-powered tools, proposes a framework for implementing AI-infused mentoring, applying Bandura's Social Learning Theory (SLT) and discusses challenges and recommendations.

Key Words: Artificial Intelligence (AI), Mentoring, Professional Development

Introduction

The landscape of language education is changing significantly, owing to technology improvements, changing student demands, and the search for more effective teaching techniques. In Nigeria, where language instruction is vital to national development, there is a growing demand for creative approaches to teacher professional development (Obera, Ugboja, & Sule, 2023). One-on-one mentoring has long been seen as a significant professional development strategy for language instructors, providing tailored assistance, guidance, and feedback (Oni & Akinsanya, 2015).

Mentoring is the process by which a more experienced educator assists or mentors a less experienced educator in instructional tasks. It is a relationship in which a more skilled or experienced individual guides and encourages the professional

development or progress of another. Mentoring goes beyond acquiring specific skills or tasks to creating an atmosphere of trust in which the mentees can seek guidance on concerns affecting their professional development (Ibrahim, 2022). Traditional mentoring typically involves a one-on-one, face-to-face relationship between a more experienced individual (the mentor) and a less experienced person (the mentee). Traditional mentoring can be either formal (e.g., through a structured program) or informal (e.g., through personal connections). Mentors are typically chosen for their expertise and experience in a specific field or industry. Mentoring is an essential tool for professional and personal development, however, it is not left without its peculiar challenges in Nigeria. Mentoring has a lot of potential, but in Nigeria it is hampered

by limited mentorship opportunities, language and communication barriers, cultural and societal barriers, trust and credibility issues, brain drain, lack of structured programs, limited resources and infrastructure (Johnson, 2016).

Recent advances in Artificial Intelligence (AI) offer a promising solution to improve the mentoring experience, increase efficiency, and improve outcomes (Bagai & Mane 2024). Olatunde-Aiyedun, (2024) highlighted Artificial Intelligence (AI) powered mentoring potential to address teachers professional development challenges in Nigeria. Ihua (2024) emphasized the need for AI-powered mentoring to support teacher capacity building in Nigeria. De la Vall & Araya (2023) stressed the importance of AI-powered mentoring in enhancing language teaching skills in Nigeria. This paper therefore, explores the integration of AI-powered tools into one-on-one mentoring models for language educators in Nigeria, leveraging the benefits of technology to enhance teacher professional development and improve language teaching and learning outcomes.

The Case for AI-Powered Mentoring

The argument for AI-Powered Mentoring: Mentoring is a proven idea that has shaped people's lives in a variety of professions. However, traditional mentoring approaches have drawbacks, including geographic restrictions, accessibility issues, and inconsistent mentorship quality. Artificial Intelligence (AI) has changed the mentoring game by providing a customized, scalable, and easily accessible alternative in the form of AI-powered mentoring.

Personalisation is essential to successful mentorship. Mentoring programs with AI capabilities could

evaluate each student's requirements and offer personalized advice and feedback (Pokrivcakova, 2019). With this tailored approach, mentees may get help that suits their own needs and objectives. Traditional mentoring techniques, on the other hand, frequently take a one-size-fits-all approach, which might not work for every person.

Scalability is another important benefit of AI-powered coaching is scalability. Reaching a larger audience is difficult with traditional mentoring since it is sometimes restricted by regional constraints. This obstacle can be solved by AI-powered mentorship, which can help a lot of people no matter where they are in the world (Byers 2024). This scalability is especially crucial in nations like Nigeria where it may be difficult to get good mentoring.

Consistency is one important aspect of high-quality mentoring. While traditional mentoring methods can be inconsistent, offering different levels of support and feedback, AI-powered mentoring systems can offer consistent support and feedback, reducing variability in mentorship quality. This consistency is crucial for developing trust and making sure mentees receive the support they require (Garza, Goble, Brooke & Jay 2015).

Accessibility another important advantage of AI-powered mentoring, as traditional methods frequently depend on scheduled meetings and limited contact, AI-powered mentoring systems can provide 24/7 support, making it more accessible than traditional methods. This is especially important for people with busy schedules or those who live in different time zones (Garza, et al 2015).

Data-driven insights are crucial for understanding mentorship effectiveness. AI-powered mentoring systems can provide valuable insights into mentorship outcomes, enabling data-driven decision-making. These insights can help identify areas for improvement, ensuring that mentorship programs are optimized for maximum impact (Chaurasia, Sengar, Tomar & Singh, 2024).

