Demographic influences on pre-service teachers' adaptability and psychological consciousness for transdisciplinary teaching in Ghana

Isaac Obiri Ampem[1]
Vincent Tete Sakyi[2]
Emmanuel Frimpong Asante[3]
Boadu Kankam[4]
Solomon Kwame Gyamerah[5]
Doreen Terkperki Padi[6]
Hassan Umar Gyasi[7]
Gideon Quansah[8]
Susana Kyereboah Sekyi[9]

[1]ampemisaac@gmail.com (+233540388336), https://orcid.org/0000-0001-9347-6865
[2]vincent.sakyi@ucc.edu.gh (+233244667682), https://orcid.org/0009-0005-3782-792X
[3]asantefrimpong94@gmail.com (+233249369767), https://orcid.org/0000-0003-3195-7334
[4]kankam.boadu@ucc.edu.gh (+233244708348), https://orcid.org/0000-0002-4214-5078
[5]rev.gyamerah@gmail.com (+233 24 426 0801), https://orcid.org/0000-0003-0362-3580
[6]doreen.padi@stu.ucc.edu.gh (+233243167033), https://orcid.org/0009-0001-3914-5413
[7]hassan.gyasi@stu.ucc.edu.gh (+233554074762), https://orcid.org/0009-0004-5424-7612
[8]gideon.quansah@stu.ucc.edu.gh (+233541056369), https://orcid.org/0009-0006-1648-5091
[9]susana.sekyi@stu.ucc.edu.gh (+233544114928), https://orcid.org/0009-0004-9488-8684

[1,3,5,6,7]Department of Arts Education, [2]Department of Vocational and Technical Education, [4,8,9]Department of Business and Social Sciences Education, [1,2,3,4,5,6,7,8,9] University of Cape Coast, UCC, Ghana

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ABSTRACT

The transition towards transdisciplinary teaching approaches, which emphasise the integration of multiple disciplines and perspectives in the learning process, has gained considerable attention in educational systems, but little is known about how pre-service teachers' demographics influence their adaptability and psychological readiness in Ghana. Social Cognitive Theory was a strong defender of this study. The study aimed to investigate the influence of demographic features on the adaptability and psychological awareness of pre-service teachers concerning transdisciplinary teaching in Ghana. The objectives included the extent to which pre-service teachers are adaptable in teaching, pre-service teachers' psychological consciousness of teaching, differences in pre-service teachers' adaptability based on their sex, and differences in pre-service teachers' psychological consciousness based on demographic characteristics. The cross-sectional survey design was adopted. A sample of 285 student-teachers was sampled from all students at the College of Education Studies at the University of Cape Coast. They were selected using proportionate simple random sampling. An adapted questionnaire was used. Data collected from the questionnaire were analysed quantitatively. Data on hypotheses were analysed using an independent sample test and factorial ANOVA. It was found that student teachers, to a high extent, are adaptable even though some teachers see no need to be versatile to tap into and evolve because they lack the ability. The student-teachers are highly conscious of their psychological well-being, although they see no need to be versatile to tap into and explore other areas of interest and evolve due to the fact that they cannot yield strong psychological tools and be adaptable to the changing world. A statistically significant effect of pre-service teachers' sex, age, and programme of study on their psychological consciousness $F (18, 3) = 2.294$, $p = .002$, partial $\eta2 = .134$ was found. It was recommended that the Ghana Tertiary Education Commission (GTEC) should ensure that universities training teachers implement professional development programmes that emphasise the importance of versatility in teaching. Universities in charge of teacher education, in collaboration with the National Council for Curriculum and Assessment (NaCCA), should integrate psychological training into teacher education curricula, focusing on building strong psychological tools such as stress management, emotional regulation, and adaptive coping strategies. The institutions training teachers should maintain and promote gender-neutral policies and practices in professional development and adaptability training. It can be deduced that the pre-service teachers demonstrate considerable flexibility in their practice as a result of their demographics.

