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A STUDY ON THE PERCEPTIONS OF TEACHERS TOWARDS THE APPLICATION OF COMPUTERS IN TEACHING LEARNING PROCESS

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Abstract:

This study examines the perceptions of secondary school teachers towards the application of computers in the teaching-learning process. The objectives were to classify teachers' perceptions, analyze these perceptions in specific areas (Impact of IT, Usefulness for Students, Productivity for Teaching, Teacher's Interest and Acceptance, and Support and Resources for Implementation), and investigate the influence of variables such as gender, locality, and teaching experience on these perceptions. A random sample of 100 secondary school teachers from West Godavari District was selected, and data were collected using a self-constructed questionnaire with 40 items across five components.

The findings revealed that 21% of teachers have high perceptions, 55% have average perceptions, and 24% have low perceptions regarding the use of computers in the teaching-learning process. The availability of support and resources was perceived as the most significant factor, followed by the usefulness for students, the impact of IT, teachers' interest and acceptance, and productivity for teaching. Significant differences were observed in perceptions based on gender, with male teachers showing more positive attitudes compared to female teachers. Urban teachers exhibited more favorable perceptions than rural teachers. Additionally, teachers with more than 20 years of experience had significantly higher perceptions compared to those with less experience, although no significant difference was found between teachers with below 10 years and those with 11 to 20 years of experience.

This study highlights the need for targeted support and professional development to bridge the gaps in perceptions and enhance the integration of computers in education, with a particular focus on gender, locality, and experience-based disparities.

Key words: Perceptions, Secondary school teachers, Computers, gender, locality, and teaching experience.

1. Introduction

Using computers in teaching-learning has revolutionized education, offering numerous benefits and transforming traditional classrooms. Computers provide students and teachers with enhanced access to information through digital libraries and online resources, expanding the breadth and depth of available learning materials beyond what traditional textbooks offer. Integrating multimedia content, such as videos, simulations, and interactive modules, helps illustrate complex concepts, making learning more engaging and accessible to understand.

Adaptive learning software, a powerful tool in the digital age, empowers educators to provide personalized learning experiences that cater to individual needs and learning paces. By adjusting the difficulty of tasks based on student performance, this software ensures that each student is challenged at their own level (Pardede, 2020). Learning management systems like Moodle, Canvas, and Blackboard further enhance this approach, enabling teachers to create and distribute content, track student progress, and provide personalized feedback (Malathesha & Madhusmita Sahoo, 2024). These platforms support a more tailored educational experience for each student, empowering educators to meet the unique needs of their students.

Interactive learning experiences are significantly enhanced through the use of simulations and virtual labs. These allow students to experiment and explore in a controlled digital environment, which is particularly useful for subjects like science and engineering. However, not all educational games motivate students and make learning more enjoyable. By reinforcing concepts through play, these games bring a sense of fun and engagement to the learning process, making it more exciting for students (Keisham Shitaljit Singh, 2012).

Online collaboration tools, such as Google Classroom, Microsoft Teams, and Slack, are not just about work-they foster a sense of community and peer learning among students. These tools facilitate group work and communication, enabling students to collaborate on projects regardless of physical location. Discussion forums and social media provide spaces for students to discuss topics, ask questions, and share knowledge, fostering a sense of community and peer learning. This connection and support are invaluable in the digital age of education (Charles & Issifu, 2015).

The use of automated grading systems saves teachers time and provides immediate feedback to students. Data analytics allows educators to analyze student performance data, helping identify strengths and weaknesses and enabling more targeted interventions. This approach improves the overall efficiency and effectiveness of the assessment process.

Teachers benefit from computers through online courses, webinars, and other digital learning opportunities supporting continuous professional development. Resource sharing among educators becomes more accessible through online communities and repositories, allowing for the exchange of lesson plans, teaching strategies, and resources. Additionally, digital record-keeping helps streamline administrative tasks such as attendance tracking, grade recording, and scheduling, freeing up more time for teaching and learning activities (Malathesha & Madhusmita Sahoo, 2024).

