

**ASSESSING THE EFFECTIVENESS OF TEACHER EDUCATION  
PROGRAMMES IN DEVELOPING 21<sup>ST</sup>-CENTURY COMPETENCE AMONG  
TEACHERS IN ABA EDUCATIONAL ZONE.**

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**Abstract**

The study investigated the effectiveness of teacher education programmes in developing 21st-century competencies among teachers in Aba Education Zone. Two research questions were formed and answered statistically using mean and standard deviation. A descriptive research design was used for the study. The study population consists of all the three thousand four hundred and seventy – teachers in Aba Education Zone. A simple random sampling was used to obtain a sample of one hundred and seventy-eight teachers (178) seventy–eight respondents. The instrument for the study was a researcher-developed instrument (questionnaire), which was validated by three experts. The reliability of the instrument was obtained by using a sample of 30 teachers who were not part of the sample for the study and a Cronbach alpha of 0.78 was obtained. The questionnaire was distributed to the respondents and the data generated was analysed using mean and standard deviation. The findings revealed that teacher education programmes in Aba Education Zone largely emphasize the development of 21st-century competences among teachers, Teachers in Aba Zone also have a positive perception of the integration of 21st-century competences into their instructional practices. It was therefore recommended that Teacher education programmes should be regularly updated to align with current trends, integrating digital literacy, critical thinking, and problem-solving through practical experiences and modern teaching strategies that align with 21st-century competences.

**Keywords:** Teacher Education, 21st Century Competences, Teachers,

**Introduction**

Teacher education refers to the standardized programmes, courses, and training processes designed to prepare individuals for the teaching profession. It equips

prospective teachers to become effective educators. Yasmin (2024) noted that education systems evolve to meet the demands of the 21st century, and there is a pressing need to explore innovative approaches for enhancing the quality of teacher education programmes. Teacher education ensures that educators can meet the evolving demands of the education sector at all times by incorporating pedagogical training, subject expertise, and professional development. Pasrija, Dhull, & Gupta, (2023) contributed that the teacher education programme engages in teacher training courses and educational development. This prepares potential and practicing teachers with the needed knowledge, skills, attitudes, and competencies to effectively and efficiently promote learning and manage classrooms to meet the specific objectives and achieve a desirable learning outcome. Teacher Education Programme is aimed primarily at preparing individuals to become competent and effective educators, as it offers the individuals the theoretical knowledge, pedagogical skills, practical experience, and professional development, that equips them well to meet the challenges of modern education and foster student success in the 21st century. Almazroa & Alotaibi (2023) contributed that one of the importance aspects of teacher education is to catalyse the development of 21st-century skills in students. Maverzera & Majoko (2024) support that inclusive pedagogy illuminates 21st-century teacher professional development for effective implementation of inclusive education. Courses in teacher education programmes are designed to train, prepare, and certify individuals to become professional educators, They also include workshops, seminars, online courses, and refresher training. These provide the necessary knowledge, and practical experience required for effective teaching in schools and other educational settings. Teacher Education programs can be offered by universities, colleges of education, and teacher training institutions. Teacher Education Programmes include: National Certificate in Education (NCE), Teacher Certification Programmes Bachelor of

Education (B.Ed.), Bachelor of Arts/Science in Education (B.A.Ed./B.Sc. Ed.)  
Postgraduate Diploma in Education (PGDE), Master's in Education (M.Ed.), Doctorate  
of Philosophy (Ph.D.).

Teacher education programmes designed for the 21st century aim to provide the pedagogical knowledge, practical skills, and professional competencies necessary for effective teaching. The rapid pace of technological advancements, shifting workforce demands, and evolving societal needs have made it imperative for teachers to possess a distinct set of skills, knowledge, and attitudes that enable them to prepare students for success in an increasingly complex and interconnected world. Elsaifi & Elimam (2023) viewed that pre-service teachers should have strong potential for critical thinking and collaboration. In response to these challenges, teacher education programmes have been reoriented to focus on developing 21st-century competences among teachers.