Keywords: Adaptability, Pre-Service Teachers, Psychological Consciousness, Transdisciplinary

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I. INTRODUCTION

A society's progress is largely determined by the nature of the education it imparts to its citizens. Throughout the periods of human civilisation, every historical phase has introduced distinct challenges that have necessitated the development of new skills. These skills, often acquired through processes of social learning, are essential for responding to the evolving needs of communities. In contemporary education, where change is both constant and rapid, it has become essential for teachers to embrace innovative instructional frameworks, particularly transdisciplinary approaches. Alvargonzález (2011) notes that transdisciplinary teaching encourages educators to move beyond the confines of single disciplines and to incorporate knowledge from a wide range of fields. This demands a high level of flexibility and a willingness to adapt. McGregor (2015) and Mensah et al (2024) add that teachers must cultivate competencies that enable them to integrate knowledge across various domains and work collaboratively with professionals from different disciplines. However, the shift towards transdisciplinary instruction is not without its difficulties. Research by Jääskelä et al. (2016) indicates that many educators experience discomfort or resistance when asked to abandon familiar pedagogical methods. Such resistance often stems from deeply held beliefs and long-standing practices, and it can significantly impede teachers' openness to change (Darling-Hammond, 2006). To support this transition, several scholars, including Trilling & Fadel (2009) and Vaz-Rebelo et al. (2011), emphasise the importance of continuous professional development and structured support systems. These initiatives can help equip teachers with the knowledge, skills, and attitudes needed to navigate the complexities of transdisciplinary teaching. Participating in collaborative professional communities and mentoring relationships can foster a culture of reflective practice and lifelong learning among educators (Darling-Hammond, 2006). Another critical aspect of this conversation is the psychological well-being of teachers. Their capacity to adapt to new teaching paradigms is closely linked to their mental and emotional health. Vaz-Rebelo et al. (2011) argue that when teachers' psychological well-being is prioritised, it can enhance their motivation, job satisfaction, and overall effectiveness in the classroom. Implementing transdisciplinary teaching can be demanding, and educators often face increased workloads, role uncertainty, and self-doubt as they attempt to meet the expectations of these new instructional models (Darling-Hammond, 2006; Jääskelä et al., 2016; McGregor, 2015). To address these pressures, scholars recommend the establishment of emotional and psychological support systems. These might include counselling services, stress reduction programmes, and opportunities for peer-to-peer support. In addition, cultivating a positive school culture that genuinely values teacher well-being and recognises their contributions can contribute significantly to a supportive work environment (Vaz-Rebelo et al., 2011; Darling-Hammond, 2006).

Globally, transdisciplinary education curriculum, which emphasises the integration of diverse perspectives and areas of knowledge in the learning process, is receiving increasing attention. This approach has been widely acknowledged for its capacity to promote critical thinking, holistic understanding, and problem-solving abilities among students (Holzer et al., 2020; Barth, et al, 2023; Padilla-Petry & Águila, 2022; Ampem et al, 2025). However, in Ghana, there remains a significant gap in research concerning how demographic characteristics affect teachers' adaptability and psychological health regarding this instructional shift. Although the educational landscape is changing, some teachers remain reluctant to explore new areas or update their practices, often due to an inability to develop the psychological resilience needed to navigate these changes. Enhancing the psychological awareness of pre-service teachers may improve their preparedness and effectiveness in future professional roles (DeMauro & Jennings, 2016; Hao & Lee, 2015; Wang, 2018). Demographic variables such as age, gender, and academic background may influence teachers' perceptions of and engagement with transdisciplinary methods (Amin et al., 2020; Gupta and Pandey, 2018). For instance, older teachers with traditional educational experiences may face greater challenges in adopting innovative pedagogical strategies, which can in turn affect their mental well-being and job satisfaction (Lau et al., 2021). Furthermore, sociocultural expectations and gender norms may shape how teachers approach and respond to interdisciplinary teaching frameworks (Akarsu & Kaya, 2021). While there is a growing body of literature examining the relationship between transdisciplinary teaching, teacher adaptability, and psychological well-being, relatively few studies have focused on the Ghanaian context. The works of scholars such as Barth et al. (2023) and Padilla-Petry and Águila (2022) provide helpful insights; however, they do not fully capture the specific experiences and challenges encountered by teachers in Ghana. Holzer et al. (2020) have stressed the importance of localised research that considers the impact of demographic factors on teacher readiness and psychological resilience in developing countries.

To effectively support Ghanaian educators, it is essential to design professional development programmes that are responsive to their unique needs and contexts. Trilling and Fadel (2009) assert that well-targeted continuing professional development can improve teachers' capabilities to implement transdisciplinary practices successfully. Darling-Hammond (2006) also maintains that fostering a culture of continuous improvement is vital to teachers' growth and professional fulfilment in dynamic learning environments. A deeper understanding of how demographic factors influence teachers' adaptability and mental well-being is essential for shaping effective support strategies. This insight can inform the design of policies, training programmes, and institutional interventions that accommodate the diverse needs of Ghanaian teachers (Holzer et al., 2020; Padilla-Petry & Águila, 2022). By creating an inclusive and supportive

educational climate, Ghana can ensure that teachers are both professionally competent and psychologically prepared to deliver high-quality, transdisciplinary instruction. When educators are well supported in both practice and mindset, they are better positioned to guide students through meaningful and transformative learning experiences (Amin et al., 2020; Lau et al., 2021).