However, challenges such as the digital divide must be addressed to ensure all students have access to computers and the Internet, preventing disparities in educational opportunities. Effective technology integration requires teachers to be proficient in using computers and digital tools, necessitating ongoing training and support (Lindberg et al., 2016). Moreover, protecting student data and ensuring safe online environments are critical considerations when using computers in education.

Integrating computers in teaching has transformed education by enhancing access to information, enabling personalized and interactive learning, fostering collaboration, and improving assessment and administrative efficiency (Yusuf Daudi & Josta Lameck Nzilano, 2019). As technology continues to evolve, addressing challenges such as the digital divide and cybersecurity will be essential to maximize the benefits of computer-assisted education.

2. Conceptual background:

Teachers' perceptions of the application of computers in the teaching-learning process are varied and multifaceted. They are influenced by factors such as their familiarity with technology, access to resources, and the perceived benefits and challenges of integrating computers into their teaching practices (Vivek Yadav, 2015).

Many teachers view the application of computers in education positively, recognizing the significant impact on student engagement and understanding. Computers provide access to a vast array of digital resources, enabling teachers to present information in diverse and interactive ways. Multimedia content, such as videos, simulations, and interactive modules, can make complex concepts more accessible and engaging for students. Teachers appreciate how these tools can cater to different learning styles and needs, allowing for more personalized and effective instruction (Davis & Umarani, 2021).

Adaptive learning software and learning management systems are seen as invaluable assets by many educators. These technologies play a crucial role in enabling personalized learning experiences, allowing students to progress at their own pace and receive tailored feedback. Teachers find that these tools can help identify and address individual student needs more effectively, leading to improved learning outcomes. The ability to track student progress and provide immediate feedback through automated grading systems is also highly valued, as it saves time and enhances the efficiency of the assessment process.

Teachers perceive collaboration tools and online platforms positively for their ability to facilitate communication and group work among students. These tools support collaborative learning environments, enabling students to work together on projects and share knowledge regardless of their physical location. Teachers see the benefits of fostering community and peer learning through these digital means (Chiranjit Setua & Manvi Yadav, 2024).

However, not all teachers have a uniformly positive perception of using computers in education. Some educators express concerns about the digital divide, noting that not all students have equal access to computers and the Internet. This disparity can create challenges in ensuring all students benefit equally from technology-enhanced learning. Additionally, some teachers feel that integrating computers into their teaching practices requires significant time and effort, mainly if they need to become merfamilies with the technology or lack adequate training and support (Harpinder Kaur et al., 2017).

There are also concerns about the potential distractions computers can introduce in the classroom. Teachers worry that students might be tempted to engage in non-educational activities, such as browsing social media or playing games, which can detract from their learning. When computers are involved, managing classroom behavior and maintaining student focus can be more challenging.

Professional development and ongoing support are crucial for teachers to feel confident and competent in using computers. Those with adequate training and resources are generally more positive about integrating technology into their classrooms. They recognize the value of continuous professional development to stay updated with new tools and best practices in technology-enhanced education (Sujata Kumari & Smita Sah, 2019).

Teachers' perceptions of the application of computers in the teaching-learning process are influenced by various factors, including their familiarity with technology, access to resources, and the perceived benefits and challenges. While many educators appreciate the potential of computers to enhance student engagement, personalize learning, and facilitate collaboration, concerns about the digital divide, distractions, and the need for adequate training and support remain significant (Nagaraja Kumari et al., 2022). Addressing these challenges is essential to maximize the benefits of computer-assisted education and ensure that all students and teachers can effectively leverage technology in the learning process.

3. Need and Significance of the Study

The integration of computers in education has become increasingly prevalent, driven by the rapid advancements in technology and the growing recognition of its potential to enhance the teaching-learning process. Teachers are the primary facilitators of learning in the classroom. Their attitudes and beliefs significantly influence how they implement technology in their teaching practices. Positive perceptions can lead to more effective and innovative use of computers, thereby improving educational outcomes (Keisham

Shitaljit Singh, 2012). Conversely, negative perceptions or reluctance to use technology can hinder its potential benefits. Therefore, examining teachers' perceptions helps identify the factors that encourage or impede the integration of computers in education.

