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EMPOWERING PRIMARY EDUCATORS IN THE AI ERA: AN EVALUATION OF GEMINI AI TRAINING SATISFACTION AT AN-NIZAM PRIMARY SCHOOL

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Abstract: *The rapid development of Generative Artificial Intelligence (GenAI) has transformed primary education by offering solutions to administrative burdens and creating new opportunities for innovative instructional design. This study aimed to measure the professional satisfaction and perceived usefulness of an intensive Gemini AI prompt engineering training and mentoring program among 23 homeroom teachers at SD An-Nizam. The program focused on utilizing structured prompting techniques to create Deep Learning materials based on the Task-Based Language Teaching (TBLT) approach, specifically embodying Mindful, Meaningful, and Joyful (MMJ) principles. By applying specialized tools such as Nano Banana for educational illustrations, Gemini Canvas for task-based classroom games, and Deep Research for robust lesson planning (RPP), the training guided teachers in building a sustainable Prompt Library. Using a descriptive survey design with a 5-point Likert scale and open-ended questions, the results showed a highly positive reception toward the training content and instructor quality. A large majority of teachers (19 respondents) reported feeling significantly more confident in applying Generative AI-driven instructional design. Qualitative feedback highlighted that specific tool like Nano Banana effectively simplified complex concepts for younger students by combining text and vibrant images. The study concludes that this training successfully improved educators' prompt engineering skills and instructional efficiency, providing a useful blueprint for future professional development that incorporates peer-mentoring and localized AI integration in primary schools. While these results are promising, the study is limited by its small, single-site sample size and a focus on immediate outcomes rather than long-term pedagogical shifts. Nevertheless, these findings establish a foundation for larger-scale implementations, emphasizing that sustainable AI adoption in early education depends on human-centered support and context-specific curriculum design.*

INTRODUCTION

The emergence and evolution of Generative Artificial Intelligence (GenAI) have greatly influenced the primary education sector by fostering innovative instructional approaches and enhancing administrative operations. Tools such as Gemini AI are facilitating this change by assisting educators in designing lessons more effectively and automating routine academic tasks. By supporting student-centered learning, GenAI enables educators to create customized activities and provide immediate feedback to students (Shrestha & Yi, 2025; Dangol, 2025). This technology allows teachers to reduce the time spent on administrative documentation, thereby enabling a greater focus on student guidance and the enhancement of classroom interactions (Akaygün & Kılıç, 2025; Yan, 2025; Hockly, 2023).

This shift requires primary school teachers to move away from traditional instructional methods and develop greater digital creativity. Educators are now expected to utilize GenAI within professional frameworks, such as Technological Pedagogical Content Knowledge (TPACK), to ensure that technology supports core learning goals rather than replacing them (Akaygün & Kılıç, 2025; Blonder et al., 2024; Ouyang & Jiao, 2021). To meet these 21st-century demands, a specifically designed professional development program was conducted to empower homeroom teachers to implement Task-Based Language Teaching (TBLT) through the principles of Deep Learning (Ellis, 2003; Sun & Shi, 2024). This pedagogical approach aims to create instructional experiences that are Mindful, Meaningful, and Joyful (MMJ), ensuring that AI adoption aligns with the institution's pedagogical values and fulfills the diverse, personalized needs of students (Allison et al., 2025; Shrestha & Yi, 2025; Su & Zhong, 2022).

The training at SD An-Nizam focused on practical prompt engineering techniques using various specialized features within the Gemini ecosystem. To overcome the lack of specific instructional design skills, teachers were trained in structured prompting frameworks utilizing Persona, Context, Task, and Format parameters to produce authentic TBLT modules (Lo, 2023; Mollick & Mollick, 2024). This included utilizing Nano Banana for generating educational illustrations, Gemini Canvas for designing accessible classroom games, and the Deep Research feature to construct robust pedagogical frameworks, such as lesson plans (RPP). This program aims to bridge the gap between emerging AI capabilities and daily classroom practices by producing a curated "Prompt Library" that educators can sustainably use, which is considered essential for modern education (Allison et al., 2025).

