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AI as a Tool for Reskilling and up skilling: A Strategic Response to Changing Skill Demands for Teacher

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Abstract

The rapid evolution of technology and the consequent shifts in the job market necessitate continuous learning and adaptation. Artificial Intelligence (AI) offers innovative solutions to facilitate reskilling and up skilling, enabling educators to meet changing skill demands effectively. This paper discuss about the Need for Reskilling and Up skilling in Education, AI-Powered Solutions for Teacher Reskilling and Up skilling, Implementing AI in Teacher Professional Development. Objectives undertaken by researcher are As a sample researcher selected 100 teacher's from two schools to fill the questionnaire designed by the researcher. For tool an effective questionnaire to understand how teachers up-skill and re-skill their work-related learning involves several key elements. This comprehensive questionnaire is designed by researcher to gather detailed information on teachers' professional development experiences, preferences, challenges, and the impact of these activities on their teaching practices. By analysing the responses, educational institutions can better tailor professional development programs to meet the needs and preferences of their teachers. From the above calculations it can be easily analysed that as far as demographic information is concerned mostly the age group of teachers who are working in schools is found between 35-44 of which mostly are holding bachelor's degree and having 16-20 years of experience of teaching high school students. When we analysed there current skills and developmental needs it was found that 50% teachers are very advanced in current proficiency in using digital tools and technology in their teaching and according to them around 40% feel that they need most development in digital literacy and it is 30% of the teachers who desire to improve student outcomes by indulging themselves in In-person workshops/seminars in which 40% participate annually through School/District-provided platforms. It was found that Cost of courses/training and Limited access to resources are the obstacles that teacher's usually face in pursuing professional development which they try to overcome by utilizing free or low-cost resources as it is need for today's teaching environment as teacher's feel that recent professional development has significantly improved their teaching practices and learning outcomes of their student's. Overall it is analysed that 70% of the teacher's believe that perceiving the potential of AI is enhancing their professional development with personalized learning paths as AI tool as a result 90% of the teacher's agree to the fact that they are interested in participating in AI-driven professional development programs. By personalizing

learning experiences, providing intelligent tutoring, and offering data-driven insights. AI can help build a future-ready teaching workforce capable of delivering high-quality education to all students.

Keywords: AI, skills, professional development.

Introduction

The rapid evolution of technology and the consequent shifts in the job market necessitate continuous learning and adaptation. For teachers, the need to stay updated with new teaching methodologies, digital tools, and subject matter advancements is paramount. Artificial Intelligence (AI) offers innovative solutions to facilitate reskilling and upskilling, enabling educators to meet changing skill demands effectively.

The Need for Reskilling and Up skilling in Education

1. **Changing Educational Paradigms**
Digital Transformation: The integration of digital tools in the classroom.
Evolving Curricula: Inclusion of contemporary subjects like coding, data science, and digital literacy.
Varied Learning Requirements: Catering to different learning styles and the diverse needs of learners.
Global Competency: Preparing students for a globally connected world.

1. **Challenges Faced by Teachers**
Keeping Up-to-date: Rapid advancements in technology and teaching methods.
Time Constraints: Balancing teaching responsibilities with professional development.
Resource Limitations: Access to quality training materials and programs.

- **AI-Powered Solutions for Teacher Reskilling and Up skilling**

SKILLS
Personalized Learning Paths: AI can create customized professional development plans based on individual teachers' skills, interests, and needs. By analysing data such as teaching performance, feedback, and subject knowledge, AI can recommend specific courses, workshops, and resources.

Intelligent Tutoring Systems: AI-driven tutoring systems can offer educators immediate support in learning new subject matter and teaching methods. These systems can offer immediate feedback and adapt learning experiences to the teacher's pace and level of understanding.
Revised Virtual Classrooms and Simulations: Artificial intelligence can support virtual classrooms and simulations, enabling educators to experiment with innovative teaching methods and tools without any risk. These simulations can mimic actual classroom situations, giving teachers the chance to refine their skills and gain feedback.
Ongoing Professional Development: AI can assist in developing ongoing professional development programs that are adaptable and responsive to shifts in educational standards and technologies. This guarantees that educators remain informed about the latest trends and effective practices
Data-Driven Insights: AI can analyse vast amounts of educational data to provide insights into effective teaching strategies and student learning patterns. This helps teachers understand the impact of their teaching methods and identify areas for improvement.