1.1 Statement of the Problem

Despite the changing nature of the world and hike embrace of the 21st Century skills, some pre-service teachers appear to see no need to be versatile to tap into and explore other areas of interest. They seem to lack the ability to yield strong psychological tools and be adaptable to the changing world. They slightly say with a loss of string that they will teach and when they get better jobs, will leave the teaching field. Enhancing pre-service teachers' psychological consciousness could be beneficial for their preparation and effectiveness as future educators (DeMauro & Jennings, 2016; Hao & Lee, 2015; Wang, 2018). While the benefits of this approach are widely recognised, such as fostering critical thinking, problem-solving skills, and holistic understanding among students (Barth, et al 2023), the extent to which pre-service teachers' demographic characteristics influence their adaptability and psychological well-being in the context of transdisciplinary teaching remains largely unexplored within the Ghanaian education system. Universities in their curriculum appear to focus on making the students specialists and experts in their subject areas, the focus of the subject curriculum.

The demographic factors (age, gender, and educational background) added to curriculum practices may play a significant role in shaping teachers' attitudes, beliefs, and practices related to transdisciplinary teaching (Amin et al., 2020; Gupta & Pandey, 2018). For instance, older teachers with more traditional educational backgrounds may face greater challenges in adopting new pedagogical approaches, potentially impacting their psychological well-being and job satisfaction (Lau et al., 2021). Additionally, gender dynamics and sociocultural norms may influence teachers' perceptions and experiences with transdisciplinary teaching (Akarsu & Kaya, 2021). Understanding these potential relationships is crucial for emergent effective strategies to sustain teachers' professional growth and promote their overall well-being. As Ghanaian education continues to evolve and embrace transdisciplinary approaches, it is imperative to investigate the potential impact of teachers' demographic characteristics on their adaptability and psychological well-being (Akarsu & Kaya, 2021). However, among the several studies (Abamu, 2020; Amin et al., 2020; Akarsu & Kaya, 2021; DeMauro & Jennings, 2016, Gupta & Pandey, 2018; Hao & Lee, 2015; Barth, et al 2023; Padilla-Petry & Águila, 2022; Renzulli, 2016; Vickers, & Ziegler, 2013; Wang, 2018), there seems no single work has merged adaptability and psychological tool as means to execute a transdisciplinary curriculum. It is therefore the task of this new study to investigate how pre-service teachers' demographic characteristics influence adaptability and psychological well-being in teaching transdisciplinary curriculum. Having this accomplished, policymakers and teacher training educational institutions can design targeted interventions and support systems that address the unique needs and challenges faced by teachers from diverse backgrounds (Holzer et al., 2020; Padilla-Petry & Águila, 2022).

1.2 Research Questions
Two research questions and two hypotheses led the study.
  i.   To what extent are pre-service teachers adaptable in teaching?
 ii.   How well are pre-service teachers psychologically conscious of teaching their subjects?

1.3 Research Hypotheses
$H0_1$: There is no difference in pre-service teachers' adaptability based on their sex.
$H0_2$: There is no difference in pre-service teachers' psychological consciousness based on demographic characteristics.

II. LITERATURE REVIEW

2.1 Theoretical Review
2.1.1 Social Cognitive Theory

Albert Bandura's Social Cognitive Theory offers a valuable lens for exploring how demographic characteristics influence the adaptability and psychological preparedness of pre-service teachers in Ghana as they engage with transdisciplinary teaching. The theory emphasises that human behaviour results from the continuous interaction between personal attributes, environmental conditions, and behavioural patterns. This perspective helps explain why factors such as age, gender, and academic background can influence a teacher's openness to interdisciplinary approaches. For instance, teachers who possess strong self-efficacy, a central concept within the theory, are more likely to adopt innovative teaching methods. In contrast, those who have undergone more traditional and discipline-specific training may be hesitant to embrace change unless they observe successful examples through meaningful professional learning experiences (Tschannen-Moran & Hoy, 2001). The educational context within Ghana also plays a significant role in

