PSYCHOLOGICAL CAPITAL: A PREDICTOR OF READINESS FOR AI INTEGRATION IN TEACHING

R. Deepa
Associate Professor in Business Administration
Department of Commerce
Lady Doak College, Madurai, Tamil Nadu, India
deepa@ldc.edu.in

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Abstract

The present study aims to understand and measure the relationship between Psychological Capital (PsyCap) and teacher readiness for AI integration in teaching among arts and science college teachers. A survey methodology was conducted and a total of 200 teachers working in arts and science colleges in Tamil Nadu, both men and women were considered for the study. Correlation analysis and Structural Equation Modeling (SEM) were used to analyse the relationships among the study variables. The findings of the research show a significant positive correlation between psychological capital and teacher readiness for AI integration in teaching. Moreover, it was identified that the greater the level of psychological capital, greater the readiness to adopt AI among teachers subsequently resulting in improved performance outcomes. The current study contributes to better understand the effective integration of AI for enhanced Teaching -Learning Process and provides a better understanding towards the significance of positive psychological capital and its contribution to the adoption of AI integration in teaching. It also offers insights to plan, design professional training and development programs to enhance teachers' PsyCap.

***Keywords**: Teacher readiness, artificial intelligence, technology teaching, psychological capital, hope, efficacy, optimism, resilience*

Introduction

With the advent of Information, Communication and Technology tools, Organizations and institutions have started concentrating more on equipping themselves with technological upgradation and implementation of digital tools, techniques and software to gain increased performance and competitive advantage. The usage of digital technology and tools have become imperative in every walk of life Technology has always occupied an important place in the field of education and one such emerging trend is Artificial Intelligence (AI). "Artificial intelligence brings together a range of technologies that enable machines to perceive, understand, respond, and learn in ways that mimic human intelligence.". The role of AI has penetrated into all the sectors especially into the educational institutions to cope with the digital teaching – learning environment around the globe. With the rise of Artificial Intelligence (AI), education system has taken a paradigm shift of adopting automation functions and activities like teaching – learning process, tracking of students' as well as teachers' performance. AI in education plays a crucial role for the teachers in designing effective and engaging classroom learning (Clark, 2024) and reduce the burden of administrative responsibilities, increase creativity, and automate work (Haseski, 2019). With using AI system, educational institutions can track and monitor the

performance of teachers and their efforts in inculcating AI applications in day-to-day teaching and evaluate the students' learning process and performance. But, in the present scenario of education system, teacher burnout has emerged as a critical factor that impacts teachers negatively towards their readiness and willingness to adopt and integrate AI enabled teaching into their teaching-learning process (Sindermann et al., 2022). The literature suggests that teachers frequently operate under significant pressure and stress, stemming from administrative burdens and the responsibility to meet diverse student learning needs, which may hinder their readiness to integrate AI into their teaching practices (Arvidsson et al., 2019). These demands can contribute to elevated stress levels and burnout, ultimately impairing their effectiveness and diminishing their capacity to cultivate a positive and engaging learning environment. In order to effectively integrate AI in teaching, it is necessary for the teachers to be technocrats equipped with AI tools and applications such as technological efficacy, pedagogical awareness, creativity, ethical understanding, and continued professional growth (Chan & Colloton, 2024).When academic workplaces are capable of creating a conducive teaching-learning work environment to the teachers, they tend to develop a positive resilient behavior and confidence to effectively address the needs and goals of educational institution (Paul et al., 2022). Psychological capital (PsyCap) is viewed as an organizational investment to increase teachers' productivity and improve their well-being. Understanding psychological capacities among teachers is crucial as it predicts the teachers' readiness for AI integration in teaching that is beneficial for students, educational institutions, and the nation as well (Duckworth et al., 2009). Faculty readiness encompasses the attitudes, knowledge, skills, and psychological factors that determine how prepared educators are to incorporate AI tools and systems into their pedagogy. Individuals with higher levels of PsyCap is found to be more capable of adopting technology and overcome resistance to technology, as their resilience and optimism help mitigate negative predispositions, while hope and efficacy support positive perceptions of the technology's usefulness and ease of use (Carter, 2024). Therefore, the present study focuses on identifying the role of psychological capital in predicting the teacher readiness for using artificial intelligence in teaching. Also, the study aims at identifying the teachers' readiness, attitude and challenges in using Artificial Intelligence applications so as to better understand the effective integration of AI for enhanced Teaching -Learning Process