The study addresses the digital divide, which remains a critical issue in education. Not all schools and students have equal access to technology, and teachers' perceptions can provide insights into the challenges and disparities in resource availability (Chandan Singhavi & Prema Basargekar, 2019). Understanding these challenges is crucial for policymakers and educational leaders to develop strategies that ensure equitable access to technology for all students, regardless of their socioeconomic background (Payal & Vinod Kumar Kanvaria, 2018).

The study highlights the importance of professional development and support for teachers. As technology evolves, continuous training and support are necessary for teachers to stay updated with new tools and best practices. By exploring teachers' perceptions, the study can identify specific areas where they feel they need more support, thus guiding the design of targeted professional development programs that enhance their technological proficiency and confidence.

The study also contributes to the broader goal of improving educational quality and student outcomes. When teachers effectively integrate computers into their teaching, it can lead to more engaging, interactive, and personalized learning experiences for students. Understanding teachers' perceptions can help in designing interventions that promote the effective use of technology, ultimately leading to better educational practices and improved student achievement. In this study, the researcher intends to determine the measure of the Perceptions of teachers regarding the application of computers in the teaching-learning process.

4. Literature review

Across various studies, information and communication technology (ICT) has been consistently reported to enhance teaching and learning experiences. It facilitates self-learning, teacher collaboration, innovation, and developing critical thinking skills (Bordoloi et al., 2024). Additionally, ICT exposure helps students acquire vocational skills, enriching their educational experience (Bordoloi et al., 2024). Despite these benefits, effective ICT integration is often needed because of inadequate infrastructure and a shortage of trained teachers (Bordoloi et al., 2024). Barriers like slow internet speeds, technology failures, and insufficient ICT policies are significant obstacles (Akram et al., 2022; Gunu et al., 2022).

Research indicates that perceptions of ICT vary based on demographic factors such as gender, academic qualifications, teaching experience, and subject specialization. For example, male student teachers and those with higher qualifications tend to have a more positive view of computer-based teaching (Malathesha & Sahoo, 2024). The attitudes of teachers towards ICT are pivotal as they significantly shape their techno-pedagogical skills, which are crucial for effective integration (Setua & Yadav, 2024). Positive attitudes are directly linked to enhanced techno-pedagogical skills, underscoring the importance of educators' supportive attitudes towards ICT.

The COVID-19 pandemic has highlighted the critical role of ICT in education, accelerating its adoption and bringing both opportunities and challenges in remote teaching and learning (Ally & Oreku, 2022; Pavitra & Sarita, 2021). Tools such as interactive computer simulations (ICS) and AI-enhanced scaffolding systems are positively perceived by students and teachers, enhancing engagement and learning outcomes, particularly in chemistry and STEM education (Batamuliza et al., 2024; Kim & Kim, 2022).

Effective policy implementation and resource allocation are crucial for overcoming barriers and maximizing the benefits of ICT integration in education (Akhtar, 2022; Nouri et al., 2022). Addressing digital inequality, improving infrastructure, and providing continuous training for educators are essential steps and urgent imperatives in this process. Policymakers play a pivotal role in ensuring these measures are implemented effectively.

5. Objectives of the Study:

1. To find out the Perceptions towards Use of Computers in Teaching and Learning process of Teachers and to classify them
2. To find out the Teachers Perceptions towards Use of Computers in Teaching and Learning process with respect to the following areas i.e.
   a) Impact of IT,
   b) Usefulness for students
   c) Productivity for teaching
   d) Teacher's Interest an acceptance
   e) Support and Resources for Implementation

3. To find out the influence of the following variables on the Digital Literacy and Perceptions towards Use of Computers in Teaching and Learning process of Teachers i.e.
   a) Gender :Male/ Female
   b) Locality :Rural / Urban
   c) Experience : Below 10 Years / 11 to 20 Years/ Above 20 Years

6. Sample:

A random sample of 100 Secondary School Teachers from West Godavari District was selected for this study.

