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Analyzing the Implementation of Mindsets and Qualities Competencies within the iNACOL Blended Learning Framework at College Level in Pakistan: The Role of Online Literacy in Enhancing Learning Outcomes

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Abstract

Blended learning, which integrates traditional face-to-face instruction with online learning components, has grown in importance in enhancing learning outcomes. Despite its potential, successful implementation is often hindered by the mindsets and qualities competencies of teachers. This study aimed to analyze the current status and level of implementation of teachers' mindsets and qualities competencies mentioned in "The International Association for K-12 Online Learning" (iNACOL) framework at college level in Pakistan and to analyze the role of online literacy in enhancing educational outcomes. This research uses quantitative approach. 206 college teachers were selected randomly. Standards of mindsets and qualities domains listed in the iNACOL Blended Learning Teacher Competency Framework were used as an adapted questionnaire with 16 statements on a 5-point Likert scale. Data was analyzed by using mean and frequency of responses. The results indicate a large number of college teachers in Pakistan have changed their traditional mindsets as they have new visions for teaching and learning. While qualities competencies are at neutral level as these are not fully implemented. It is recommended to Implement targeted professional development workshops focused on qualities competencies, providing teachers with practical strategies to incorporate these elements into their instruction. It will enhance teachers' skills and ultimately leading to more effective blended learning environments.

Keywords: *Blended Learning and Teaching, Learning Outcomes, Online Literacy, Qualities Competencies, Teacher Competency, Teachers' Mindsets*

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Introduction

Teaching learning ecologies have been changed significantly in recent years, especially with the advent of blended learning, a pedagogical approach that combines traditional classroom teachings with online learning materials. This shift is particularly noticeable in higher education institutions worldwide, including Pakistan. It is also important to note that the competencies of teachers are crucial to the successful implementation of blended learning, rather than just the blended learning curriculum or the technological infrastructure. As stated by Meer et al. (2024), certain competencies are needed to integrate online platforms with traditional classroom environments. The skills, knowledge, and experience that teachers need to successfully combine traditional and digital teaching approaches to increase learning effectiveness are referred to as blended learning teacher competences. Teachers are unable to develop the required skills among students if they lack the relevant competences or skills. Consequently, this research aims to analyse the implementation of mindsets and qualities competencies of teachers in Pakistani colleges, as mentioned in the iNACOL blended learning teacher competency framework developed by Powell et al., in 2014.

The core beliefs that shape a teacher's thoughts, behaviours, and actions in accordance with the goals of educational reform and mission are known as mindset abilities. The concept of mindset, as mentioned in the iNACOL framework demonstrates that the new teaching and learning vision and growth mindsets are the first steps toward meaningful, effective, and engaging learning thus the teacher can concentrate on attitudes that help them transition to new teaching and learning approaches. Teachers with a new vision of teaching and learning or with the growth mindsets are more likely to embrace technology, adapt to changing pedagogical demands, and effectively engage students in diverse learning experiences. As a result, they become able to make teaching and learning process more effective which in turn get benefited for their students. The ability of teachers to create a well-balanced and organized course increases students' motivation and satisfaction (Ibrahim & Nat, 2019). Conversely, a fixed mindset may hinder teachers from exploring new methodologies or utilizing digital tools effectively, ultimately impacting student outcomes and engagement. Numerous studies have demonstrated the importance of various teacher competencies, such as teachers' beliefs, attitudes and skills in the success of blended learning. For instance, Anthony et al. (2019, p. 3461) contend that students' perceptions and performance in a blended

learning environment is influenced by the attitudes, responsiveness, course management, and usability of academic faculty.
Moreover, the qualities competencies of teachers include "individual attributes and examples of conduct which assist the academic staff makes the change to better approaches for teaching and learning. These characteristics for example grit, collaboration and transparency. These qualities of teaching and learning would assist in effective learning with respect to BL". To engage students in meaningful learning processes, teachers' qualities are equally crucial. As an illustration, Milthorpe et al. (2018) contend that to educate effectively in a blended learning setting, teachers need place a high importance on creativity, collaboration and adaptability.

