THE ROLE OF AI TOOLS IN ENHANCING RESILIENCE AND MENTAL WELL-BEING AMONG PROSPECTIVE TEACHERS

A. Ignaciammal
Dr. P. Muthupandi

Abstract

Artificial intelligence (AI) tools are becoming more and more beneficial allies for prospective teachers in building resilience and preserving mental well-being during periods of increasing academic and emotional demands. They offer individualized support, stress reduction strategies, and real-time emotional insights through everything from AI-enabled mindfulness applications to intelligent mentorship systems. The current study examines how AI can be used to help aspiring teachers succeed in their professional development and training. 91 aspiring teachers from the Madurai district's St. Justin's teacher training College, Thiagarajar College of Preceptors, and S. Vellaichamy Nadar B.Ed. College provided the data. 15 items on the mental well-being scale and 12 items on the resilience scale were developed and refined by the investigators. The data gathered for the study is examined using descriptive statistics. The outcome unequivocally shows the following: i) The resilience of prospective teachers in rural and urban areas differs significantly. ii) Future educators who spend one to two hours a day before a screen report much better mental well-being than People who spend more than two hours. iii) The AI strengthens the strong positive correlation between the future teachers' mental health and resilience.

Keywords: *Artificial Intelligence, Resilience, Mental Well-being, Prospective Teachers, Mentorship*

INTRODUCTION

Teaching profession demands resilience, creativity, and emotional fortitude than ever in a time of rapid change and unparalleled difficulties. As prospective teachers get ready to enter this dynamic environment, the use of artificial intelligence (AI) tools gives them hope by enabling them to easily and confidently navigate the complexities of their field. These technological innovations—Chat GPT, Gamma, Quill Bot, Mentimeter, and Kahoot—also support personal development, career success, and mental health.

The foundation of effective teaching is resilience, also identified as the ability to bounce back from adversity (Masten, 2014). The capacity to persevere regardless of challenges, such as handling diverse students, handling workloads, and adapting to evolving educational demands, is crucial for prospective educators. Psychological well-being—which encompasses emotional stability, purpose, and the capability to practice wholesome relationships—is equally important (Ryff, 1989). The growth of these vital abilities is being greatly aided by AI technology,

which offers personalized, engaging, and interactive solutions.

Chat GPT is a virtual mentor that helps people reduce stress and improve their problem-solving skills by delivering prompt feedback to them, emotional support, and tailored advice. Gamma encourages creativity by transforming difficult assignments into a platform for expression and enabling aspiring educators to produce impactful presentations with minimal effort. Quill Bot helps students write better academically by reducing their fear of perfectionism and boosting their confidence. Mentimeter and Kahoot's interactive and gamified approach promotes a sense of community and collaboration, both of which are critical components of emotional resilience.

The potential of AI technologies to improve resilience and foster mental wellness in aspiring teachers is examined in this study. By combining technology and human development, these resources not only enable teachers become proficient professionals but also prepare them to be resilient, people who are emotionally stable and ready to positively impact their students' lives.

LITERATURE REVIEW

Study No:1

A study titled The Impact of Artificial Intelligence on Improving the Quality of Education and Reducing Future Anxiety Among a Sample of Teachers in Saudi Arabia was conducted in 2024 by Hessah M AL Melweth and her colleagues.

They aimed to investigate issues such as burnout, tech confidence, and the attitudes of Asir secondary school teachers toward the use of AI in the classroom. They used a survey that was distributed to 1500 teachers in order to collect their data. These teachers were chosen at random to ensure a good mix. According to the findings, educators recognized the potential of AI to enhance instruction and reduce workloads. Many, though, weren't completely aware of the potential future implications of AI.

Study No:2

A study conducted in 2023 by Diana Catalina Velastegui-Hernandez et al. titled "Impact of Artificial Intelligence on learning behaviors and psychological well-being of college students".

The purpose of the research was to provide a thorough examination of the research on the impacts of artificial intelligence (AI) on the mental health of college students, emphasizing trends, implications, and areas that involve additional research. An extensive search was carried out using AI and mental health-related keywords in databases such as PubMed, Scopus, Web of Science, and PsycINFO. According to the analysis, while many AI systems offer tailored support that enhances learning and mental health, others can lead to stress and anxiety because of information overload and a dearth of real human connection.

Study No:3

Sayed Ismail and Abdulwahed Alharkan carried out a study in 2024 titled "EFL Learners' Positive Emotions in the Era of Technology: Unpacking the Effects of Artificial Intelligence on Learning Enjoyment, Self-efficacy, and Resilience."

The purpose of the research was to find out how Saudi Arabian EFL learners' resilience, self-efficacy, and enjoyment were impacted by artificial intelligence (AI). An experimental investigation was used as the method. According to Connor and Davidson (2003), the Connor-Davidson Resilience Scale (CD-RISC) was used to appraise the participants' resilience. Conferring to the results, ChatGPT, a form of artificial intelligence, considerably raised EFL learners' resilience, self-efficacy, and enjoyment.