However, while such training is necessary, its success is frequently hindered by psychological and structural challenges. The accelerated pace of AI development can lead to technostress, cognitive overload, or a natural resistance to change among educators (Kong et al., 2025; Levy-Nadav et al., 2025). Furthermore, a lack of prompt engineering competency often leads to AI outputs that are irrelevant or too rigid for primary school contexts, and low AI literacy can even result in "AI hallucinations" without precise prompting (Holmes & Miao, 2023; Baidoo-Anu & Ansah, 2023). Empirical research indicates that for training to be effective, teachers must perceive the technology as useful and feel satisfied with the specific tools provided (Shrestha & Yi, 2025). At SD An-Nizam, although the Gemini AI training has been completed, there is a lack of empirical data regarding whether these specific tools—such as Nano Banana and Gemini Canvas—effectively met the needs of homeroom teachers or fostered sufficient satisfaction to sustain the use of MMJ media (Yan, 2025).

The primary objective of this study is to measure the level of professional satisfaction and perceived usefulness of the Gemini AI training among the faculty at SD An-Nizam. This research utilizes a comprehensive evaluation framework, adapted from established models such as Kirkpatrick's evaluation levels, to assess various dimensions, including the relevance of the MMJ concept and the ease of use of the practical prompting methods (Kirkpatrick & Kirkpatrick, 2007). By doing so, the study intends to move beyond anecdotal observations and provide a rigorous scientific assessment of how specific AI tools can be successfully integrated into the primary school curriculum.

In the contemporary academic landscape, most research on GenAI focuses heavily on ChatGPT, particularly within higher education settings (Boral & Mondal, 2025; Hernadi et al., 2024). There remains a notable scarcity of research focusing on the Google Gemini ecosystem, specifically regarding its application for younger students in primary education. Consequently, it remains largely unexplored how features such as AI-generated imagery for children or AI-based game design function within a real-world primary school environment (Ayanwale et al., 2024).

The novelty of this research lies in its specific focus on the MMJ Learning Media framework utilizing Gemini AI, representing a unique approach within the field of educational technology. Unlike general AI workshops, this study evaluates the implementation of structured prompt engineering and specialized tools like Nano Banana and Gemini Canvas that are integrated into the existing Google ecosystem already utilized by many educational institutions. Upon completion of the Gemini AI training At SD An-Nizam, a questionnaire was administered to explore whether these specific tools—such as Nano Banana and Gemini Canvas—effectively met the needs of homeroom teachers or fostered sufficient satisfaction to sustain the use of MMJ media. By evaluating this training at SD An-Nizam, the study provides a new perspective on how primary education homeroom teachers, in particular, can be empowered through creative AI applications.

Finally, this study is justified by both its theoretical and practical contributions. Theoretically, it enriches established models of technology adoption, such as the Technology Acceptance Model (TAM), by applying them to the specific requirements of primary educators. Practically, the findings provide a helpful "blueprint" for school leadership and policymakers. By identifying the factors that contributed to the successful creation of MMJ media and TBLT-based prompt libraries, this research offers a model for designing future AI programs that are effective, satisfying, and sustainable for educators.

METHOD

This study utilized a descriptive survey research design to evaluate teacher satisfaction and gather experiential feedback regarding a professional development program focused on Generative AI at SD An-Nizam. The primary objective was to comprehensively assess the satisfaction levels of 23 homeroom teachers following their participation in a four-session training program on prompt engineering using Gemini AI. Each 90-minute weekly session was specifically designed to help educators create Mindful, Meaningful, and Joyful (MMJ) Learning Media that aligns with the principles of Deep Learning and the Task-Based Language Teaching (TBLT) approach. This descriptive approach allowed for a detailed exploration of participant perceptions within a natural instructional setting (Creswell, 2013).

The implementation of this program followed four systematic stages to effectively bridge the gap between technology and pedagogy. The first stage involved a need analysis to identify teachers' specific difficulties in compiling teaching modules and to map their initial AI literacy. This was followed by a strategic workshop focusing on advanced prompting techniques—such as Chain-of-Thought and Role-Prompting—where teachers learned to apply the Persona, Context, Task, and Format formula to generate authentic TBLT tasks tailored to the cognitive levels of primary school students (Lo, 2023; Ouyang & Jiao, 2021). The curriculum emphasized practical applications within the Gemini ecosystem, including Nano Banana for educational illustrations, Gemini Canvas for designing accessible classroom games, and the Deep Research feature for constructing robust pedagogical frameworks such as lesson plans (RPP) (Hockly, 2023; Mollick & Mollick, 2024). In the third stage of production assistance, the team provided one-on-one mentoring to guide teachers as they independently used Gemini AI to compile task-based lesson plans, interactive media, and reflection instruments that embody Mindful, Meaningful, and Joyful values while building a sustainable Prompt Library for the school (Su & Zhong, 2022). Finally, the evaluation stage focused on testing the quality of the generated teaching materials through peer-review and gathering feedback on instructional effectiveness in the classroom.