Finally, in Pakistan where educational reforms especially blended learning and the use of technology are placing a greater emphasis in the classroom as stated by Irum et al. (2020) the administration of Pakistani educational institutions is showing a keen interest in putting the blended learning system into place (Irum et al., 2020). Analysing the implementation of teachers' Mindsets and Qualities competencies is crucial to know well about the current status and level of these skills to enhance online literacy and blended learning outcomes. This research study will also be helpful for the college teachers, management and administration for making further arrangements to implement mindsets and qualities competencies within the iNACOL blended learning framework to improve teaching learning outcomes accordingly.

Objectives of the study

1. To analyze the current state of implementation of Blended learning teacher competency with reference to Mindsets and qualities competencies at college level and the role of online literacy in enhancing educational outcomes.

Literature review

Introduction to Blended Learning

Blended learning, sometimes referred to as hybrid learning or mixed-mode education, is a teaching strategy that incorporates one or two distinct learning approaches with the traditional classroom model of instruction (Graham, 2006; Lee et al., 2017; Thai et al., 2017; Vasyura et al., 2020).
Nowadays, blended learning has emerged as a prominent educational approach in higher education. According to research studies, blended

learning is more effective in higher education than separate online and in-person training (Bowles, & Kaviani, 2023). Learning performance and educational outcomes can be improved by blended learning implementation. As stated by Li, & Wang, 2022) the results indicate that the total performance of K–12 children can be considerably enhanced by blended learning. They also added that, in contrast to conventional face-to-face learning, the results show that blended learning is a successful strategy for improving the performance of K–12 students. Moreover, the success of blended learning initiatives depends not only on technological infrastructure but also significantly on the competencies and mindsets and qualities of teachers tasked with its implementation. Bowles, & Kaviani (2023) also state that adopting a new mindset and cultivating new teaching qualities are essential to successfully implement and sustain blended learning approach.

Theoretical Framework

"The International Association for K-12 Online Learning (iNACOL)" framework created by Powell et al. (2014) is used as the theoretical framework for the present research. This framework is selected because it provides a comprehensive framework that outlines the essential competences and serves as a useful guide for teaching in blended learning setting from both a theoretical and practical perspective. There are four primary components of this framework are mindsets, qualities, technical skills and adaptive skills. It is illustrated in figure 1. gives educators the knowledge and skills they need to successfully implement and involve students in a blended learning program. It is a useful tool for incorporating blended learning into instructional strategies.

Two very basic and vital domains of this framework such as mindsets and qualities domains are picked here to examine the influence of teachers' mindsets and qualities competencies in the implementation of blended learning in Pakistan at the college level to improve learning outcomes. Table 1 gives detailed description of these two domains. Both competencies are vital and prerequisite to implement and integrate blended learning into classroom environment. Ossiannilsson (2018) states that it should also be mentioned that many researchers agree that not only pedagogy, but mindsets as well as quality competencies of the teachers may be more focused through blended learning (Ossiannilsson, 2018). Since the key elements of the model teachers, students, pedagogy, teaching and assessment materials, and the online teaching platform are the same, this definition, which originated from research on the use of blending

learning in secondary education in the US, is equally applicable to higher education or college level.

Figure 1

The iNACOL Framework for Blended Learning

Table 1

iNACOL Blended Learning Teacher Competency Framework (Powell et al., 2014, p. 7)

Domain	Key Competencies	Description
Mindsets	New Visions for Teaching & Learning Orientation Toward Change and Improvement"	Fundamental principles or convictions that direct attitudes, activities, and behaviors in line with the mission and aims of educational reform.
Qualities	Grit Transparency Collaboration	Personal traits and behavioral patterns that support teachers in implementing new teaching and learning strategies.