7. Method Used:

The descriptive survey method was employed to study this problem. This method is considered suitable for such a study because it collects data from a large number of cases at a specific time. It focuses on generalized statistics derived from individual cases. The survey method is appropriate for gathering data about the perceptions of teachers regarding the application of computers in the teaching-learning process.

8. Tool Used:

A self-constructed questionnaire was used to collect data from Secondary School Teachers. The scale consists of 40 items, divided into 5 components. These components are mixed randomly throughout the questionnaire.

9. Data Analysis:

Objective -1:

To find out the Perceptions towards Use of Computers in Teaching and Learning process of Teachers and to classify them.

To analyzing data for this objective S.D, Mean, percentage of Mean of Scores of total sample of teacher trainees and tabulated in table 1 and 2.

Table 1: Perceptions of teachers regarding the application of computers in the teaching-learning process

Total Sample	Mean	SD
100	140	21

Table 2: Levels of perceptions of teachers regarding the application of computers in the teaching-learning process.

S.No.	Levels of perceptions	Score	No of Sample	Percentage
1	High level perceptions	≥ 161	21	21%
2	Average level perceptions	Between 119 and 161	55	55%
3	Low level perceptions	≤ 119	24	24%

Procedure:

To determine the different levels of perceptions, one standard deviation was added to the mean score (Mean + SD = 140 + 21 = 161). The resulting value is 161. The number of teachers whose scores are above 161 was calculated to be 21, which is converted into a percentage (21%). This group is considered to have a high level of perception.

Similarly, one standard deviation was subtracted from the mean score. The resulting value is 119 (Mean - SD = 140 - 21 = 119). The number of teachers whose scores are below 119 was calculated to be 24, which is converted into a percentage (24%). This group is considered to have a low level of perception.

Teachers whose scores fall between 119 and 161 are considered to possess an average level of perception.

Interpretation:

The data reveals that teachers' perceptions towards the application of computers in the teaching-learning process vary across different levels.

1. High Level Perceptions:

21 teachers (21% of the sample) scored 161 or above, indicating a high level of perception. These teachers have a very positive attitude towards the integration of computers in the teaching-learning process and likely see significant benefits and effectiveness in using technology in education.

2. Average Level Perceptions:

The majority of the teachers, 55 in total (55% of the sample), scored between 119 and 161. This indicates an average level of perception. These teachers may recognize the potential of computers in education but might also be aware of certain challenges or limitations.

3. Low Level Perceptions:

24 teachers (24% of the sample) scored 119 or below, indicating a low level of perception. These teachers may be skeptical or less convinced about the benefits of using computers in the teaching-learning process, possibly due to a lack of resources, support, or training.

While a significant portion of teachers have a favorable view of using computers in education, there remains a notable percentage that may need additional support and resources to improve their perceptions and effectiveness in integrating technology into their teaching practices.

Finding:

The study found that 21% of teachers have high perceptions, 55% have average perceptions, and 24% have low perceptions regarding the use of computers in the teaching-learning process.

Objective -2:

4. To find out the Teachers Perceptions towards Use of Computers in Teaching and Learning process with respect to the following areas i.e.
    a) Impact of IT
    b) Usefulness for students
    c) Productivity for teaching
    d) Teacher's Interest an acceptance
    e) Support and Resources for Implementation

Table 3: Factors of perceptions of teachers regarding the application of computers in the teaching-learning process

S.No.	Factor	Sample	Mean	SD	%M	Rank
1	Impact of IT	100	25	5	75.75%	III
2	Usefulness for students	100	24	4	77.41%	II
3	Productivity for teaching	100	28	5	73.68%	V
4	Teacher's Interest an acceptance	100	28	5	75.67%	IV
5	Support and Resources for Implementation	100	35	6	77.77%	I

Interpretation:

1. Support and Resources for Implementation ranks highest with a mean score of 35 and a percentage mean (%M) of 77.77%. This indicates that teachers perceive the availability of support and resources as the most significant factor in effectively integrating computers into the teaching-learning process.