Data collection was conducted through a post-training satisfaction questionnaire administered immediately following the final session. The quantitative portion of the instrument utilized a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), and consisted of 15 closed-ended items categorized into four evaluative domains: content and relevance, instructor quality, delivery and facilities, and impact and sustainability. The instrument was adapted from established theoretical frameworks, specifically Kirkpatrick's Four Levels of Training Evaluation (Kirkpatrick & Kirkpatrick, 2016) and the Technology Acceptance Model (Davis, 1989). Furthermore, the survey included two open-ended questions designed to capture qualitative insights regarding the most beneficial aspects of the training and constructive suggestions for future iterations, ensuring a comprehensive understanding of the participants' subjective experiences.

The data analysis process was divided into quantitative and qualitative phases to ensure a holistic evaluation. Quantitative responses from the 15 Likert-scale items were analyzed using descriptive statistics, specifically mean scores and frequencies, to determine central tendencies and overall satisfaction trends among the educators. Qualitative feedback from the open-ended questions was narratively described to provide contextual depth and thematic clarity to the findings, rather than presenting limited textual data in a graphical format.

FINDINGS

Content and Relevance

The survey was conducted based on four critical indicators concerning content suitability to determine the degree of alignment between the instructional materials and the participants' professional requirements. The empirical data regarding these indicators are illustrated in Figure 1.

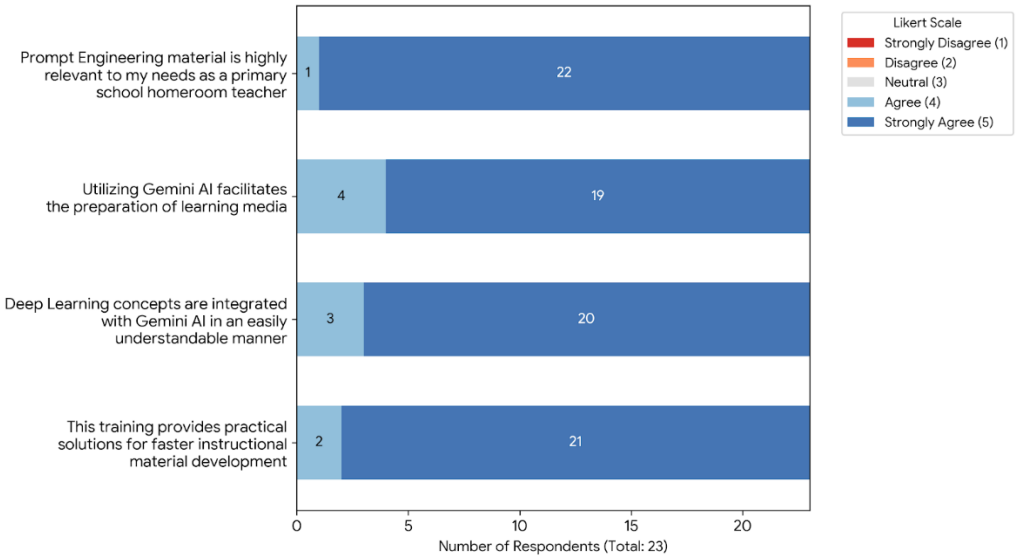

Figure 1. Content and Relevance

The analysis of the survey results suggests a highly favorable reception regarding the suitability of the training materials. Of the 23 participants, an overwhelming majority (22 respondents) expressed strong agreement that the Prompt Engineering curriculum was directly congruent with their roles as primary school homeroom teachers. Regarding the utility of Gemini AI in streamlining the preparation of learning media, 19 educators strongly agreed and 4 agreed. Furthermore, the integration of Mindful, Meaningful, and Joyful (MMJ) learning concepts was perceived as highly accessible, with 20 participants strongly agreeing on its clarity. Finally, 21 respondents strongly agreed that the training provided pragmatic solutions for accelerated instructional material development. These results imply that the program successfully delivered contextually appropriate AI content that deeply resonated with the pedagogical demands of the primary education sector.