SIGNIFICANCE OF THE STUDY

Candidates are expected to develop resilience and keep an eye on their own mental health despite the fact that becoming an educator comes with a amount of difficulties. Amidst this revolutionary process, artificial intelligence AI firms have surfaced with tools like ChatGPT, Gamma, QuillBot, Mentimeter, and Kahoot that can improve educational experiences while also addressing psychological and emotional needs, offering creative approaches to foster flexibility, stress reduction, and teamwork.

According to Masten (2014) and Ryff and Keyes (1995), resilience and recovery are crucial in the terrestrial world of teaching, and general well-being is a crucial building block for long-term motivation and productivity. These gaps can be greatly filled by AI tools, which can be customized and support professional development. While Mentimeter and Kahoot encourage bond-building engagement, ChatGPT assists with deliberative thinking; Gamma and QuillBot seek to relax the more rigid ties of synthesis with artificial cognition.

The incorporation of AI tools into teacher preparation programs is enabling aspiring educators to acquire the mental and physical toughness necessary in today's rapidly evolving classrooms. These tools focus on personal development, indicating that they are reshaping educators through resilience and well-being.

OBJECTIVES OF THE STUDY

1. To find out the level of resilience and mental well-being among prospective teachers.
2. To find out whether there is any significant difference between resilienceamong prospective teachers with regard to (i) locality (ii) time spent on screen
3. To find out whether there is any significant difference between mental well-being among prospective teachers with regard to (i) locality (ii) time spent on screen
4. To find out whether there is any significant relationship between resilience and mental well-being among prospective teachers

HYPOTHESES

1. There is no significant difference between rural and urban prospective teachers in their resilience.
2. There is no significant difference between resilience of prospective teachers who spend 1-2 hours per day on screen and those who spend more than 2 hours per day on screen
3. There is no significant difference between rural and urban prospective teachers in their mental well- being.
4. There is no significant difference between mental well- being of prospective teachers who spend 1-2 hours per day on screen and those who spend more than 2 hours per day on screen
5. There is no significant relationship between resilience and mental well-being among prospective teachers.

METHODOLOGY

Sample

91 prospective teachers from St. Justin's College of Education, Thiagarajar College of Preceptors, and S. Vellaichamy Nadar College of Education from Madurai district, Tamil Nadu were selected as the sample for this study.

Tools Used

1. Resilience scale built and developed by Ignaciammal A and Muthupandi P (2025)
2. Mental well-being scale constructed and developed by Ignaciammal A and Muthupandi P (2025)

Employed Statistical Approach

This research made use of the t-test, mean, standard deviation, and Pearson product-moment correlation.

ANALYSIS, INTERPRETATION AND DISCUSSION

Table 1 Resilience Level of Prospective Teachers

Variable	Low		Moderate		High	
Resilience	N	%	N	%	N	%
	24	26.3	46	50.5	21	23.07

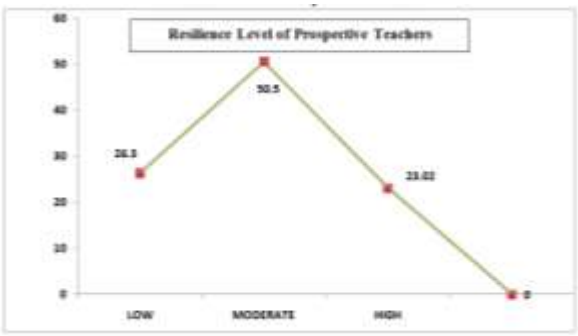


Figure 1 Resilience Level of Prospective Teachers

Table 1 above and Figure 1 above suggest that 26.3% of aspiring teachers have low resilience, 50.5% have moderate resilience, and 23.02% have high resilience.

Table 2 Degree of Mental Well-being among Prospective Teachers

Variable	Low		Moderate		High	
Mental well-being	N	%	N	%	N	%
	22	24.1	50	55.1	19	20.8

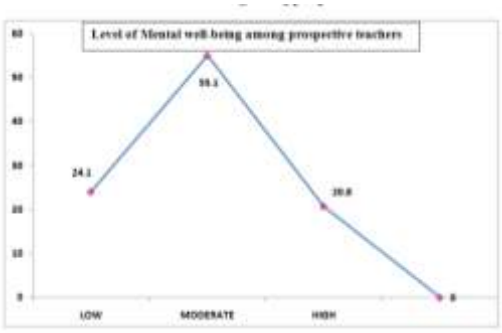


Figure 2 Level of Mental Well-being among Prospective Teachers

Figure 2 and Table 2 above suggest that 20.8% of aspiring teachers have high mental well-being, 55.1% have moderate mental well-being, and 24.1% have low mental well-being.