2. Usefulness for Students is ranked second, with a mean score of 24 and a %M of 77.41%. Teachers believe that computers are highly beneficial for students, enhancing their learning experiences and outcomes.

3. Impact of IT holds the third rank, with a mean score of 25 and a %M of 75.75%. This suggests that teachers acknowledge the positive impact of IT on the educational process, although it is slightly less prioritized compared to the top two factors.

4. Teacher's Interest and Acceptance is ranked fourth, with a mean score of 28 and a %M of 75.67%. While teachers show a significant level of interest and acceptance towards using computers, this factor ranks lower than the perceived support and usefulness for students.

5. Productivity for Teaching is ranked lowest, with a mean score of 28 and a %M of 73.68%. Although teachers recognize the potential productivity gains from using computers, this factor is perceived as the least impactful among the five areas assessed.

Teachers prioritize support and resources, as well as the usefulness of computers for students, as critical factors for successful integration of technology in education. Other factors, while important, are seen as slightly less impactful in comparison.

Finding:

Teachers perceive the availability of support and resources as the most significant factor in integrating computers into teaching, followed by the usefulness for students, the impact of IT, teachers' interest and acceptance, and lastly, productivity for teaching.

Objective -3

To find out the influence of the following variables on the Digital Literacy and Perceptions towards Use of Computers in Teaching and Learning process of Teachers i.e.

a) Gender : Male/ Female
b) Locality : Rural / Urban
c) Experience : Below 10 Years / 11 to 20 Years/ Above 20 Years

The following hypotheses have been formulated and they are tested on by one.
Hypotheses formed:

Hypothesis-1: There would be no significant difference between Male and Female Teachers in their Perceptions towards Use of Computers in Teaching and Learning process.

Table 4: Difference in perceptions of teachers regarding the application of computers in the teaching-learning process with respect to their gender.

Variable	Group	N	Mean	SD	SED	"t" value	p value
Gender	Male	50	160.22	4.60	1.417	**28.156***	**0.00**
	Female	50	120.30	8.90			

Note: *Significant at 0.05 and 0.01 levels.

Interpretation

An independent samples t-test was conducted to examine the difference in perceptions towards the use of computers in the teaching-learning process between Male and Female teachers. Results revealed a significant difference between the two groups. Male teachers (M = 160.22, SD = 4.60) had a significantly higher mean perception score compared to Female teachers (M = 120.30, SD = 8.90), $t(98) = 28.156$, $p < .001$. This indicates that Male teachers generally have more positive perceptions towards the integration of computers in the teaching-learning process than their Female counterparts.

Finding:

Male teachers have significantly more positive perceptions towards the use of computers in the teaching-learning process compared to female teachers.

Hypothesis-2: There would be no significant difference between Urban and Rural Teachers in their Perceptions towards Use of Computers in Teaching and Learning process.

Table 5: Difference in perceptions of teachers regarding the application of computers in the teaching-learning process with respect to their Locality.

Variable	Group	N	Mean	SD	SED	"t" value	p value
Locality	Urban	45	160.28	4.75	2.219	**16.411***	**0.00**
	Rural	55	123.87	14.23			

Note: *Significant at 0.05 and 0.01 levels.

Interpretation

A t-test was conducted to compare the perceptions of urban and rural teachers towards the use of computers in the teaching and learning process. The results showed that there was a significant difference between the two groups ($t(98) = 16.411$, $p < 0.001$). Urban teachers (M = 160.28, SD = 4.75) had significantly higher perceptions towards the use of computers compared to rural teachers (M = 123.87, SD = 14.23). This indicates that urban teachers are more favorable towards the use of computers in teaching and learning processes than rural teachers.

The mean difference of 36.41 and the low p-value suggest that this difference is statistically significant, rejecting the null hypothesis that there is no significant difference between urban and rural teachers in their perceptions towards the use of computers in teaching and learning.