shaping this adaptability. Structural challenges such as limited teaching resources and the persistence of conventional pedagogical norms can make it especially difficult for early-career teachers to implement transdisciplinary strategies effectively (Ghana Education Service, 2021, Ampem, et al, 2024). Applying Social Cognitive Theory in this context allows for the identification of specific strategies that can support teacher development. Initiatives such as mentorship programmes and experiential learning opportunities can be instrumental in strengthening teachers' confidence and adaptability across various demographic groups. According to Bandura (1997), personal characteristics like gender, environmental aspects such as the structure of teacher education programmes, and behavioural tendencies shaped by prior experiences work together to influence a teacher's ability to adapt. This theoretical foundation provides a comprehensive framework for understanding and addressing the multifaceted nature of teacher readiness for transdisciplinary instruction.

2.2 Empirical Review
2.2.1 Adaptability

Adaptability is essential for successfully introducing transdisciplinary instructional methods. Darling Hammond (2006) maintains that teachers who can adjust their practices are more inclined to adopt new teaching strategies, embrace emerging technologies, and customise their lessons for learners with diverse needs. Trilling & Fadel (2009) contend that sustained professional learning is vital for developing the flexibility required to navigate shifting educational contexts. Obidovna and Uzbekistan (2023) emphasise that teacher candidates must develop adaptable teaching approaches to meet the diverse needs of their students and stay current with evolving educational trends. Jääskelä *et al. (2016) report that educators may feel uneasy or resistant when asked to change long-established practices, and Barth et al. (2023) demonstrate that nurturing a spirit of lifelong learning and fostering collaboration among teachers can reduce this* resistance.

2.2.2 Psychological Consciousness in Teaching

Psychological consciousness encompasses a teacher's ability to regulate emotions, maintain self-awareness, and exercise mental flexibility, all of which shape how effectively they manage the complexities of transdisciplinary instruction. Vaz Rebelo *et al.* (2011) argue that when teachers' mental well-being is supported, their job satisfaction, motivation, and classroom performance improve. DeMauro and Jennings (2016) observe that educators with strong psychological awareness display greater resilience and are better able to handle the challenges of integrating multiple disciplines. Smith *et al* (2023) found that teacher candidates who report high levels of emotional health also demonstrate stronger belief in their teaching abilities and are more engaged in reflective practices. Wang (2018) warns that those who overlook self-reflection and emotional regulation may struggle to maintain classroom effectiveness and to manage student interactions smoothly.

2.2.3 Influence of Age and Educational Background on Adaptability and Psychological Consciousness

It is known that demographic attributes such as age and academic preparation play a significant role in shaping teachers' adaptability and psychological awareness. Amin et al. (2020) note that more experienced teachers with traditional training often encounter greater difficulty when asked to adopt innovative teaching models, which can slow their shift toward transdisciplinary methods. In contrast, Gupta and Pandey (2018) find that younger educators who have been exposed to contemporary educational practices demonstrate higher levels of flexibility and enthusiasm for interdisciplinary work. Gender also affects teachers' perspectives and willingness to change. Akarsu and Kaya (2021) also argue that social expectations linked to gender can influence openness to new pedagogical methods. Adeoye (2023) reports that male teachers frequently possess stronger digital competencies, which may facilitate their adoption of technology-based strategies, while female teachers often display creative strengths that enrich the integration of multiple subjects. The nature of a teacher's training programme further shapes these qualities. Padilla, Petry and Águila (2022) show that programmes incorporating interdisciplinary content produce graduates who are better prepared to blend knowledge across fields. Holzer *et al* (2020) suggest that embedding innovation within teacher education cultivates both adaptability and psychological awareness, ensuring that future teachers are ready for transdisciplinary instruction.

2.3 Conceptual Framework

This study's conceptual framework defines the core competencies required of modern educators, most notably the ability to synthesise ideas from various fields, to collaborate effectively, and to adjust teaching methods to changing classroom conditions. The first construct, adaptability, involves a teacher's readiness and capacity to modify instructional strategies, to incorporate new areas of knowledge, and to respond effectively to shifting demands. This research will assess the adaptability of pre-service teachers and the demographic and contextual factors that influence it. The second construct, psychological consciousness, refers to a teacher's skill in managing emotions, maintaining awareness of their cognitive states, and preparing mentally for the challenges of complex teaching tasks. This attribute