- **Implementing AI in Teacher Professional Development**

Collaboration with EdTech Companies: Schools and educational institutions can partner with EdTech companies to develop AI-driven professional development platforms. These platforms can offer a range of resources, from interactive tutorials to real-time support systems.
Investment in Infrastructure: To leverage AI effectively, educational institutions need to invest in the necessary technological infrastructure, including hardware, software, and reliable internet access.
Training and Support: Teachers need initial training and ongoing support to effectively use AI tools. Providing dedicated time for professional development and access to technical support is crucial for successful implementation.
Policy and Framework Development: Educational policymakers should develop frameworks that encourage and support the integration of AI in teacher professional development. This includes creating standards, guidelines, and funding opportunities.

Objectives :

- To determine how educators enhance and refresh their professional skills related to learning.
- To evaluate the effects of up-skilling and re-skilling on employee engagement.
- To investigate the significance of up-skilling and re-skilling for the talent mobility of employees. - To suggest the implementation of up-skilling and re-skilling programs designed to cultivate a workforce ready for future challenges.

Hypothesis:

- The participation of teachers in workshops does not significantly influence the upskilling and reskilling of work-related learning.
- There is no beneficial effect of employee upskilling and reskilling on driving engagement and talent mobility.

Review of Related Literature:

Edeh et al. (2022) The global Covid-19 pandemic has transformed the organizational frameworks and operational methods of educational institutions. Hence, to rejuvenate these organizations, management needs to retrain and enhance the skills of the teachers who are responsible for executing the organization's goals. This research examines the impact of changing human resource capabilities on educational organizations during global crises. The study focuses on twenty educational institutions as its target population. A questionnaire was utilized as the method for data collection. Participants included academic coordinators, teachers, and members of the management team. Linear regression was the analytical method employed for the hypothesis testing. The results of the study revealed that the resilience of educational organizations is significantly influenced by skill modifications made within human resources. The research concludes that enhancing organizational resilience through alterations in human resource skills, particularly in the areas of upskilling and reskilling, is indeed feasible.

Jaiswal et al. (2022) present a compelling vision of how Artificial Intelligence (AI) is reshaping the future of work. According to the authors, AI has the potential to take over routine and repetitive tasks currently performed by humans, thereby enabling individuals to redirect their efforts toward more creative, strategic, and cognitively demanding activities. While there is considerable concern about the possibility of large-scale job displacement due to AI adoption, many thought leaders and policy think tanks advocate for a more balanced perspective—one that emphasizes the synergy between human capabilities and machine intelligence. This collaborative model suggests that rather than replacing humans, AI can augment human potential, provided that the workforce is adequately prepared through reskilling and upskilling initiatives. The theoretical foundation of the study is rooted in the concepts of dynamic skill development, neo-human capital theory, and the anticipated effects of AI on job structures. The authors argue that the successful integration and acceptance of AI in the workplace depends on individuals acquiring new, adaptive skill sets. To explore what these essential skills might be, the researchers conducted a qualitative study involving interviews with twenty seasoned professionals from multinational corporations (MNCs) within India's information technology sector. Using Gioia's methodological framework, the study uncovered five critical competencies necessary for employee upskilling in the context of AI-driven transformation: data analysis, digital proficiency, complex cognitive skills, decision-making ability, and a strong commitment to continuous learning. These findings underscore the urgent need for targeted professional development programs that equip employees with the tools to thrive in a technologically advanced, AI-enabled work environment.

Zayed et al. (2022) emphasized the profound impact of the COVID-19 pandemic on the competencies of human resources within the global hotel industry. In the aftermath of the pandemic, managers and industry professionals have continued to grapple with the challenge of enhancing workforce skills to better navigate future uncertainties. Building on this context, the authors investigated how adjustments in human resource competencies influenced the dynamic capabilities of hospitality firms in sub-Saharan Africa, particularly in the post-pandemic work environment. The study adopted a cross-sectional survey design, drawing data from 220 respondents across 60 hospitality establishments in southeastern Nigeria. Linear regression analysis was applied to test the formulated hypotheses. The findings indicated that adjustments in employee competencies—specifically through upskilling and reskilling—significantly predicted improvements in the dynamic capabilities of the hospitality sector. The authors concluded that such competency enhancement strategies should be systematically implemented by hospitality managers across all operational domains to strengthen organizational adaptability and ensure that each functional unit is capable of meeting its respective objectives.