Finding:

Urban teachers have significantly more favorable perceptions towards the use of computers in teaching and learning compared to rural teachers.

Hypothesis-3: There would be no significant difference between the Teachers with up to 20 Years and Above 20 Years experience in their Perceptions towards Use of Computers in Teaching and Learning process.

Table 6: Teaching Experience-Perceptions-Mean-SD

Teaching Experience	N	Mean	Std. Deviation
Below 10 Years	25	132.40	20.12
11 to 20 Years	51	138.01	21.57
Above 20 Years	24	153.20	16.09
Total	100	140.26	21.26

Table 7: Difference in perceptions of teachers regarding the application of computers in the teaching-learning process with respect to their gender.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5824.301	2	2912.1	7.254*	0.001
Within Groups	38940.939	97	401.45		
Total	44765.240	99			

Note: * Significant at 0.05 level.

Interpretation

An ANOVA was conducted to compare the perceptions towards the use of computers in teaching and learning among teachers with different levels of teaching experience. The results showed a significant difference in perceptions between the three groups: teachers with up to 10 years of experience (M = 132.40, SD = 20.12), teachers with 11 to 20 years of experience (M = 138.01, SD = 21.57), and teachers with more than 20 years of experience (M = 153.20, SD = 16.09), F(2, 97) = 7.254, p = 0.001. This indicates that teaching experience significantly affects teachers' perceptions towards the use of computers in the teaching and learning process.

Since the F-value is significant, further probe is attempted to know which Experience group is differ significantly in their Perceptions with other sub groups. Means and S.Ds of three sub groups of subjects on this variable were computed separately.

Table. 7- Comparison of mean vale, S.D, t value.-post hock- tukey

Group	N	Mean	SD	SED	"t"	significance
Below 10 Years	25	132.40	20.12	5.154	1.090	not significant at 0.05 level
11 to 20 Years	51	138.01	21.57			
Below 10 Years	25	132.40	20.12	5.218	3.987	significant at 0.05 level
Above 20 Years	24	153.20	16.09			
11 to 20 Years	51	138.01	21.57	4.952	3.067	significant at 0.05 level
Above 20 Years	24	153.20	16.09			

Interpretation

Post hoc comparisons using the Tukey HSD test were conducted to examine the differences in perceptions towards the use of computers in teaching and learning among teachers with varying levels of teaching experience.

1. The comparison between teachers with below 10 years of experience (M = 132.40, SD = 20.12) and those with 11 to 20 years of experience (M = 138.01, SD = 21.57) showed no significant difference ($t = 1.090$, $p > 0.05$).
2. The comparison between teachers with below 10 years of experience (M = 132.40, SD = 20.12) and those with above 20 years of experience (M = 153.20, SD = 16.09) revealed a significant difference ($t = 3.987$, $p < 0.05$).
3. The comparison between teachers with 11 to 20 years of experience (M = 138.01, SD = 21.57) and those with above 20 years of experience (M = 153.20, SD = 16.09) also showed a significant difference ($t = 3.067$, $p < 0.05$).

Finding:

These results indicate that teachers with more than 20 years of experience have significantly higher perceptions towards the use of computers in teaching and learning compared to those with less than 20 years of experience. However, there is no significant difference between teachers with below 10 years of experience and those with 11 to 20 years of experience.

Discussion

The findings of this study provide valuable insights into teachers' perceptions towards the use of computers in the teaching and learning process. Overall, these perceptions are influenced by various factors, including availability of support and resources, gender, locality, and years of teaching experience.

The distribution of perceptions among teachers reveals a diverse range of attitudes towards the use of computers in education. With 21% of teachers exhibiting high perceptions, 55% average perceptions, and 24% low perceptions, it is evident that there is a need to address the concerns of a significant portion of teachers who do not fully embrace the use of computers. This distribution suggests that while some teachers recognize the benefits of technology, many are either indifferent or skeptical about its integration into their teaching practices. These results align with the study by Setua and Yadav (2024), which also found that teachers generally show a positive attitude towards ICT.