Instructor Quality

The effectiveness and didactic competence of the facilitators were evaluated through three statements focusing on instructor proficiency. The collective perceptions of the participants are presented in Figure 2.

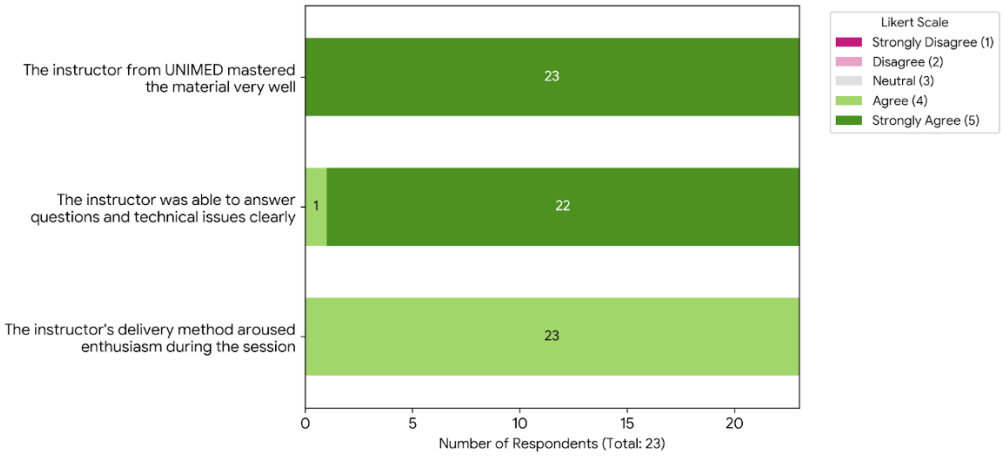

Figure 2. Instructor Quality

The feedback regarding the quality of the instructors shows that the participants were very satisfied. All 23 respondents strongly agreed that the trainers from UNIMED had a strong grasp of the material. Regarding communication, nearly everyone (22 out of 23) strongly agreed that the instructors explained technical and teaching matters clearly. Furthermore, all participants agreed that the teaching methods used during the sessions made them feel enthusiastic. These results show that the trainers were both knowledgeable and successful in keeping the teachers interested throughout the training.

Delivery and Facilities

To assess the structural efficiency of the workshop and its specialized technological modules, participants were surveyed on six indicators focusing on delivery mechanisms and facilities. These responses are detailed in Figure 3.