Variables Definition

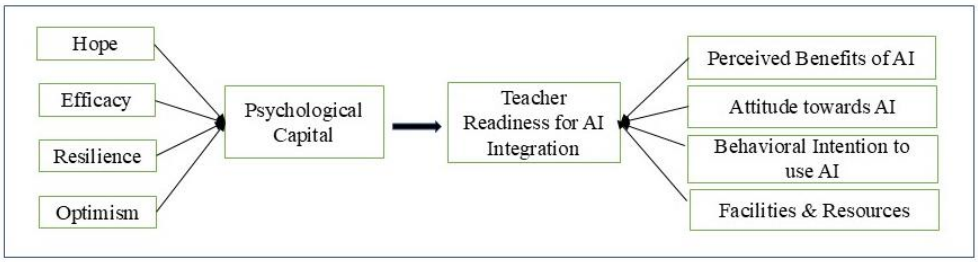
1. Psychological Capital (PsyCap) is a positive psychological state characterized by four constructs summarized as HERO:

- **Hope –** perseverance toward goals and the ability to find pathways to reach them
- **Efficacy –** confidence in one's ability to succeed
- **Resilience –** ability to bounce back from adversity
- **Optimism –** positive outlook about succeeding now and in the future

2. **Teacher readiness** is defined as "the degree to which an individual have confident about oneself in disseminating AI in te aching and education" (Ayanwale et al., 2022, p. 2) characterized by the following factors

- **Perceived benefits of AI in teaching** refers to the degree to which faculty members believe that adopting AI in teaching would enhance their job performance (Sugandini et al., 2018; Venkatesh et al., 2003).
- **Facilities and resources** refer to the degree to which faculty members have access and availability of necessary technological and supporting infrastructure to use AI tools for teaching (Venkatesh et al., 2003).
- **Attitude towards AI** refers to the degree to which teachers view technology and AI as favorable or unfavorable tool for integration in teaching (Ayanwale et al., 2022) and
- **Behavioral intention** serves as a predictor of faculty members' actual use of the technology (Rahman et al., 2020).

Conceptual Framework



Research Objectives

- To analyse the degree of relationship between psychological capital and teacher readiness for AI integration
- To investigate the challenges faced in using AI tools for teaching

Research Methodology

The study is descriptive and employed survey strategy among the teachers form Arts and Science Colleges in Madurai City. A sample of 200 teachers were selected using Convenient Sampling. Through primary source the data was collected using a structured interview schedule and questionnaire using Google form. The questionnaire contained details pertaining to the demographic profile of the respondents and questions related to psychological capital and teacher readiness towards the application of Artificial Intelligence tools in education institutions and challenges in accessing the AI tools which were measured on a 5 point Likert Scale and the data was analysed using SPSS.

Data Analysis and Results

Table 1: Reliability Analysis Results

S. No	Construct	Items	Cronbach's Alpha
1	Self -Efficacy	6	0.885
2	Hope	6	0.783
3	Resilience	6	0.899
4	Optimism	6	0.834
5	Psychological Capital	24	0.854
6	Teacher Readiness for AI integration	46	0.808

Table 2: Demographic profile of the respondents (N = 200)

Factors	Classification	Frequency	Percentage (%)
Gender	Male	61	30
	Female	139	70
Age	Less than 30	75	37
	30 – 45	107	54
	46 – 60	18	9
Marital Status	Married	118	59
	Unmarried	82	41
Designation	Assistant Professor	70	35
	Associate Professor	94	47
	Professor	36	18
Years of Experience	Less than 5	74	37
	5 – 10	103	52
	11 – 15	15	8
	More than 15	8	4

Source: Primary Data

Table 3: Pearson Correlation result between PsyCap and Teacher Readiness for AI Integration

Study Variables	Mean	Standard Deviation	PsyCap	Self-efficacy	Hope	Resilience	Optimism	Readiness for AI
PsyCap	94.159	28.191	**1**					
Self-efficacy	23.469	8.108	0.960**	**1**				
Hope	24.000	7.342	0.976**	0.930**	**1**			
Resilience	23.336	6.713	0.970**	0.889**	0.928**	**1**		
Optimism	23.354	6.941	0.969**	0.888**	0.923**	0.953**	**1**	
Readiness for AI Integration	45.009	10.767	0.781**	0.899**	0.786**	0.864**	0.836**	**1**