is deemed vital for preserving educators' well-being and professional effectiveness in transdisciplinary settings. The framework also specifies particular demographic variables that may affect these constructs. Hypothesis H01 proposes that male and female teachers in Ghana will show similar levels of adaptability, given the standardised nature of their training (contrary to findings by Adeoye, 2023). Hypothesis H02 predicts that exposure to interdisciplinary content during teacher education will enhance both adaptability and psychological consciousness. Although research on transdisciplinary instruction is abundant internationally (for example, McGregor 2015), Ghana's system faces particular obstacles, including scarce resources and entrenched subject silos (Akyeampong 2017). By linking demographic influences to key psychological and behavioural outcomes, this framework guides the development of targeted interventions designed to prepare Ghanaian teachers for effective transdisciplinary practice. Have a better depiction of the conception.
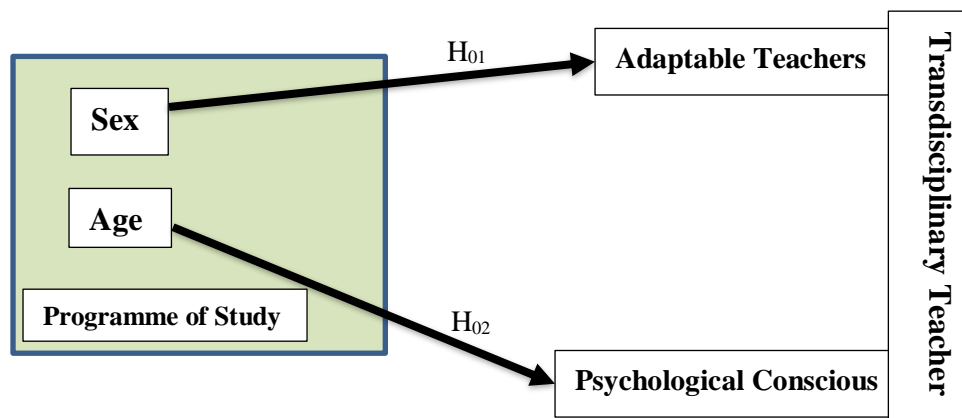

Figure 1
A Framework Showing the Pre-Service Teachers' Transdisciplinary Abilities

III. METHODOLOGY

3.1 Research Philosophy and Design

This study was philosophically focused on the positivist domain, and empirical facts exist apart from personal ideas or thoughts; laws of cause and effect govern them; patterns of social reality are stable, and knowledge of them is additive (Dammak, 2015; Marczyk *et al,* 2005). The study employed a cross-sectional survey design, which, according to Quartey and Awoyemi (2002) and Mensah and Ampem (2023), involves collecting data at a single point in time to test hypotheses or respond to research questions regarding the current state of a particular phenomenon. They further noted that this design offers a clear and realistic depiction of an ongoing situation or real-life scenario. This approach was deemed appropriate for the study as it allows for the examination of existing conditions without manipulating variables. It also helps to explore the moderating influence of demographic factors, such as gender and age, on the relationship between pre-service teachers' adaptability and psychological consciousness. While effective for describing present conditions, the cross-sectional design has limitations, including its reliance on literate respondents, as it typically uses questionnaires for data collection.

3.2 Research Site, Population and Sample

The study population consisted of all students at the College of Education, University of Cape Coast. There are four faculties under the College of Education Studies. Under each faculty are departments that run several programmes. Out of the four faculties, it is only two faculties (i.e. Faculty of Humanities and Social Sciences Education and the Faculty of Science and Technology Education) run undergraduate education-related programmes that train teachers. The population for this study was 736. A total of 285 students were sampled from the total population. The total number of participants in the Department of Art, the Department of Business and Social Science Education, and the Department of Vocational Technology is 285, out of which 28 (52%) are males, while 25 (46%) are females. A proportionate simple random sampling approach was used to select all the respondents for the study. Proportionate simple random sampling is a probability sampling technique in which the total population is divided into homogeneous groups (strata) to complete the sampling process. This was used because the sampling units vary in size. Participants were selected via proportionate random sampling from the Faculty of Humanities and Social Sciences Education (n = 198) and Faculty of Science and Technology Education (n = 87), reflecting the population's 2:1 gender ratio.