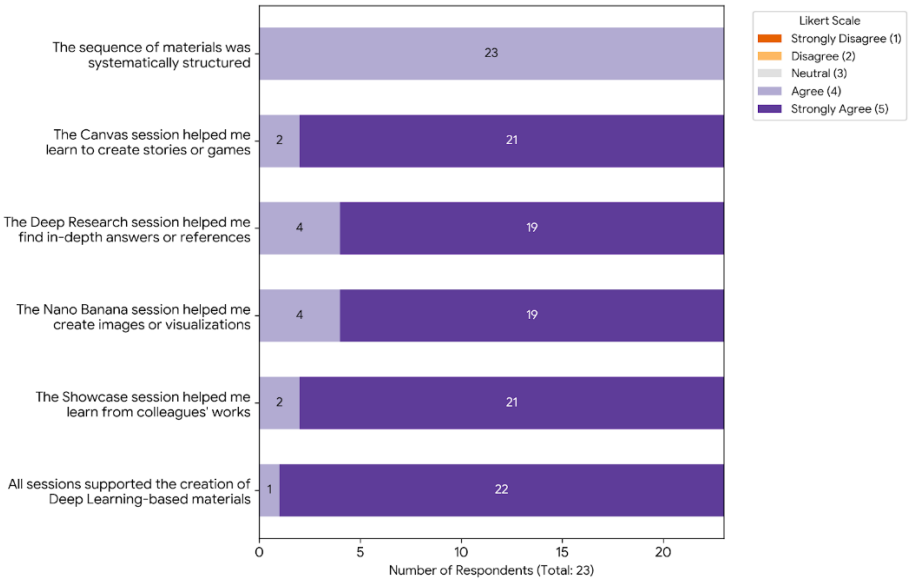

Figure 3. Delivery and Facilities

The evaluation of the training sessions shows that they were well-organized and received positive feedback. All participants agreed that the order of the lessons—starting from the Introduction and moving to Canvas, Deep Research, Nano Banana, and the Showcase—made sense. Specifically, 21 respondents strongly agreed that the Gemini Canvas part was very helpful for making games for their specific subjects. Similar positive results were found for the Deep Research and Nano Banana sessions; 19 participants strongly agreed that these tools were useful for finding information and making pictures. Additionally, 21 people valued the Showcase session because it helped them learn from their fellow teachers. In total, 22 teachers strongly agreed that the sessions helped them create better teaching materials, showing that the hands-on approach was very useful for their daily work.

Impact and Sustainability

To measure the longitudinal professional implications and the likelihood of sustained technological adoption, the survey assessed two key indicators regarding impact and future readiness. These results are visualized in Figure 4.

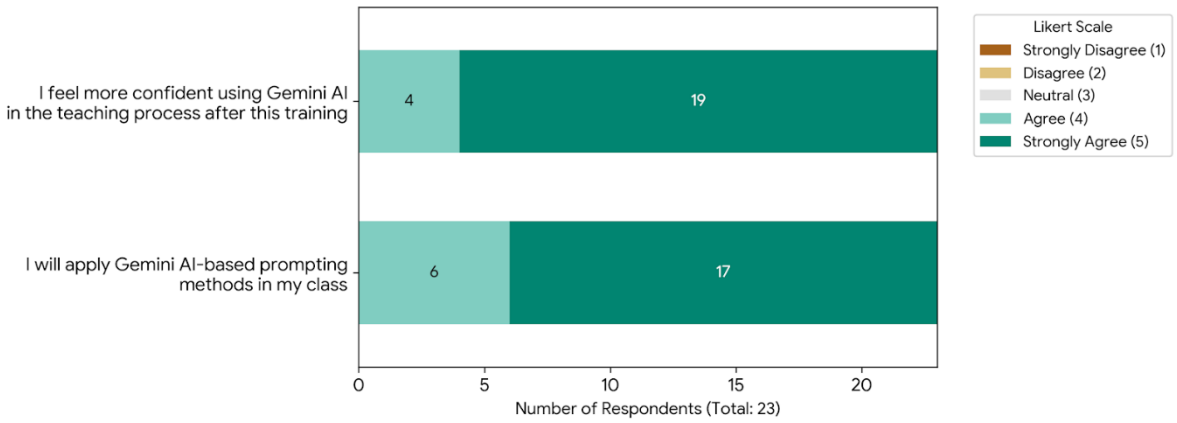

Figure 4 Impact and Sustainability

The data regarding the training's impact show a clear increase in the teachers' professional confidence. A large majority (19 respondents) strongly agreed that they felt more confident using Gemini AI in their teaching and learning activities. When asked about using AI prompting methods at SD An-Nizam in the future, 17 participants strongly agreed and 6 agreed that they intend to use these strategies. These findings suggest that the workshop went beyond just teaching new skills and successfully encouraged the teachers to actually apply generative AI in their real classrooms.

Suggestions and Feedback

The qualitative data revealed that the Nano Banana tool was the most advantageous component of the workshop for the majority of the participants. Teachers highlighted that its ability to generate visual content is particularly effective for younger students, such as those in Grade 2, as the combination of vibrant imagery and text simplifies complex concepts and increases student excitement. Beyond this specific tool, participants valued the practical techniques learned in the Deep Research and Gemini Canvas sessions, which helped them find better references and create interactive games. Mastering the "persona" prompting methodology was also cited as a significant takeaway, as it allowed teachers to customize AI responses to meet their specific classroom needs, thereby improving their overall instructional efficiency.

Regarding suggestions for future iterations, the primary recommendation was to optimize the training schedule by condensing the sessions to help participants stay focused and minimize fatigue. There was a strong consensus that the program should be held regularly and expanded to include all faculty members, rather than being limited to homeroom teachers. Furthermore, participants emphasized the importance of follow-up programs and in-class mentorship to ensure that the theoretical knowledge is successfully applied in daily teaching at SD An-Nizam. To support educators with varying levels of digital literacy, a proposal was made to establish a collaborative prompt-sharing system, which would especially assist older teachers in drafting the detailed prompts required for high-quality AI outputs.