Teachers' Mindsets

The iNACOL framework emphasizes the importance of fostering a growth mindset among educators to enhance teaching effectiveness in blended learning environments. Within the iNACOL framework, this mindset is crucial as it encourages educators to experiment with new instructional strategies that can meet diverse student needs. Powell et al. (2014) state that practitioners of blended learning need to understand, adopt, and dedicate to specific mindsets to transition to new teaching and learning approaches. According to Ye et al. (2022), it's critical to approach teaching in a blended learning environment with positive mindset. Yeager, D. S., & Dweck, C. S. (2020) research on growth mindsets highlights that teachers with a growth mindset are more likely to embrace innovative teaching practices, including the integration of technology.

Qualities Competencies of Teachers

According to the iNACOL framework, teachers must have certain competencies, like the personal characteristics and behavioral patterns that help the teachers to adopt new teaching and learning methods to successfully apply blended learning (Powell et al., 2014, p. 7). Over time, these qualities like grit, teamwork, and transparency should be taught, encouraged, and developed. These teachers' qualities competencies are essential for the successful implementation of blended learning, and these aspects of teaching and learning would support effective learning about blended learning.

The Interplay of Mindsets and Qualities Competencies

The interaction between teachers' mindsets and qualities competencies is essential for the implementation of blended learning within the iNACOL framework. Research suggests that when educators exhibit assertion in their talents while maintaining a proactive attitude towards change, they positively influence their students' attitudes and engagement levels (Hattie, 2012). In Pakistan, creating an environment where both mindsets and qualities competencies are aligned can significantly enhance the implementation of blended learning and improve educational outcomes. According to Bowles and Kaviani (2023) overall effectiveness of a blended learning program is based on the qualities, expertise, and competencies of its instructors. These can be conceptualized by outlining the essential competencies and skills needed for successful teaching and learning.

In conclusion, importance of the teachers' mindsets and qualities competencies within the context of the iNACOL framework for effective blended learning implementation in Pakistani colleges indicated in the literature. A growth mindset fosters innovation and adaptability, while qualities competencies ensure that educators can effectively integrate technology and engage students. Moreover, research on the above-mentioned variables is also lacking in Pakistan that is why the primary goal of the study is to fill this knowledge gap in the literature by analyzing the current state and practices of mindsets and qualities skills within iNACOL blended learning framework at college level in Pakistan. After having the analysis of mindsets and qualities competencies the current level of these competencies can be improved so that the maximum benefits of blended learning can be attained.

Methodology

Quantitative research design was used for present research. Target population consisted of college teachers (1215) from public colleges of Rawalpindi. A simple random sampling technique was employed to ensure a diverse and representative sample. 243 teachers, both male and female that constituted 20 percent of population were surveyed to gather data. Response rate was 84.77% as only 206 teachers returned fully completed questionnaires back. This sample size is intended to provide a comprehensive understanding of the phenomena being studied. A structured questionnaire was developed to measure the use of teachers' mindsets and qualities competencies with "blended learning. Standards of Mindsets and Qualities domains" stated in the "Blended Learning Teacher Competencies framework published by the International Association for K-12 Online Learning (iNACOL)" served as the foundation for the questionnaire. The questionnaire contained sixteen statements. Ten statements were to assess mindsets skills while six statements used to analyzed qualities competencies. Data collected from this questionnaire was analyzed by using statistical software such as SPSS. Mean analysis and frequencies of responses used to summarize key variables; this process highlighted how teachers' mindsets and qualities competencies affect their blended learning practices.

Table 2 is showing the total population and sample size of the participants who were chosen for quantitative data. 243 teachers that accounted for the 20 percent of total population were selected while only 206 teachers which account for 84.77 percent returned the filled questionnaires back to the researcher.