Grosemans et al. (2020) aimed to develop and validate a comprehensive instrument to measure work-related learning across various occupational settings. Drawing on extensive literature review and collaborative expert input, the authors administered the tool among a large and diverse sample of Flemish employees (N = 3,232). The dataset was split into two equal halves, with one subset subjected to exploratory factor analysis (EFA) to identify the underlying structure of the instrument, while the second was analyzed using confirmatory factor analysis (CFA) to test the model's validity. Further evaluations included internal consistency, convergent and discriminant validity, and measurement invariance across different groups. A follow-up assessment conducted six months later assessed the instrument's long-term reliability and predictive power. The study identified formal learning as one of the three central components of work-related learning, underscoring its significance across diverse occupational contexts.

In a related exploration of workforce potential, Dr. M. Nishad Nawaz (2023) highlighted the strategic importance of human talent as a key resource for gaining competitive advantage in today's rapidly evolving global landscape. With the acceleration of globalization and the diffusion of advanced information technologies, talent mobility has significantly increased, leading to heightened work demands. This environment compels employees to increase their commitment and performance levels, which in turn contributes to higher retention rates. Dr. Nawaz argued that organizations capable of managing and leveraging their talent pools effectively will have a strategic edge in what he terms the “talent war.” Investing in skilled personnel not only boosts organizational innovation but also ensures long-term sustainability. His empirical investigation, focused on several software companies in Bangalore, explored how talent mobility directly impacts employee performance, reinforcing the notion that strategic human capital management is central to organizational success.

Methodology:

Sample:

Researcher selected 100 teacher's from two schools to fill the questionnaire designed by the researcher.

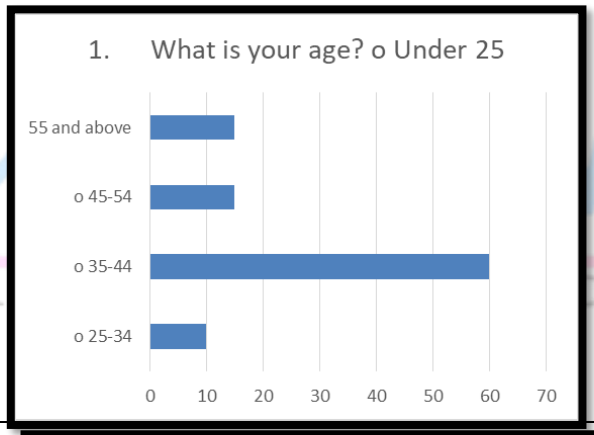
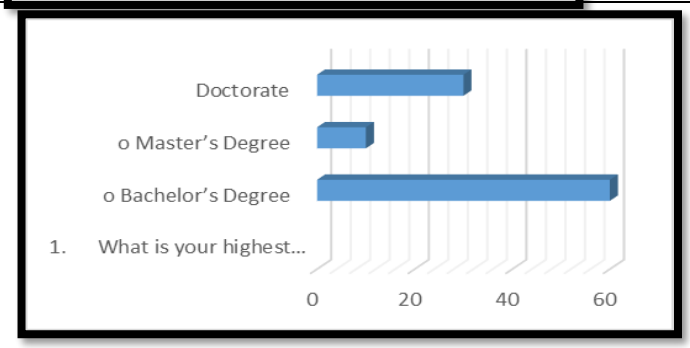
School Name	No. of teachers
ILVASchool (CBSE)	45
Agrasen School (CBSE)	55