**Correlation is significant at 0.01 level

Table 4: Challenges faced by teachers in using AI tools

S. No	Challenges	Weighted Mean	Rank
1	Lack of technical expertise in using AI tools	4.35	1
2	Personal Interaction with students is reduced	4.01	2
3	Insufficient Network connectivity & bandwidth	3.85	3
4	Lack of Preparedness to use AI tools	3.78	4
5	Lack of Infrastructural facilities in the institution.	3.70	5
6	Difficulty in Assessing the students	3.63	7
7	Evaluating using AI tool is cumbersome	3.61	6
8	Fear of data security and confidentiality	3.57	8
9	Using AI tools is Time consuming and stressful	3.52	9
10	Higher cost of implementation of AI tools	3.42	10

Source: Primary Data

Discussion and Implications

The results of the present study show the significance of Psychological Capital in the field of academics with reference to teachers' readiness in using AI. The correlation analysis (Table 3), denotes that there is a significant positive relationship between PsyCap and the Well-being of teachers. The mean values depict that the scores of all the scales were high and the correlations between PsyCap and teacher readiness for AI integration were positive and significant at $p<0.01$ level. The Pearson correlation coefficient was found to be 0.781 at a 99% confidence interval. Also, among those with higher levels of overall PsyCap, those with better self-efficacy and high mental resilient were found to have higher level of readiness in adopting AI in teaching which contributes to better performance. The use of artificial intelligence tools is considered to be the essential drivers of creativity and innovation in all the sectors especially in the field of education. The current education system, has radically changed and shifted the teaching – learning process to a greater extent, forcing educators to rely on technology for virtual instructions, content delivery, assessments and evaluation process. The present analysis identified that the use of AI in teaching is found to be helpful and beneficial as it reduces the limitations of classroom teaching, helps in tracking of the performance and progress of students, supports efficient teaching and evaluating process. On the other hand, the use of AI tools has its own difficulties (Table 4) and challenges in implementation. Lack of technical expertise and fear of reduced interaction with students were found to be the major challenges that inhibits teachers in adopting AI. Equipping the teachers with right AI tools for right work and adequate training to the teachers in handling AI tools effectively would enhance the flexibility to use the techniques and improve quality of education (Ding 2024). The results of the present study conclude that majority of the education institutions are in the track of adopting and implementing the artificial intelligence tools for teaching – learning process (Sperling et al, 2024). It is evident from literatures, that individuals with positive outlook and personal resources such as hope, efficacy, optimism and resilience tend to view the AI adoption and integration positively that results in positive work outcomes and well-being. The educators need to prepare

themselves ready to learn, master new technologies and adopt creative teaching methodologies to cater the need of the students so as to ensure effective AI adoption integration in teaching (Rajeshwari et al 2025). It is essential to develop the psychological capacities of the teachers so as to protect and promote the welfare and well-being of the teachers which in turn motivates them to adopt AI tools in teaching. (Yongzhan Li 2018). Therefore, educational institutions should prioritize faculty professional development by implementing institutional policies and support structures that address both the technical and pedagogical dimensions of AI integration (Ding et al., 2024; Karakose & Tulubas, 2024). Creating Professional development opportunities to faculty to build their competence and confidence in using AI tools in educational settings such as Workshops, Seminars, Training sessions on specific AI applications (e.g., ChatGPT, adaptive learning systems, AI grading tools), Digital Literacy Programs, Pedagogical Training, Ethics and Policy Education, Peer Collaboration and Mentorship and Hands-On Practice to experiment with AI tools in safe, supported environments would motivate teachers to embrace technology and adopt AI integration in teaching. Therefore, it is suggested that the institutions need to create a conducive environment and develop psychological capacities of teachers that facilitates effective utilisation of technology and artificial intelligence tools in the automation process as AI has the potential to improve both learning and teaching, assisting the education industry, that in turn would benefit both students and teachers.

Conclusion

The growth of technology and its advancement in the form of artificial intelligence has brought numerous advantages to education institutions and the use of AI application help teachers effectively plan their teaching, evaluation and assessment process thereby enhances the quality of education. Understanding and developing psychological capacities and resources in employees plays a crucial role in enhancing teacher readiness for AI integration in teaching to achieve desired organizational goals and work performance. Recent research says, the use of AI platforms and tools have enabled teacher effectiveness and efficiency, resulting in richer educational quality. To conclude, using AI tools with appropriate precautions and training would help education institutions to contribute towards the attainment of Sustainable Development Goals.

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