Table 2

Sample size for quantitative data (n=243)

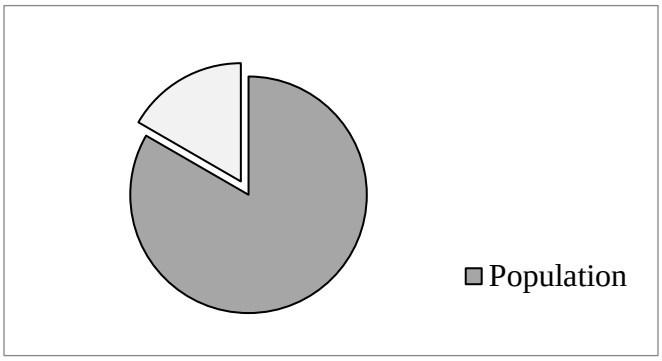

Table 3

Reliability Results of Questionnaire (N=71)

Tool	Subscales	Reliability	No. of Items
Blended Learning Teacher Competencies (BLTCs)		0.749	16
	Mindsets Skills	0.766	10
	Qualities Skills	0.733	06

Reliability results of the questionnaire are shown in Table 3. For the research tool, the scale's overall reliability of 0.749 is considered as good. However, the subscales measuring Mindsets skills and Qualities skills had reliability scores of 0.766 and 0.733 respectively, which is also considered as good.

Results and findings

Table 4
Frequency of competencies regarding Mindsets (n=206)

Items	Frequency				
	VR	R	N	F	VF
I have shifted from "teacher-led instruction to student-centered learning" to address individual needs	19.8%	20%	10%	40%	10.2%
To enhance student learning, I value collaboration with many stakeholders.	11.4%	30%	8%	40.6%	10%
I design individualized learning environments that rely on student interaction and feedback.	2%	5.4%	12%	65.4%	15.2%
I use a growth-oriented approach to learning for both me and other people.	5%	12.4%	27%	35.6%	20%
I am creative and innovative in the context of blended teaching and learning.	7.2%	18.9%	15%	36.9%	22%
I embrace change in teaching strategies and set an example for others to follow.	18.9%	12.5%	10.5%	35.1%	23%
I proactively bring about change in accordance with the needs and advancement of my students.	2.9%	14.6%	19.9%	48.5%	14.1%

I embrace uncertainty as a necessary component of improving teaching and learning methods.	8.3%	20.4%	24.8%	35.4%	11.2 %
I encourage my students to be independent learners by setting an example.	9.2 %	14.3%	20.4%	35%	21.1%
I demonstrate renewal in teaching practices according to the individual needs of my students.	1.9%	17.5%	19.9%	46.1%	14.6%

The frequency of responses pertaining to mindsets is displayed in Table 4. These skills are crucial components of teacher competencies for blended learning. According to results pertaining to this competency, a considerable (55.4%) of college teachers frequently design individualized learning environments that rely on student interaction and feedback in the context of blended learning. On the other hand, lowest response rate (35%) was about the statement no 9, which shows that 35% of college teachers frequently encourage their students to be independent learners by setting an example. Both highest and the lowest percentages of responses are showing that the college teachers have changed their mindsets towards innovative teaching strategies in the context of blended learning as they are using mindsets skills frequently.

Table 5

Analysis of Mean Score on BLTCs Related to Mindsets (n=206)

Items	Mean Score	Decision
I have shifted from "teacher-led instruction to student-centered learning" to address individual needs	4	Frequently used competency
To enhance student learning, I value collaboration with many stakeholders.	3.98	Frequently used competency
I design individualized learning environments that rely on student interaction and feedback.	3.92	Frequently used competency

I use a growth-oriented approach to learning for both myself and other people.	3.96	Frequently used competency
I am creative and innovative in the context of blended teaching and learning.	4	Frequently used competency
I embrace change in teaching strategies and set an example for others to follow.	3.79	Frequently used competency
I proactively bring about change in accordance with the needs and advancement of my students.	3.90	Frequently used competency
I embrace uncertainty as a necessary component of improving teaching and learning methods.	3.95	Frequently used competency
I encourage my students to be independent learners by setting an example.	3.98	Frequently used competency
I demonstrate renewal in teaching practices according to the individual needs of my students.	3.78	Frequently used competency
Cumulative Mean Score	**3.9**	Frequently used competency