Summarily, AI-powered mentoring offers a compelling solution to the limitations of traditional mentoring methods. Its personalized approach, scalability, consistency, accessibility, and data-driven insights make it an attractive option for individuals seeking mentorship. As the world continues to grapple with the challenges of traditional mentoring, AI-powered mentoring is poised to revolutionize the way we approach mentorship. As scholars and practitioners, we must embrace this technology to unlock its full potential and enhance mentorship experiences worldwide (Nadu 2024).

AI TOOLS

AI tools are software applications that employ artificial intelligence (AI) and machine learning (ML) technology to do certain tasks, solve problems or take decisions. Artificial intelligence (AI) tools aim to enhance human capabilities, boost productivity, and stimulate creativity in a range of fields and spheres of life. These tools can examine and analyse vast amounts of data, automate jobs that are repetitious, make better decisions, offer analysis and forecasts and enhance productivity and creativity (Kumar & Natarajan, 2018).

AI tools include the following (Fitria, 2021).

QuillBot is a paraphrasing and summarising tool that helps millions of

professionals and students reduce their writing time by more than half. It can rewrite any sentence, paragraph, or article. When writing, QuillBot saves time by identifying the best synonyms, improving meaning and clarity, and implementing vocabulary upgrades. Quillbot is directly integrated with Google Docs, Microsoft Office, and Google Chrome.

ChatGPT is an artificial intelligence (AI) chatbot that uses natural language processing to produce humanlike conversational dialogue. The language model can react to questions and create various written content, including social media posts, essays, articles, code and emails.

Grammarly is an online tool that provides revision assistance, spelling and grammar checker, plagiarism detector, and word choice recommendations. Users can upload texts to Grammarly and get instantaneous feedback on grammar, punctuation, and spelling. It is intended to help students with proofreading and grammar learning within the context of their own writing.

Turnitin is plagiarism detection software that scans students' work for matching text by comparing it to a vast database of students' work, publications, and other materials. It is used to help students, instructors, and institutions promote integrity and learning outcomes on a broad scale.

Duolingo is a free app that teaches over forty (40) languages in quick, bite-sized lessons. You can practise speaking, reading, listening, and writing to improve your vocabulary and grammar skills. It is a free, fun, and effective way to learn a language! One of the key benefits is the increased

engagement provided by its gamified approach.

Canva is a graphic design application that employs artificial intelligence to propose layouts, colours, and fonts. The platform provides a variety of design elements, including graphics, photos, and text, which can be easily added, updated, and moved to create unique designs.

Quizlet is an effective AI-powered writing tool that allows you to create quizzes, practice questions, flashcards, and other forms of content for improved comprehension. Quizlet cleverly employs AI technology to create organised content for memorisation, presentations, and exams.

Curipod is an artificial intelligence application for instructors and students that can assist generate more interactive lectures and presentations. Curipod promotes critical thinking by creating interactive lessons. It can also be employed for translating text. It is also utilised for meetings and workshops.

ClassPoint AI develops quiz questions using PowerPoint presentations. It is incredibly helpful to both students and teachers. With quiz questions being so simple to create, you can expand your knowledge in a variety of topics.

Coursebox is an AI course maker, regarded as one of the AI tools for education, that allows you to develop and design a course in under an hour with the help of a course editor. Event calendars, event management, and knowledge management are all useful features that can assist improve your course.

Theoretical Framework: Albert Bandura's Social Learning Theory

Albert Bandura's Social Learning Theory (SLT) provides a comprehensive framework for understanding how language educators can learn and adopt new teaching strategies through one-on-one mentoring with AI-powered tools. SLT can be applied to the integration of AI-powered tools in one-on-one mentoring and enhancing language educators' professional development.

Observation, a critical component of SLT, and AI-powered tools can provide language educators with demonstrations, videos, or simulations of effective teaching strategies. For instance, an AI-powered tool can showcase a model lesson, allowing the language educator to observe and learn from it. This observation can spark interest and motivation, encouraging language educators to learn more.

Imitation, the next step in the SLT process, is where language educators can practice and implement the observed strategies. AI-powered tools can facilitate this process by providing personalized feedback and guidance. For example, an AI-powered tool can analyze a language educator's lesson plan and offer suggestions for improvement. This feedback loop enables language educators to refine their teaching strategies and develop their skills.