Teachers place the highest importance on the availability of support and resources for implementing computer-based teaching. This aligns with the understanding that adequate training, technical support, and access to necessary resources are critical for the successful adoption of new technologies. The high ranking of this factor underscores the importance of institutional support in fostering positive attitudes towards technology.

Gender differences in perceptions highlight that male teachers have significantly more positive attitudes towards the use of computers compared to female teachers. This could be indicative of varying levels of comfort and familiarity with technology between genders. It suggests a need for targeted professional development and support initiatives to help bridge this gap and ensure that all teachers, regardless of gender, can effectively utilize technology in their teaching. This finding contradicts the study by Nagaraja Kumari et al. (2022), which found no significant difference in the perceptions of male and female teachers towards the integration of ICT in school curriculum.

The significant difference between urban and rural teachers' perceptions indicates that location plays a crucial role in shaping attitudes towards technology. Urban teachers, who typically have better access to infrastructure and resources, show more favorable perceptions compared to their rural counterparts. This disparity suggests that efforts should be made to improve technological infrastructure and support in rural areas to promote equitable access to and usage of educational technology.

The influence of teaching experience on perceptions reveals that teachers with more than 20 years of experience have significantly higher perceptions towards the use of computers compared to those with less experience. This finding may seem counterintuitive, as one might expect younger teachers to be more technologically adept. However, it could be that more experienced teachers have witnessed the evolution

and benefits of technology over time, leading to greater appreciation. The lack of significant difference between teachers with below 10 years and those with 11 to 20 years of experience suggests that the mid-career group might need more targeted interventions to boost their perceptions and usage of technology. These findings align with the study by Setua and Yadav (2024), which also found that the attitude towards ICT of rural secondary school teachers differs significantly with respect to their teaching experiences. However, this finding contradicts the study by Nagaraja Kumari et al. (2022), which found no significant difference in the perceptions of teachers with less than 10 years of experience compared to those with 10 years or more towards the integration of ICT in school curriculum.

The study highlights the need for institutional support, gender-sensitive training programs, and improved infrastructure, particularly in rural areas, to foster a more positive and uniform attitude towards the use of computers in education. Understanding these demographic and experiential factors can guide policymakers and educators in creating more effective technological interventions in the educational landscape.

10. Educational Implications

1. The study underscores the critical role of support and resources in effectively integrating computers into teaching.
2. Educational institutions should prioritize the allocation of adequate technical support, training, and resources to ensure that teachers can confidently and effectively use technology in their classrooms.
3. Training programs should be designed to address potential gender disparities in technology comfort and usage.
4. By tailoring professional development to include more inclusive and supportive elements, institutions can help bridge the gap and foster a more equitable environment for all teachers.
5. Improving technological infrastructure and access in rural schools is essential to provide equitable educational opportunities.
6. Strategies could include mobile technology units, partnerships with tech companies for resource distribution, and remote training sessions to enhance the digital capabilities of teachers in these areas.
7. Tailored interventions and professional development programs should be developed to address the unique challenges faced by mid-career teachers, helping them to embrace and effectively use technology in their teaching practices.
8. Given the varied perceptions among teachers, ongoing evaluation and feedback mechanisms are crucial. Schools and educational authorities should implement regular surveys and feedback systems to monitor teachers' attitudes and experiences with technology.

These implications emphasize the need for a comprehensive approach to technology integration that considers gender, location, experience, and continuous support to enhance the effectiveness of computer use in education.

11. Conclusion

This study highlights the multifaceted nature of teachers' perceptions towards the use of computers in the teaching-learning process. Addressing the identified gaps and leveraging the positive perceptions can help in formulating effective strategies to enhance the integration of technology in education. Institutional support, targeted professional development, and infrastructure improvements, especially in rural areas, are essential for fostering a more positive and uniform attitude towards educational technology among teachers. Additionally, understanding the demographic and experiential factors that influence these perceptions can guide policymakers and educators in creating more inclusive and effective technological interventions in the educational landscape.

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