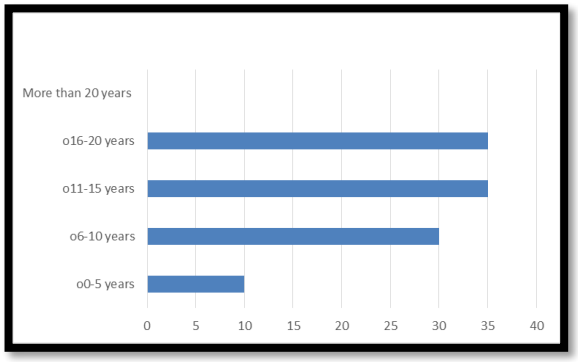
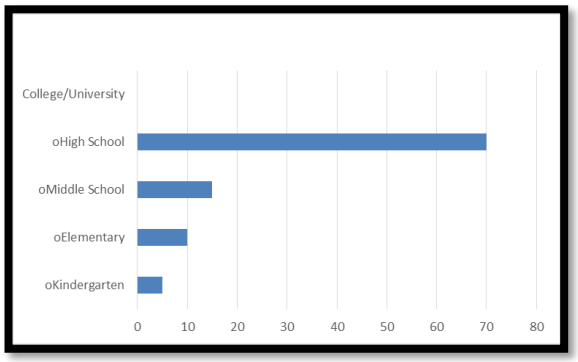
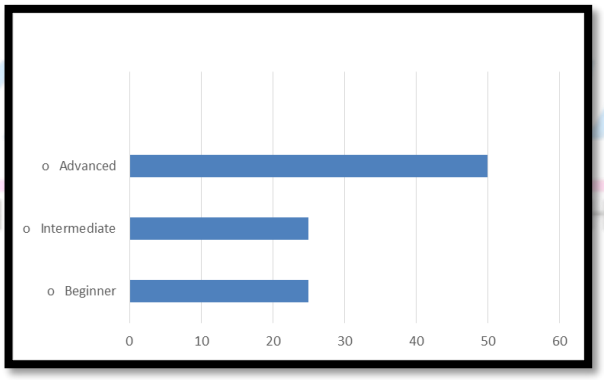
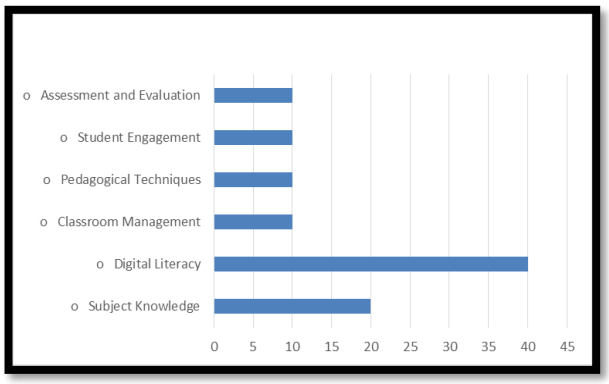
Tool:

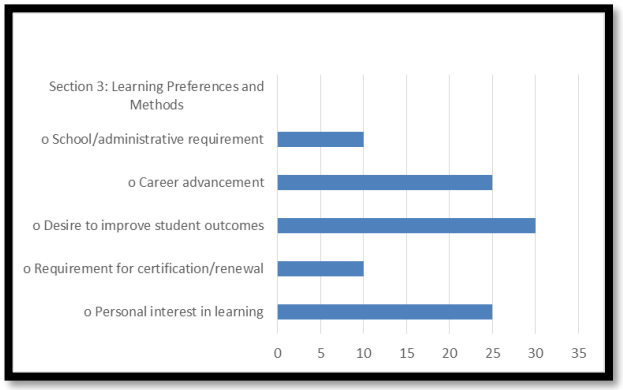
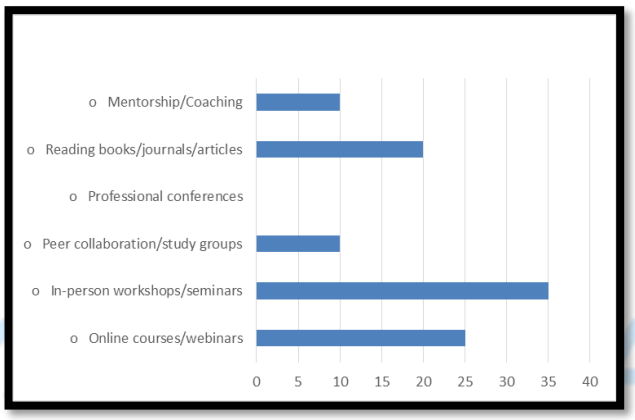
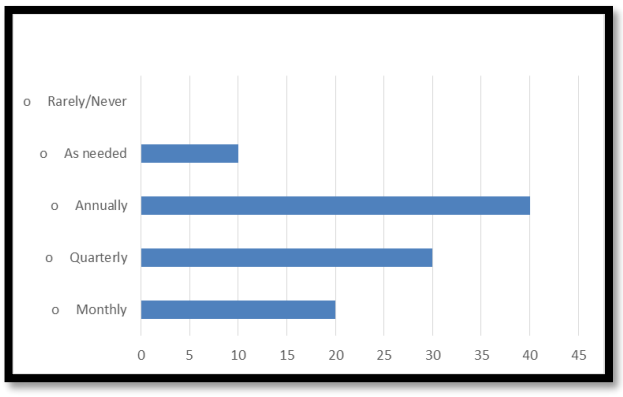
Creating an effective questionnaire to understand how teachers up-skill and re-skill their work-related learning involves several key elements. The questions should cover various aspects such as current skill levels, preferred learning methods, obstacles faced, and the impact of these skills on their teaching.