Hypothesis 1: There is no significant difference between rural and urban prospective teachers in their resilience.

Table 3 Difference between Rural and Urban Prospective Teachers in their Resilience

Variable	Rural (N=35)		Urban (N=56)		Calculated 't' value	Remark at 5% level
	Mean	S.D.	Mean	S.D.		
Resilience	27.90	6.321	36.87	4.372	2.719	**S**

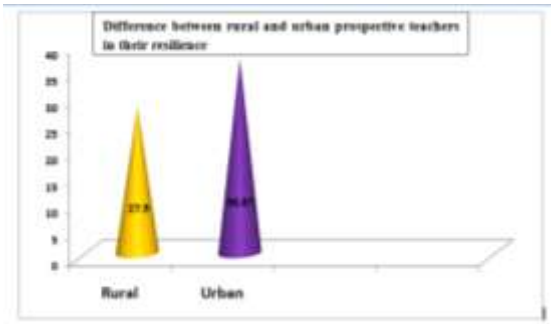


Figure 3 Difference between Rural and Urban Prospective Teachers in their Resilience

There is a notable difference in resilience between aspiring teachers in rural and urban areas, as indicated by the calculated "t" value being greater than the table value (see table 3 and figure 3 above). Thus, the hypothesis is disproved.

When contrasting the average results of aspiring teachers in rural and urban areas, their resilience is higher in the former (Mean = 36.87) compared to the latter (Mean = 27.90).

Hypothesis 2: There is no significant difference between resilience of prospective teachers who spend 1-2 hours per day on screen and those who spend more than 2 hours per day on screen.

Table 4 Difference between Resilience of Prospective Teachers who Spend 1-2 Hours Per Day on Screen and those who Spend More than 2 Hours Per Day on Screen

Variable	1-2 hours (N=60)		ore than 2 hou (N=31)		Calculated 't' value	Remark at 5% level
	Mean	S.D.	Mean	S.D.		
Resilience	24.3	5.49	23.1	5.98	0.975	NS

(At 5% level of significance, the table value of 't' is 1.96)

Aspiring teachers who spend one to two hours a day in front of a screen demonstrate no appreciable difference in resilience when compared to those who spend more than two hours, according to Table 4 above. This is as a result of the calculated "t" value being less than the value found in the table. Thus, the hypothesis is approved.

Hypothesis 3: There is no significant difference between rural and

urban prospective teachers in their mental well- being**.**

Table 5 Difference between Rural and Urban Prospective Teachers in their Mental Well- being

Variable	Rural (N=35)		Urban (N=56)		Calculated 't' value	Remark at 5% level
	Mean	S.D	Mean	S.D		
Mental well-being	23.7	6.15	24.5	6.03	0.617	NS

(The value of "t" in the table at the 5% level of significance is 1.96.)

Since the computed "t" value is lower than the table value, it can be concluded from table 5 above that there's not discernible difference in the mental health of aspiring teachers in rural and urban areas. Consequently, the hypothesis is approved.

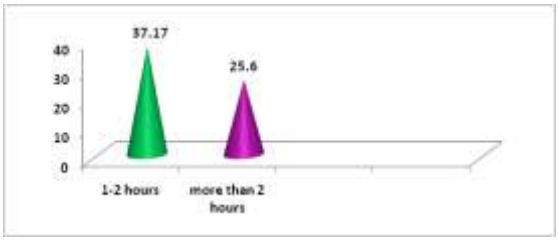
Hypothesis 4: There is no significant difference between mental well- being of prospective teachers who spend 1-2 hours per day on screen and those who spend more than 2 hours per day on screen.

Table 6 Difference between Mental Well - being of Prospective Teachers who Spend 1-2 Hours Per Day on Screen and those Who Spend More than 2 Hours Per Day on Screen

Variable	1-2 hours (N=60)		More than 2 hours (N=31)		Calculated 't' value	Remark at 5% level
	Mean	S.D.	Mean	S.D.		
Mental well - being	37.17	4.643	25.6	6.442	2.795	**S**

(The table value of "t" at the 5% level of significance is 1.96.)

Figure 4 Difference between Mental Well - being of Prospective Teachers who Spend 1-2 Hours Per Day on Screen and those who Spend More than 2 Hours Per Day on Screen



The aforementioned table 6 and Figure 4 suggest that there is a substantial difference in the mental health of aspiring teachers who spend 1 to 2 hours a day in front of a screen compared to people who spend more than two hours. The reason for this is the computed "t" value is greater than the table value. Thus, the hypothesis is disproved.

A comparison of the mean scores of those with and without screen time shows that the mental health of aspiring teachers who use screens for 1-2 hours per day is superior to that of those who use screens for more than 2 hours per day (Mean=25.6).