21st-century competence refers to the critical skills, knowledge, and attitudes that individuals need to succeed in today's rapidly evolving world. These competencies go beyond traditional academic knowledge and focus on Creativity, Innovation, Collaboration, Communication, digital literacy, adaptability, and lifelong learning. Ossai (2021) supports that 21st-century pedagogy should give credence to produce individuals who would possess skills in communication, creativity, critical thinking, and collaboration (21st Cs). Alahmad, Stamenkovska, & Gyori (2021) contributed that the shift towards adopting 21st CS is both a distinctive feature of sustainable education and an influential trend that has implications for the education system at all levels - from kindergartens to universities - including teacher education. Teachers therefore strive to equip students with the skills necessary for success in a globalized and technologically driven world. Castro-Carracedo (2024) emphasised the significance of innovative, reflective educational approaches in teacher training, preparing future educators as

change agents in a diverse, global educational environment. Training teachers to use ICT tools, digital resources, and e-learning platforms in lesson planning, classroom management, and instructional strategies. Improving teaching Quality to promote 21st-century competence calls for Workshops, seminars, online courses, and refresher training organised for practicing teacher to update their skills, adopt and adapt new pedagogies, and integrate technology into the classroom. Yurt (2023) affirms that it is paramount to ensure that teachers are adequately equipped to meet the evolving demands of the contemporary educational environment. In this context, the relationship between pre-service teachers' professional competencies and 21st-century skills has become an area that needs to be examined. Putranti, Rhamadani, *et al* (2024) observed that while teacher professional education programmes have great potential, their effectiveness has not been fully measured and consistent across different contexts. With this global explosion and advances of technology in education, this study seeks to evaluate the extent to which teacher education programs in the Aba Education Zone are equipping teachers with 21st-century competencies and to identify areas for improvement.

### **Statement of the Problem**

Despite the recognition of 21st-century competences as essential for effective and efficient teaching and learning and all-around development of learners, there is a gap in understanding how well teachers in Aba Education Zone are effectively fostering these skills among students. Many teachers still rely on traditional teaching methods, with limited incorporation of technology, critical thinking exercises, and student-centered approaches. The researcher is therefore trying to find out, whether teachers are being adequately prepared to meet the needs of modern learners.

### **Purpose of the Study**

This study seeks to assess the effectiveness of teacher education programmes in developing 21st-century competences among teachers in Aba Education Zone. Specifically, the study aims to:

1. examine the extent to which teacher education programmes incorporate 21st-century competences in their curriculum.
2. evaluate teachers' preparedness to apply critical thinking, creativity, collaboration, communication, and digital literacy in their teaching.

### **Research Question**

1. To what extent do teacher education programmes in Aba Education Zone emphasize the development of 21st-century competences among teachers?
2. What are the perceptions of teachers in Aba Education Zone regarding their preparedness to integrate 21st-century competences into their teaching practices?

### **Literature Review.**

Rodrigues (2020) investigated Digital technologies in teacher education: the active teacher training mode among pre-service teachers in Portugal. The research method used was two-fold: action research in the development of a training workshop in an in-service research training project and a case study of pre-service teacher education in Portugal. He found out that the participating teachers were able to develop skills and integrate digital technologies in their own teaching-learning process and could change their teaching practices.

Ye, Ismail, & Aziz, (2024) reviewed Innovative Strategies for TPACK Development in Pre-Service English Teacher Education in the 21st Century: A Systematic Review. He explores the development of Technological Pedagogical Content

Knowledge (TPACK) in pre-service English teacher education. Studies for this were sourced from five major databases: Web of Science, Scopus, ERIC, ScienceDirect, and ProQuest, covering literature published from 2015 to 2024. Twenty-seven empirical studies were included in the meta-analysis and thematically analyzed using NVivo 12 software. The review evaluates traditional and emerging TPACK development methods, focusing on instructional design frameworks like the ADDIE model and advanced digital tools. Findings show that there is a significant increase in AI-driven technologies and digital tools for content creation, learning management, and collaboration, essential components of modern learning environments.

Soylemez (2023) investigated the effect of the teaching practice course on gaining 21st-century teacher skills for pedagogical formation group teacher candidates. A mixed research design was employed. The finding revealed that teacher candidates enrolled in pedagogical training programs are able to complete the program with acquired teaching skills and are capable of providing the necessary education to their students, composed of 21st-century learners.