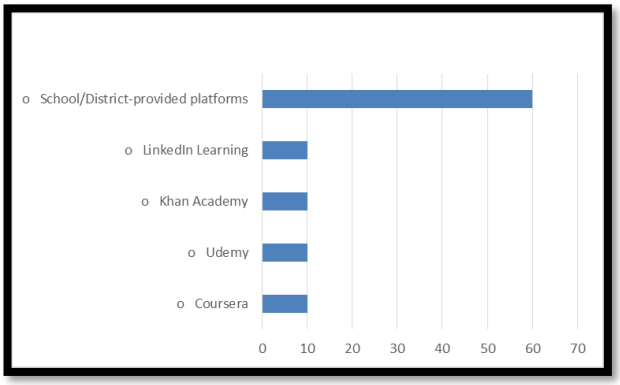
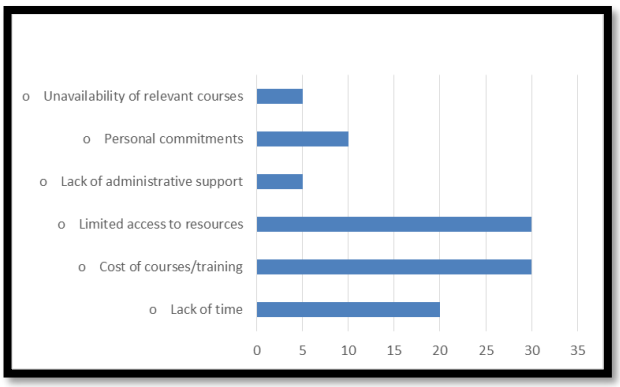
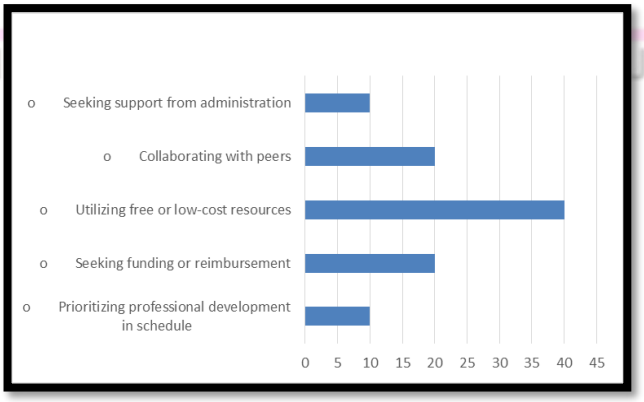
Here's a comprehensive questionnaire designed to gather detailed insights:

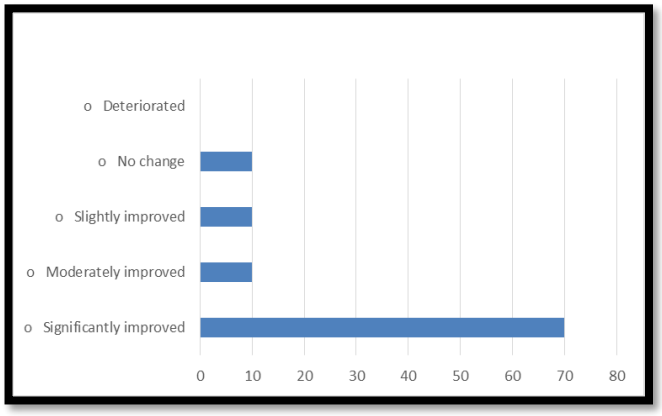
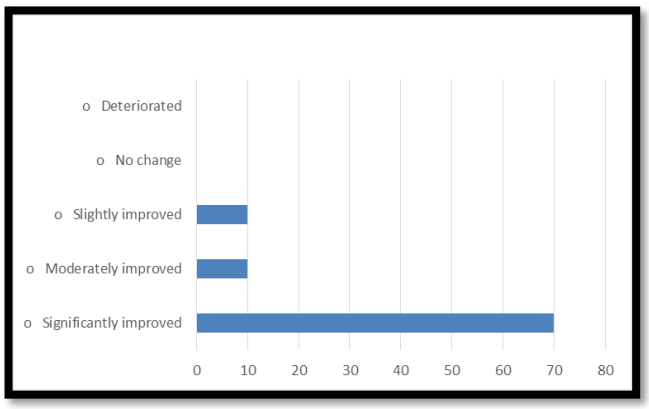
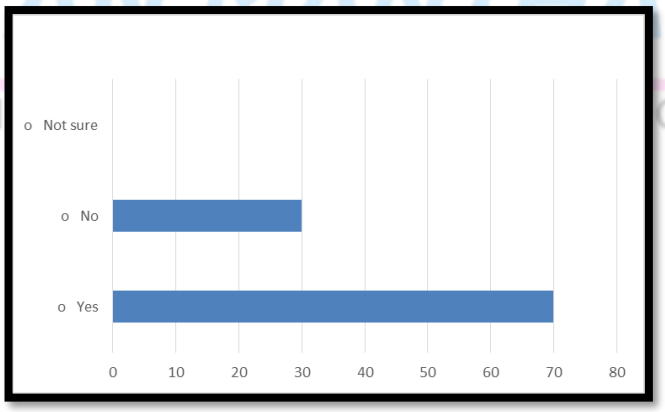
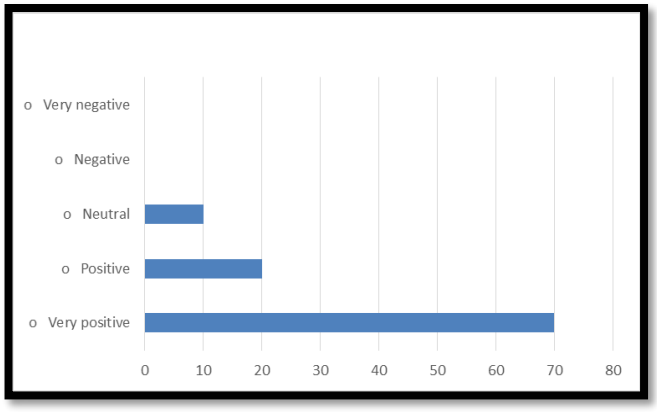
Table 1: Teacher Up-skilling and Re-skilling Questionnaire:

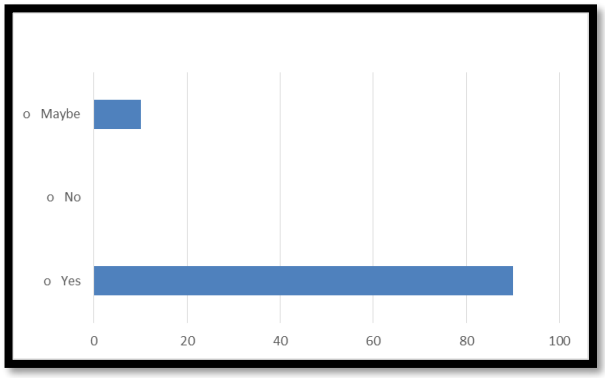
Section 1: Demographic Information	
1. Which age range do you l into? Under 25, 25–34, 35–44, 45–54, 55, and above ?	
2. Which degree is the highest you have earned? Bachelor's, Master's, or Doctorate?	