Appendix A.
Satisfaction Questionnaire for the Gemini AI Training Program for An-Nizam Elementary School Teachers

Instructions: Please provide your assessment of the statements below by placing a check mark (✓) in the appropriate column provided.

- **1:** Strongly Disagree
- **2:** Disagree
- **3:** Neutral
- **4:** Agree
- **5:** Strongly Agree

A. Content and Relevance

No	Statement	1	2	3	4	5
1	Prompt Engineering material is highly relevant to my needs as a primary school homeroom teacher.					
2	Utilizing Gemini AI facilitates the preparation of learning media.					
3	Deep Learning concepts are integrated with Gemini AI in an easily understandable manner.					
4	This training provides practical solutions for faster instructional material development					

B. Instructor Quality

No	Statement	1	2	3	4	5
5	The instructor from UNIMED mastered the material very well.					
6	The instructor was able to answer questions and technical issues clearly.					
7	The instructor's delivery method aroused enthusiasm during the session.					

C. Delivery and Facilities

No	Statement	1	2	3	4	5
8	The sequence of materials (*Introduction -> Canvas -> Deep Research -> Nano Banana -> Showcase*) was systemically structured.					
9	The *Canvas* session helped me learn to create stories or games.					
10	The *Deep Research* session helped me find in-depth answers or references.					
11	The *Nano Banana* session helped me create images or visualizations.					
12	The *Showcase* session helped learn from colleagues' works.					
13	All sessions supported the creation of Deep Learning-based materials.					

D. Impact and Sustainability

No	Statement	1	2	3	4	5

14	I feel more confident using Gemini AI in the teaching process after this training.					
15	I will apply Gemini AI-based prompting methods in my class.					

E. Comments and Suggestions

1. What was the most advantageous component of the training? *(Answer: .....)*
2. What are your suggestions for similar future training programs? *(Answer: .....)*

DISCUSSION

The results of this study demonstrate that the Gemini AI professional development program at SD An-Nizam was successful in meeting the professional needs of primary school homeroom teachers. The high levels of satisfaction recorded across evaluative domains—including content relevance and impact—suggest that the training was well-aligned with the practical requirements of modern primary education. This indicates that the training served not merely as a technical tutorial, but as a bridge between abstract AI capabilities and the idiosyncratic demands of a primary school setting. These findings support the idea that for technology training to be effective, it must be perceived as useful and directly applicable to teachers' daily responsibilities (Li & Noori, 2024; Amouri et al., 2025). This alignment with primary education requirements echoes Nurhayati et al. (2025), who observed that Gemini AI training helped teachers overcome obstacles in preparing learning tools caused by busy schedules and limited time. Consequently, the reduction of cognitive load during the preparatory phase allows teachers to redistribute their mental energy toward active classroom facilitation. Furthermore, the use of the Deep Research feature for creating pedagogical frameworks like lesson plans (RPP) directly addressed the need for administrative efficiency. This mirrors findings by Puspandari et al. (2025), who noted that utilizing AI-based applications facilitated class preparation and eased teachers' administrative tasks, allowing educators more time to focus on designing contextual Deep Learning experiences. By automating the logistical scaffolding of lesson design, the program effectively transformed the teacher's role from a manual content creator to a strategic pedagogical curator.

A significant factor in this success was the practical application of specialized tools within the Gemini ecosystem, such as Nano Banana and Gemini Canvas, to create Deep Learning media based on the Task-Based Language Teaching (TBLT) approach (Ellis, 2003; Sun & Shi, 2024). The integration of these tools indicates that the TBLT framework becomes more accessible to educators when the burden of generating high-quality, task-specific stimuli is shared with Generative AI. Qualitative feedback highlighted that Nano Banana was particularly beneficial because its ability to combine vibrant imagery with text helps simplify complex concepts for younger learners, such as Grade 2 students (Apostolou & Linardatos, 2023). However, as Lo (2023) emphasized, the effectiveness of AI in instructional design highly depends on the quality of the educator's prompting. This creates a critical dependency where the teacher's linguistic precision in the prompt becomes the primary determinant of the pedagogical output's quality. Therefore, the workshop's focus on structured prompt engineering—utilizing Persona, Context, Task, and Format parameters—enabled teachers to