Note. VR= Very Rarely, R= Rarely, N-Neutral, F=Frequently, VF=Very Frequently

Table no 5 is showing the mean scores for mindsets subscale, the highest and the lowest values ranges between 4 and 3.78. Overall mean score is 3.9 which indicate that many college teachers in Pakistan have growth mindsets as they frequently use mindsets skills for teaching learning process. Finally, it is seen from the data that mindsets competency is frequently used competency among teachers at college level in Pakistan as mentioned in “iNACOL blended learning framework”.

Table 6

Frequency of competencies with reference to Qualities Skills (n=206)

Items	Frequency				
	VR	R	N	F	VF
I practice deliberately and work persistently to achieve my long-term academic goals.	12.6%	30.2%	18.9%	27.7%	10.6%
I maintain and exhibit resilience and effective problem-solving skills in the context of blended learning.	11%	18.4%	10.2%	47.3%	13.1%
I openly and frequently discuss my successes, setbacks, and difficulties related to blended teaching.	11.8%	25.2%	20.4%	30.5 %	12.1%
I look at every result realistically in order to assist others in doing the same.	9.2%	20.4%	19.9%	37.4%	13.1%
I establish a balance between teamwork and individual initiative to accomplish organizational goals.	9.2%	23.3%	16.5%	37.4%	13.6%
I actively look to collaborate with and learn from other specialists in the field.	11.7%	26.2%	19.4%	32.5%	10.2%

Table 6 is showing the findings with reference to qualities competencies. The highest frequency among these skills is 47.3% that is showing a medium number of college teachers are maintaining and exhibiting resilience and effective problem-solving skills frequently in the context of

blended learning. While only 27.7% of teachers said that they practice deliberately and work persistently to achieve my long-term academic goals on regular basis.

Table 7

Mean Score analysis on BLTCs Regarding Qualities Skills (n=206)

Items	Mean Score	Decision
I practice deliberately and work persistently to achieve my long-term academic goals.	3.5	Neutral Competency level
I maintain and exhibit resilience and effective problem-solving skills in the context of blended learning.	3.82	Frequently used competency
I openly and frequently discuss my successes, setbacks, and difficulties related to blended teaching.	3.06	Neutral Competency level
I look at every result realistically to assist others in doing the same.	3.25	Neutral Competency level
I establish a balance between teamwork and individual initiative to accomplish organizational goals.	3.23	Neutral Competency level
I actively look to collaborate with and learn from other specialists in the field.	3.03	Neutral Competency level
Cumulative Mean Score	3.34	Neutral Competency level

Table 7 includes mean scores for qualities competencies ranging from 2.03 to 3.82. The cumulative mean score is 3.34, indicating a neutral competency level overall. This suggests that while some competencies are recognized, there is no strong agreement on their effectiveness or prevalence. While item 2 "I maintain and exhibit resilience and effective problem-solving skills in the context of blended learning") received the highest mean score of 3.82, categorized as a frequently used competency. This suggests that resilience and problem-solving are highly valued and actively practiced skill by the teachers, which is critical in blended learning environments. On the other hand, Items 1, 3, 4, 5, and 6 all fell into the neutral competency level category, indicating a lack of strong practice regarding these qualities.