Abdulmunem, (2023) researched the effectiveness of participatory digital training based on virtual classrooms in developing teaching skills at the University of Palestine. The sample size of 46 students from the Child Education Department was used. The sample size was divided into control and experimental groups, with 22 forming the experimental group, while 24 formed the control group. A quasi-experimental study was used. The findings indicate that participatory digital training based on virtual classrooms significantly enhanced the teaching skills and interaction among pre-service teachers.

Kausar & Ajmal (2024) used Meta-Analysis to Study the expectations of 21st Century Teaching from Pre-Service Teacher Education Programs. The study is aimed at finding out the expectations of 21st-century teaching from pre-service teacher education

programs and to analyze the contemporary status of pre-service teacher education programmes in developing 21st-century teaching skills among student teachers. A systematic approach was used in the selection and analysis of the articles. A variety of online resources were used to explore and search for the articles that were related to the selected area. The meta-analysis method was employed to analyze the data collected. It was found that, to some extent, pre-service teacher education programmes contribute to developing the 21st-century teaching skills by imparting theoretical knowledge.

### **Theoretical Background**

TPACK (Technological Pedagogical Content Knowledge) formed the theoretical background for this study. This theory was propounded by Punya Mishra and Matthew J. Koehler in 2006. TPACK is a framework that describes the knowledge and skills teachers need to effectively integrate technology into their teaching practices. It consists of three main components: Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK). TPACK can be applied to teacher education in several ways: Designing Teacher Education Programs, Assessing Teacher Effectiveness, and Developing Teacher Professional Development. TPACK is highly relevant to 21st-century education, emphasizing the importance of technology integration in teaching and learning. The TPACK theory has had a significant impact on the field of education, particularly in the areas of teacher education, technology integration, and curriculum design. The theory has been widely adopted and has influenced the development of new approaches to teaching and learning.

### **Methods**

This study adopted a descriptive survey research design using a survey to collect data through a structured questionnaire. The study population consists of all three thousand, four hundred and seventy- (3,473) teachers within Aba educational Zone. A

simple random sampling was used to select one hundred and seventy–eight respondents. The instrument for the study is a researcher-developed instrument titled “Effectiveness of Teacher Education in the 21st Century” (ETEI21C). The instrument was validated by three experts in measurement and evaluation. The reliability of the instrument was obtained using twenty students who were not part of the sample and a reliability index of 0.76 was obtained using Cronbach’s alpha reliability method. 160 questionnaires were distributed, filled out, and completely collected, and were used for the study. Mean and standard deviation were statistically used to answer the research questions.

## Results

**Research Question One:** To what extent do teacher education programmes in Aba Education Zone emphasize the development of 21st-century competences among teachers

**Table 1: Mean and Standard Deviation on the Emphasis of 21st-Century Competence Development in Teacher Education Programmes in Aba Education Zone**

S/N	ITEMS	Mean	Std	Remark
1.	Teacher education programmes in Aba Education Zone emphasize the development of 21st-century competences among teachers?	3.18	0.84	High Extent
2.	The curriculum of teacher education programmes in Aba Education Zone adequately prepares teachers to integrate 21st-century competences into their teaching practices.	3.14	0.80	High Extent
3.	Teacher education programs in Aba Education Zone provide sufficient opportunities for teachers to develop their skills in incorporating 21st-century competences into their instruction.	3.01	0.85	High Extent
4.	The assessment methods used in teacher education programs in Aba Education Zone effectively evaluate teachers' mastery of 21st-century competences.	2.98	0.84	High Extent
5.	Teacher education programmes in Aba Education Zone keep pace with the changing demands of the 21st-century workforce.	2.85	0.91	High Extent
	<b>Grand Mean</b>	<b>3.03</b>		<b>High Extent</b>

Table 1 presents the mean and standard deviation scores on the extent to which teacher education programmes in Aba Education Zone emphasize the development of 21st-century competences among teachers. The grand mean score of 3.03 indicates a high level of emphasis on the development of these competences in teacher education programs. The highest mean score of 3.18 was recorded for the statement that teacher education programmes in Aba Education Zone emphasize the development of 21st-century competences, showing strong agreement among respondents. The curriculum's role in preparing teachers to integrate these competences into their teaching also received a high mean score of 3.14, suggesting a positive perception of the curriculum's alignment with modern teaching needs.