precisely guide the AI. This precision prevented rigid outputs or "AI hallucinations" (Holmes & Miao, 2023; Baidoo-Anu & Ansah, 2023) and served as a creative solution to "creative blocks," allowing for the rapid design of authentic tasks that are Mindful, Meaningful, and Joyful (MMJ) (Punggeti et al., 2026). The mastery of these parameters suggests a shift in teacher competency, where "prompt literacy" becomes an essential subset of modern pedagogical skill sets. Such Generative AI-Driven Instructional Design supports the theoretical framework of Technological Pedagogical Content Knowledge (TPACK), where teachers utilize digital tools to improve how they represent subject matter (Paseka, 2023). Similarly, Puspandari et al. (2025) observed that AI tools make learning more interesting and enjoyable, directly contributing to student engagement. Thus, the TPACK model is expanded here to include "Prompt Engineering" as a vital link between technological knowledge and content delivery.

The study also confirms that the training had a positive psychological impact, showing a clear increase in teachers' professional confidence and a definitive intent to continue using AI-based prompting methods in their real classrooms. These results are consistent with the Technology Acceptance Model (TAM), which suggests that when users find a system helpful and easy to use, they are more likely to adopt it permanently (Al-Hawamleh, 2024). The high intent to adopt suggests that the perceived "ease of use" was successfully achieved by grounding complex AI functions in the familiar MMJ framework. This transformation mirrors results from Punggeti et al. (2026), where intensive mentoring changed teachers' perceptions of technology from "complex" to "empowering." However, despite the overall success, feedback regarding the need for in-class mentorship and a collaborative "prompt-sharing system" for older educators suggests that future programs must consider varying levels of digital literacy. This discrepancy highlights that while the tools are intuitive, the internal logic of prompt engineering may still present a steep learning curve for those less familiar with conversational AI interfaces. This directly supports the initiative to establish the An Nizam AI-Teaching Community and a localized Prompt Library repository, highlighting the need for sustainable, long-term support rather than just one-time workshops to ensure a comprehensive digital transformation for all teachers. Such a community-based approach mitigates the risk of "knowledge silos" and ensures that AI expertise is distributed equitably across the school regardless of age or prior technical background.

The evaluation of the Gemini AI professional development program at SD An-Nizam reveals that a context-aware and tool-specific approach is vital for fostering educator readiness in the digital era. By integrating structured prompt engineering within the Task-Based Language Teaching (TBLT) methodology, the training successfully enhanced the teachers' professional confidence and their perceived usefulness of generative AI in realizing Mindful, Meaningful, and Joyful (MMJ) Deep Learning experiences. Ultimately, the success of this intervention lies in the synthesis of human pedagogical intuition with the generative speed of AI, creating a symbiotic instructional environment. While the study highlights significant gains in instructional efficiency and pedagogical innovation, it also underscores the necessity for ongoing institutional support, such as peer-mentoring, and inclusive training models that encompass all teachers. These findings provide a valuable foundation for the sustainable and human-centered integration of AI technologies within the primary education ecosystem.

CONCLUSION

This study concludes that the intensive Gemini AI prompt engineering training and mentoring program at SD An-Nizam successfully achieved its primary objective of enhancing professional satisfaction and perceived technological usefulness among homeroom teachers. By integrating Deep Learning principles—Mindful, Meaningful, and Joyful (MMJ)—within the Task-Based Language Teaching (TBLT) framework, the training provided pedagogically sound solutions that directly alleviated administrative burdens and facilitated the creation of authentic learning modules through tools like Nano Banana and Gemini Canvas. Although these findings indicate that the 23 participants developed significant professional confidence and a definitive intent to adopt Generative AI-driven design, it is important to note that the study's localized scope and specific sample size may limit the immediate generalizability of these results to larger, more diverse educational settings. Furthermore, while the current results show a successful adoption of a localized Prompt Library, the rapid evolution of AI technology and the long-term sustainability of these practices beyond the initial intervention period remain areas for future longitudinal inquiry. Ultimately, this research establishes a valuable foundation for the human-centered integration of AI in primary education, emphasizing that sustainable success depends on context-aware curriculum design, the use of specialized tools tailored for younger learners, and the provision of ongoing institutional support through peer-mentoring, the establishment of an AI-Teaching Community, and inclusive continuous training models for all educators.

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