Reinforcement is another essential component of SLT, and AI-powered tools can offer personalized feedback, encouragement, and support. This reinforcement can strengthen the learning process, motivating language educators to continue developing their skills. For instance, an AI-powered tool can provide positive feedback on a language educator's lesson, boosting their confidence and self-efficacy (Allan 2017).

Self-efficacy is a critical outcome of SLT, and AI-powered tools can

enhance language educators' confidence in their ability to implement new strategies. By providing personalized feedback and guidance, AI-powered tools can help language educators develop a sense of self-efficacy, leading to improved teaching practices and student outcomes.

Finally, reciprocal determinism highlights the interaction between the language educator, their environment, and their behavior. AI-powered tools can influence this interaction, providing language educators with the support and resources needed to develop their skills. For example, an AI-powered tool can offer suggestions for adapting teaching strategies to meet the needs of diverse learners.

Bandura's SLT provides a robust framework for understanding how AI-powered tools can support language educators' professional development. By providing observation, imitation, reinforcement, self-efficacy, and reciprocal determinism, AI-powered tools can enhance language educators' teaching practices and student outcomes. As the field of language education continues to evolve, the integration of AI-powered tools in one-on-one mentoring has the potential to transform language educators' professional development, leading to improved teaching practices and better student outcomes.

A Framework for AI-Infused Mentoring

To address the challenges facing language educators' professional development in Nigeria, this paper proposes a framework that integrates AI-powered tools into mentoring programs. This framework consists of the following components:

1. *Needs Assessment*: Identify the specific needs and goals of language educators in Nigeria, using surveys, interviews, and focus groups. This step

is crucial in understanding the context and requirements of language teachers in Nigeria, enabling the development of targeted support

2. *AI-Powered Mentoring Platform*: Develop a digital platform that uses AI to match mentors and mentees, provide personalized feedback, and facilitate communication. This platform can leverage Natural Language Processing (NLP) and machine learning algorithms to offer real-time support and guidance

3. *Training and Support*: Offer training and support for mentors and mentees on AI-powered mentoring, language teaching methodologies, and technology integration. These trainings can be delivered through online modules, workshops, and webinars, ensuring accessibility and flexibility.

4. *Content Development*: Create a repository of high-quality language teaching resources, including lesson plans, videos, and interactive activities. These resources can be developed in collaboration with language teaching experts and aligned with the Nigerian language education curriculum.

5. *Evaluation and Monitoring*: Continuously evaluate and monitor the effectiveness of the framework, using data analytics and feedback from stakeholders. This step ensures accountability, quality assurance, and continuous improvement.

By implementing this framework, language educators in Nigeria can benefit from personalized support, improved teaching skills, and enhanced student outcomes.

AI-Infused Mentoring Framework Model

Step 1: Needs Assessment

- **Input**: Gather information about the mentee, including their objectives, aptitudes, interests, and strengths

- Process: Utilise AI-driven tools for assessment, like aptitude tests, surveys, or personality evaluations, to analyse the mentee's data
- Output: Produce a personalised learning plan that pinpoints areas in need of development and improvement.

Step 2: AI-Powered Mentoring Platforms

- Input: Using AI-driven methods, match the mentee with mentors who are a good fit based on the personalised learning plan.
- Process: The platforms enable dynamic mentoring relationships by offering adaptable content, real-time feedback, and advice.
- Output: Promote deep, individually-tailored relationships between mentors and mentees.

Step 3: Training and Support

- Input: Collect data on performance, feedback, and mentor-mentee progress.
- Process: Make recommendations for mentors' training and support materials based on AI-driven insights to make sure they are prepared to manage a variety of mentoring scenarios.
- Output: Improve the quality of mentoring by filling in knowledge and skill shortages.

Step 4: Content Creation and Assessment

Input: Use AI-driven insights from mentoring relationships to identify knowledge gaps and areas for improvement.

Process: Generate, select, and assess pertinent content, making sure it's impactful and engrossing;

- Output: Establish a library of useful materials, assisting mentors and mentees.

Step 5: Mentoring

- Input: Blend personalised learning programs with AI-driven support.
- Process: Encourage human-to-human mentoring connections while enhancing them with AI-enabled communication through virtual assistants or chatbots.
- Output: Help mentees reach their objectives, acquire new abilities, and advance their careers.
- AI Integration: Data-driven decision-making, automation, and scalability are made possible by the integration of AI technology across the model.