3. How long have you been a cher? 0–5 years; 6–10 years; 11–15 years; 16–20 years; or more than years.	
4.What grade levels do you teach? Kindergarten, Elementary, Middle School, High School, College, or University	
Section 2: Current Skills and Development Needs	
5. How would you rate your current proficiency in using digital tools and technology in your teaching? o Beginner o Intermediate o Advanced	
6. Which areas do you feel you need the most development in? (Select all that apply) o Subject Knowledge o Digital Literacy o Classroom Management o Pedagogical Techniques o Student Engagement o Assessment and Evaluation	

7. What motivates you to pursue professional development? (Select all that apply) o Personal interest in learning o Requirement for certification/renewal o Desire to improve student outcomes o Career advancement o School/administrative requirement	
Section 3: Learning Preferences and Methods	
8. How do you prefer to engage in professional development? (Select all that apply) o Online courses/webinars o In-person workshops/seminars o Peer collaboration/study groups o Professional conferences o Reading books/journals/articles o Mentorship/Coaching	
9. How often do you participate in professional development activities? o Monthly o Quarterly o Annually o As needed o Rarely/Never	

10. Which of the following platforms/tools do you use for professional development? o Coursera o Udemy o Khan Academy o LinkedIn Learning o School/District-provided platforms	
Section 4: Barriers to Professional Development	
11. What are the main obstacles you face in pursuing professional development? o Lack of time o Cost of courses/training o Limited access to resources o Lack of administrative support o Personal commitments o Unavailability of relevant courses	
12. How do you overcome these obstacles? o Prioritizing professional development in schedule o Seeking funding or reimbursement o Utilizing free or low-cost resources o Collaborating with peers o Seeking support from administration	
Section 5: Impact and Outcomes	

13. How has your recent professional development impacted your teaching practices? o Significantly improved o Moderately improved o Slightly improved o No change o Deteriorated	
14. How has professional development affected your students' learning outcomes? o Significantly improved o Moderately improved o Slightly improved o No change o Deteriorated	
Section 6: Use of AI in Professional Development	
15. Are you currently using any AI-powered tools for professional development? o Yes o No o Not sure	
16. How do you perceive the potential of AI in enhancing your professional development? o Very positive o Positive o Neutral o Negative o Very negative	

17. Would you be interested in participating in AI-driven professional development programs? o Yes o No o Maybe	

Discussion and Analysis:

This comprehensive questionnaire is designed to gather detailed information on teachers' professional development experiences, preferences, challenges, and the impact of these activities on their teaching practices. By analysing the responses, educational institutions can better tailor professional development programs to meet the needs and preferences of their teachers. From the above calculations it can be easily analysed that as far as demographic information is concerned mostly the age group of teachers who are working in schools is found between 35-44 of which mostly are holding bachelor's degree and having 16-20 years of experience of teaching high school students. When we analysed there current skills and developmental needs it was found that 50% teachers are very advanced in current proficiency in using digital tools and technology in their teaching and according to them around 40% feel that they need most development in digital literacy and it is 30% of the teachers who desire to improve student outcomes by indulging themselves in In-person workshops/seminars in which 40% participate annually through School/District-provided platforms. It was found that Cost of courses/training and Limited access to resources are the obstacles that teacher's usually face in pursuing professional development which they try to overcome by utilizing free or low-cost resources as it is need for today's teaching environment as teacher's feel that recent professional development has significantly improved their teaching practices and learning outcomes of their student's. Overall it is analysed that 70% of the teacher's believe that perceiving the potential of AI is enhancing their professional development with personalized learning paths as AI tool as a result 90% of the teacher's agree to the fact that they are interested in participating in AI-driven professional development programs.

Conclusion

AI offers transformative potential for reskilling and up skilling teachers, addressing the evolving demands of the education sector. By personalizing learning experiences, providing

intelligent tutoring, and offering data-driven insights, AI can empower teachers to stay ahead in their profession. Strategic implementation of AI-driven solutions requires collaboration, investment, and supportive policies to ensure that teachers can fully benefit from these advanced technologies. As education continues to evolve, embracing AI can help build a future-ready teaching workforce capable of delivering high-quality education to all students.

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