Discussion

This section discusses the findings of the current research study based on the objectives of research in the light of previous research**.**

1. Mindsets competencies

In this research, it has become clear that many college teachers in Pakistan exhibit a positive attitude toward change and improvement, as demonstrated by their frequent incorporation of mindset skills during instructional practices, in alignment with the iNACOL blended learning framework by Powell et al., 2014. By utilizing student-centered strategies such as personalized learning experiences and collaboration, they not only enhance student engagement but also produce a classroom environment where continuous improvement is valued. Findings of this study are also aligned with the findings of Taghizadeh & Hajhosseini (2021) who highlighted that these favorable mindsets can subsequently affect how students view and feel about the education they receive in a blended learning setting. Moreover, commitment to fostering a growth mindset not only aligns with modern pedagogical approaches but also positions these teachers as pivotal figures in shaping a more dynamic and responsive educational landscape in Pakistan as highlighted by Ebba Ossiannilsson (2017) an effective mindset is the foundation of efficient and successful learning, and it is one of the domains in the iNACOL blended learning framework.

2. Qualities competencies

After analyzing the implementation of qualities competencies within iNACOL blended learning framework at college level in Pakistan it is evident that many college teachers exhibit Qualities competency at a neutral level regarding the qualities outlined in the iNACOL blended learning framework by Powell et al. (2014). Despite their potential to enhance student learning, these teachers often underutilize important qualities competencies such as problem-solving skills, communication, collaboration, and adaptability in their teaching methods. This neutral competency level negatively affects teaching and learning process. This finding aligns with the findings of Darling-Hammond et al. (2017) who states that lack of frequent engagement with these skills may hinder teacher's ability to create a dynamic and responsive learning environment, ultimately impacting student engagement and achievement.

As stated above that teachers have changed their mindsets towards improvement and innovation in the context of teaching and learning process but the actual implementation of qualities which are actual behaviors, are not implemented yet. This study validates the findings by

Aurangzeb (2018) who says that Strategies for implementing blended learning are still in their infancy. This finding also aligns with that of Garet et al. (2001) who stated that as educators predominantly rely on traditional instructional techniques, there is an urgent need for professional development that emphasizes the importance of integrating these qualities into their teaching practices. It's crucial to remember that competencies are dynamic and can be enhanced by professional development practices like expert feedback (Prilop et al., 2021). According to Bowles and Kaviani (2023) numerous studies have demonstrated the importance of underlying teacher mindsets and qualities for successful blended learning initiatives. By fostering a more proactive approach to develop and utilize these competencies, teachers can motivate and improve learning outcomes of students and can better prepare them for the complexities of modern education and equip them with the competencies necessary for success in an increasingly interconnected world.

Conclusion

The findings of this study suggest that many college teachers show a growth mindset, by shifting on creative and innovative student-centered approaches. A significant number of college teachers also design individualized learning environments that rely on student interaction and feedback that is effective for student learning outcomes. While there remains a gap in the application of qualities competencies as outlined in "The International Association for K-12 Online Learning (iNACOL)" blended learning framework. Focusing on both mindsets and qualities competencies are crucial for creating a supportive and engaging learning environment that empowers students' online literacy to excel. To bridge this gap, targeted professional development initiatives must be taken, so that college teachers can improve their instructional strategies and the implementation of Mindsets and Qualities competencies within the iNACOL blended learning framework can be implemented. As a result, learning performance and the educational outcomes will be enhanced. In this way college teachers can significantly contribute to a more responsive educational environment in Pakistan.

Recommendations

Based on the conclusion of this research study following recommendations are made regarding the implementation of mindsets and qualities competencies among college teachers in Pakistan:

1. College teachers should propagate Blended Learning Teacher Competencies (BLTCs) and online literacy culture by sharing

their experiences, challenges, and successes related to integrating mindset and qualities competencies into their teaching, fostering a culture of continuous improvement.

2. Teachers should be encouraged by college administration to emphasize the development of a growth mindset and qualities competences, and they should be given the software and related assistance they need to integrate the above-mentioned competencies at the college level.
3. College administration should conduct specialized professional development workshops and mentorship programs focused on qualities competencies, so that practical strategies to integrate these competencies can be provided. This peer support can facilitate the sharing of effective strategies for fostering qualities competencies among college teachers.

By implementing these recommendations, educational institutions can foster an environment that not only promotes effective teaching practices but also enhances student outcomes across the education institutions of Pakistan.

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