However, some items such as the effectiveness of assessment methods (mean = 2.98) and the programs' ability to keep pace with the changing demands of the 21st-century workforce (mean = 2.85) had slightly lower mean scores, though still within the "high extent" range. These results indicate a need for continuous curriculum reform and evaluation to ensure that teacher preparation programmes remain relevant and responsive to the evolving educational landscape.

**Research Question Two:** What are the perceptions of teachers in Aba Education Zone regarding their preparedness to integrate 21st-century competences into their teaching practices?

**Table 2: Mean and Standard Deviation on Teachers' Perceptions of their Preparedness to Integrate 21st-Century Competences in Aba Education Zone**

S/N	ITEMS	Mean	Std	Remark
1.	I feel well-prepared to integrate 21st-century competences into my teaching practices.	2.98	0.94	Agree

2.	My teacher education programme provided me with the necessary skills and knowledge to develop 21st-century competences in my students.	2.87	0.97	Agree
3.	I am confident in my ability to assess teachers' mastery of 21st-century competences.	3.03	0.97	Agree
4.	I have the resources and support needed to effectively integrate 21st-century competences into my teaching practices.	3.00	0.91	Agree
5.	I believe that developing 21st-century competences in teachers is a key aspect of my role as a teacher.	2.84	0.99	Agree
	<b>Grand Mean</b>	<b>2.94</b>		<b>Agree</b>

Table 2 presents the mean and standard deviation scores on the perceptions of teachers in Aba Education Zone regarding their preparedness to integrate 21st-century competences into their teaching practices. The grand mean score (2.94) reflects an overall perception of agreement, indicating that teachers generally feel prepared to incorporate 21st-century skills into their instructional strategies. The item about teachers' confidence in assessing teachers' mastery of 21st-century competences recorded the highest mean score (3.03), indicating that most teachers feel assured in their ability to evaluate students' development of relevant skills. Similarly, teachers agreed that they have the resources and support needed for effective integration, as shown by a mean score of 3.00. However, slightly lower mean scores were observed for aspects such as whether teacher education programmes provided the necessary skills and knowledge to develop 21st-century competences in students (2.87) and whether developing these competences is seen as a key aspect of their role as teachers (2.84). While still in the "agree" range, these responses suggest areas where further emphasis and professional development could enhance teacher preparedness.

## **Discussion of Results**

### **The extent to which Teacher Education Programs incorporate 21st-Century Competences in their Curriculum**

The findings from Table 1 reveal that teacher education programmes in Aba Education Zone largely emphasize the development of 21st-century competences among teachers, as indicated by the overall responses which suggest a high extent of emphasis. Specifically, the statement that these programs emphasize the development of 21st-century competences received the strongest agreement among respondents. Similarly, the role of the curriculum in preparing teachers to integrate these competences into their teaching practices also received strong support, reflecting positive perceptions about the curriculum's alignment with modern pedagogical needs.

However, certain aspects such as the effectiveness of assessment methods and the ability of programmes to keep pace with the changing demands of the 21st-century workforce received relatively lower support—though still within the high extent range. This suggests that while efforts are being made, there is still a need for regular curriculum updates and responsive evaluation mechanisms to ensure the continued relevance of teacher preparation in an evolving educational landscape. These results align with the findings of Rodrigues (2020), who emphasized the importance of implementing innovative teaching-learning models that support digital technologies in teacher education. Rodrigues found that active teacher training significantly helped participants develop digital skills and transform their instructional practices—paralleling the positive responses seen in this study regarding the role of teacher education in preparing teachers for 21st-century classrooms.