Hypothesis 5: There is no significant relationship between resilience and mental well- being among prospective teachers.

Table 7 Relationship between Resilience and Mental Well- being among Prospective Teachers

Variable	Calculated 'γ' value	Remark at 5% Level
Mental well-being	0.910	**S**

(At 5% level of Significance, for 89df, the table value of 'γ' is 0.205)

Table 7 above suggests that resilience and mental health among aspiring teachers have a significant, very high positive relationship because the calculated "γ" value is higher than the table value. Therefore, the hypothesis is rejected.

FINDINGS AND DISCUSSION

1. The resilience scores of 26.3% of aspiring teachers are low, 50.5% are moderate, and 23.02% are high.
2. In terms of mental health, 24.1% of aspiring teachers have low, 55.1% have moderate, and 20.8% have high levels.
3. There are notable differences in the resilience of aspiring teachers in rural and urban areas. Prospective teachers in urban areas (Mean=32.61) are more robust than those in rural areas (Mean=28.88), according to the mean value. Urban prospective teachers may have greater access to resources, and their exposure to demanding and competitive environments may have strengthened their resilience.
4. Aspiring teachers who spend one to two hours a day in front of a screen exhibit resilience that is not appreciably different from those who occupy more than two hours. Prospective teachers in rural and urban areas do not significantly differ in terms of their mental health.
5. The mental health of aspiring educators who spend 1 to 2 hours a day in front of a screen differs significantly from that of those who apply more than two hours. Grounded on the mean value, it can be decided that prospective teachers who use screens for one to two hours a day possess superior mental health compared to people who devote more than two hours a day in front of screens. (Mean=25.6). It is possible that prospective teachers who successfully manage their screen time (1-2 hours per day) have a significantly higher mental well-being because they maintain a healthier cognitive, emotional, and social balance, especially when compared to all those who overuse screens. There is a strong and positive correlation between future teachers' mental health and resilience.

EDUCATIONAL IMPLICATIONS

1. The educational institutions might provide a platform for aspiring teachers to learn about AI tools.
2. Teachers can use AI tools like Mentimeter, Gamma, QuillBot, ChatGPT, and Kahoot to assign tasks.
3. The data clearly shows that pre-service teachers in rural areas need to be trained to use Mentimeter and Kahoot to create student quizzes.

4. Rural aspiring teachers must receive Gamma AI training for PowerPoint preparation in order to boost their confidence and resilience.
5. The curriculum planners are required to create the AI tools for the curriculum.
6. Aspiring educators must be trained to use digital devices responsibly in order to enhance in-person collaboration and emotional bonds.
7. It is necessary to develop critical and autonomous thinking skills in order to enhance the mental health of aspiring educators.

CONCLUSION

AI tools that support future educators' psychological health and resilience include Mentimeter, Kahoot, Gamma, QuillBot, and ChatGPT. Teachers can more effectively handle uncertainty in dynamic classroom environments with the help of these tools, which enhance analytical skills, problem-solving abilities, and adaptability. AI technologies lessen workload, promote active learning, and provide timely feedback to ease stress and promote emotional fortitude. Incorporating AI solutions also enhances future teachers' psychological health and competency for ongoing professional development in the ever-changing educational environment.

REFERENCES

1. Bandura, A. (1997). Self-Efficacy: The Exercise of Control. W.H. Freeman and Company.
2. Hessah M AL Melweth, Amel Safar Alkahtani, Abeer Mahfouz Mohmmed Al Mdawi, & WalaaBadawy Mohamed badawy. (2024). The Impact of Artificial Intelligence on Improving the Quality of Education and Reducing Future Anxiety Among a Sample of Teachers in Saudi Arabia. Kurdish Studies, 12(2), 5741–5758. Retrieved from http://kurdishstudies.net/menu-script/index.php/KS/article/view/2755
3. https://orcid.org/0000-0002-6698-006X
4. Masten, A. S. (2014). Ordinary Magic: Resilience in Development. Guilford Press.
5. Ryff, C. D. (1989). Happiness is Everything, or Is It? Explorations on the Meaning of Psychological Well-Being. Journal of Personality and Social Psychology, 57(6), 1069–1081.
6. Velastegui-Hernandez DC, Salazar-Garcés LF, Rodriguez-Pérez ML. Impact of Artificial Intelligence on learning behaviors and psychological well-being of college students. Salud, Ciencia y Tecnología - Serie de Conferencias. 2023 2:582. https://doi.org/10.56294/sctconf2023582

A. Ignaciammal
Ph.D. Research Scholar, Department of Education (DDE), Madurai Kamaraj University, Madurai, Tamil Nadu, India.
Dr. P. Muthupandi
Research Supervisor, Department of Education (DDE),Madurai Kamaraj University, Madurai, Tamil Nadu, India.