Artificial intelligence (AI) facilitates real-time feedback, offers tailored recommendations, and assists in matching mentors and mentees (Bagai & Mane, 2023).

Challenges of Using AI-Powered Tools

The integration of AI-powered tools into one-on-one mentoring for language educators represents a promising frontier in professional development. AI technologies, such as natural language processing, data analytics, and personalized learning platforms, offer opportunities for tailored feedback and support (Umali 2024)). However, these tools also introduce challenges that must be carefully managed to realize their potential benefits. The key challenges are: technological, infrastructural, and contextual factors.

Technological Challenges

One of the most significant challenges in Nigeria is the limited technological infrastructure. Access to reliable internet and modern computing devices is uneven

particularly in rural areas (Okoye, Uchenna & Okechukwu (2023). This disparity can hinder the effective deployment and use of AI-powered tools, which often require stable internet connections and advanced hardware. Related to this is the level of digital literacy among language educators. Effective use of AI tools demands a certain level of technical proficiency, which may be lacking among some educators (Pedro, Subosa, M., Rivas, & Valverde, 2019). Without adequate training and support, educators may struggle to fully utilize these technologies, undermining their potential benefits.

Infrastructural Challenges

The cost of AI-powered tools and associated technologies can be unaffordable for many educational institutions in Nigeria. The financial burden of acquiring and maintaining these tools may be beyond the budgetary constraints of many schools and educational organizations (Okoye, Uchenna & Okechukwu 2023). This financial challenge may limit the widespread and adoption of AI tools, coupled with the fact that AI tools also require ongoing technical support and maintenance to function effectively.

Contextual Challenges

Nigeria's rich cultural and linguistic diversity presents a unique challenge for AI-powered tools. Many AI systems are designed with a one-size-fits-all approach that may not account for the diverse linguistic and cultural contexts in Nigeria. AI tools may struggle to provide relevant and culturally sensitive feedback, potentially leading to less effective mentoring outcomes. In addition, there is often resistance to adopting new technologies among educators, especially in traditional education settings. This resistance can stem from

a lack of familiarity with AI tools or a preference for established methods of mentoring and professional development (Fawaz 2023). Overcoming this resistance requires targeted efforts to demonstrate the benefits and effectiveness of AI-powered tools.

In a nutshell, the integration of AI-powered tools into one-on-one mentoring models for language educators in Nigeria holds significant potential but is accompanied by notable challenges. Technological limitations, infrastructural constraints and contextual factors must be addressed to ensure that AI tools contribute effectively to professional development. By investing in infrastructure, enhancing digital literacy, addressing cost barriers and developing culturally responsive tools, Nigeria can harness the benefits of AI while overcoming the obstacles that currently impede its use.

Conclusion

In conclusion, AI-infused mentoring has the potential to revolutionize language educators' professional development in Nigeria. By leveraging AI-powered tools, we can provide personalized support, enhance teaching skills, and improve student outcomes

Recommendations

By implementing these recommendations, we can harness the potential of AI to enhance language educators' professional development in Nigeria and improve the quality of language education.

- *Contextualized AI-powered mentoring:* Develop platforms that consider Nigeria's unique language teaching challenges, cultural context, and technological infrastructure.
- *Local language support:* Incorporate major Nigerian

languages (e.g., Hausa, Yoruba, and Igbo) into AI-powered mentoring tools to cater to diverse language teachers.

- *Offline accessibility:* Design platforms with offline functionality to accommodate areas with limited internet connectivity.
- *Teacher training:* Provide comprehensive training for language teachers on AI-powered mentoring, focusing on practical applications and integration with existing teaching methods.
- *Addressing infrastructure challenges:* Develop strategies to address infrastructure limitations, such as inadequate internet access, hardware, and software constraints.
- *Cultural sensitivity and awareness:* Ensure AI-powered mentoring tools are sensitive to Nigerian cultures, values, and beliefs, avoiding potential cultural misappropriation or insensitivity.
- *Continuous evaluation and feedback:* Regularly assess the effectiveness of AI-infused mentoring in Nigerian contexts. gathering feedback from stakeholders to inform improvements.

By considering these factors, we can develop AI-infused mentoring that effectively supports language education and improves language education in Nigeria.

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