Furthermore, Ye, Ismail, and Aziz (2024), in their systematic review, highlighted the critical role of Technological Pedagogical Content Knowledge (TPACK)

development through both traditional and advanced instructional design strategies. Their findings underscore the importance of integrating AI-driven tools and modern learning management systems, which are essential for fostering 21st-century competencies—areas that the current teacher education programmes in Aba Education Zone still need to expand upon, especially in terms of assessment strategies and adaptability to workforce trends. Additionally, Soylemez (2023) found that participation in pedagogical formation programs significantly equipped teacher candidates with 21st-century teaching skills. This complements the positive perception scores in the current study, particularly regarding teacher preparedness and curriculum alignment, while also reinforcing the need for practical skill development and support structures within teacher training programmes.

### **Teachers' Preparedness to Integrate 21st-Century Competences in Aba Education Zone**

The findings presented in Table 2 reveal that teachers in Aba Education Zone generally perceive themselves as prepared to integrate 21st-century competences into their instructional practices. This is reflected in the overall mean score, which indicates a general agreement among respondents. Notably, the item expressing confidence in assessing student mastery of 21st-century competences received the strongest support, suggesting that most teachers feel capable of evaluating their students' acquisition of these essential skills. Likewise, the statement regarding the availability of resources and support systems for integration also received a high mean score, reinforcing the perception that institutional and infrastructural support plays a key role in teacher preparedness.

However, there are areas where perceptions reflect a need for improvement. Specifically, the slightly lower mean scores related to whether their teacher education

program provided adequate skills and knowledge, and whether developing 21st-century competences is seen as a core teaching responsibility, point to underlying gaps in pre-service teacher education. These findings imply that while teachers may feel generally equipped, there remains a need to deepen the emphasis on 21st-century competencies within the foundational stages of teacher training.

These perceptions are consistent with the findings of Soylemez (2023), who reported that pedagogical training programs significantly helped teacher candidates acquire 21st-century teaching skills. His study emphasized the importance of practice-based courses in equipping teachers with the capabilities required to meet the demands of modern classrooms. Similarly, the responses in the current study suggest that hands-on training and practical experiences are likely influencing teachers' confidence in applying 21st-century competences.

Further supporting this view, Abdulmunem (2023) found that participatory digital training through virtual classrooms significantly enhanced the teaching skills of pre-service teachers. This aligns with the perception among teachers in Aba Education Zone that they have access to the necessary tools and support for integrating technology and modern pedagogies, reinforcing the importance of interactive, tech-enabled teacher development programmes. Additionally, Kausar and Ajmal (2024) observed through meta-analytical methods that while pre-service teacher education programmes contribute to developing 21st-century skills, they often do so primarily through theoretical instruction. This finding parallels the perception in this study that more effort is needed in bridging the gap between theory and practice especially on how teacher education programs prepare candidates for the realities of 21st-century classrooms.

## **Conclusion**

This study aimed to assess the extent to which teacher education programmes in Aba Education Zone emphasize the development of 21st-century competences, teachers' preparedness to integrate these competences into their teaching practices, and the challenges faced in equipping teachers with such skills. The findings suggest that teacher education programmes in Aba Education Zone place a strong emphasis on developing 21st-century competences among teachers, as reflected by a high mean score for the extent of focus on these competences in the programmes. Teachers generally perceive themselves as prepared to integrate these competences into their instructional strategies, with most feeling confident in their ability to assess student mastery of 21st-century skills. However, challenges remain, particularly regarding the disconnect between theoretical knowledge and its practical application, insufficient integration of digital literacy, limited professional development opportunities, and resource constraints. These factors hinder the full realization of the potential of teacher education programmes to prepare teachers for the demands of modern classrooms.

The study also reveals that while there is a strong perception of emphasis on 21st-century competences, there is a need for ongoing curriculum reform and evaluation to address areas where teacher education programs may be falling short. The curriculum must continue to evolve to align with the fast-paced changes in educational needs and the skills required for the 21st-century workforce.

## **Recommendations:**

1. Teacher education programmes should be regularly updated to align with current trends, integrating digital literacy, critical thinking, and problem-solving through practical experiences and modern teaching strategies.

2. Teacher educators should receive more professional development focused on 21st-century instructional strategies to better equip them for training adaptable teachers.
3. Teacher education programmes must incorporate modern technologies, such as digital tools and online teaching methods, to help pre-service teachers develop necessary ICT skills.

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