Table 1
Demographic Characteristics of Pre-Service Teachers (n= 285)

Variable	Subscale	No.	%
Gender	Male	106	37.2
Age	18-20	28	9.8
	20-24	159	55.8
	26-30	95	33.3
	30 34	3	1.1
Programme of Study	B.Ed. Home Economics	78	27.4
	B.Ed. Art	121	42.5
	B.Ed. Management	84	29.5
	Communication Design	2	.7

Before data collection, permission was sought from the Department of Business and Social Sciences Education, University of Cape Coast and an introductory letter was given by the department to help gain access to the level 300 students from the selected Department. The informed consent of participants was sought concerning their involvement. Respondents were not coerced to answer questions they did not wish to answer. Confidentiality and anonymity were assured as participants were not required to provide any form of identification.

3.2 Instrument Used

The researchers utilised a modified version of Ryff et al (2010) questionnaire, adapting its items to suit the context of the study. The instrument was designed to collect data on pre-service teachers' demographic characteristics, adaptability, and psychological consciousness. The adapted scale was pilot-tested with a sample of 30 participants, yielding high reliability scores for psychological consciousness ($\alpha = .89$) and adaptability ($\alpha = .84$). Modifications included adjusting the Likert-scale response options to align with cultural relevance. As noted by Owusu et al (2014), using an established instrument is suitable for measuring complex and multidimensional constructs. The question was in four categories or sections labelled A, B, C and D. Section A looked at the background information of the respondents (Student characteristics). Section B looked at 10 items on self-designed teachers' adaptability, and Section D looked at 17 adapted items on the psychological consciousness of student-teachers. Responses were captured using a five-point Likert scale: Strongly Agree, Agree (4), Strongly Disagree (3), Disagree (2), and Uncertain (1). Both descriptive and inferential statistics were used to analyse data on the instrument. Data on the research hypotheses was analysed using an independent sample Test and factorial ANOVA. For the inferential analysis, the researcher checked for normality assumptions, together with other significant assumptions.

3.3 Statistical Treatment of Data

For data analysis, both descriptive and inferential statistical methods were employed. The survey responses were coded and numbered to ease identification, and the data were thoroughly reviewed for completeness and accuracy. Any inconsistencies were addressed without altering the original responses. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to interpret responses to the first and second research questions. SPSS version 27 was used for all data analysis procedures. Inferential analysis, including independent samples t-tests and factorial ANOVA, was used to test the research hypotheses. Before conducting these analyses, the assumptions of normality and other relevant statistical assumptions were checked and satisfied.

IV. FINDING & DISCUSSION

4.1 To What Extent are Pre-Service Teachers Adaptable in their Ways of Teaching?

This question sought to establish the extent to which pre-service teachers are adaptable in their ways of teaching. The teachers were to indicate their agreement or disagreement with the items based on the scale: 5= Strongly Agree, 4= Agree, 3= Disagree, 2= Strongly Disagree and 1= Uncertain. The mean scores and overall mean were interpreted as 1.00-1.7 (low), 1.8- 3.4 (moderate) and 3.5-5.0 (high). Table 2 presents the fallouts of student-teacher responses on their adaptability.

Almost all (243, 84.2%) of them agreed that they identify their strengths and areas of weakness for improvement (M= 4.09, SD= .89). Majority (242, 84.9%) of them again agreed that they have received training on embracing diversity and inclusion in their classrooms and schools (M= 4.04, SD= .92). Majority (132, 81.4%) agreed that they are responsive to the needs and learning styles of their students (M= 3.92, SD=.95). Similarly, more than half of (227, 79.7%) agreed that they have been trained on how to reflect on their current teaching practices (M= 3.87, SD= .99). Additionally,

majority (210, 73.7%) agreed that they have been shown how to experiment with new technologies and incorporate them into my teaching (M= 3.75, SD= .99). Finally, majority, 233 (81.8%) out of 285 of them, agreed that they are flexible in their lesson plans and teaching methods (M= 3.94, SD= .96). With an average mean value of 3.92 (SD= .96), it was seen that most of them to a high extent are adaptable.

Table 2
Pre-service teachers' Adaptability in Teaching (n=285)

Statement	U		SD/D		A/SA		M	SD
	No	%	No	%	No	%		
I reflect on my current teaching practice	16	5.6	42	14.6	227	79.7	3.87	.99
I have received training on embracing diversity and inclusion in my classroom and school	11	3.9	32	11.3	242	84.9	4.04	.92
I have been shown how to experiment with new technologies and incorporate them into my teaching	15	5.3	60	21.0	210	73.7	3.75	.99
I am encouraged to seek continuous learning by engaging in various forms of professional development, l i k e reading, research, webinars, and conferences.	12	4.2	37	13.0	236	82.8	3.97	.94
I seek learning opportunities from my everyday practice, such as challenging myself with new tasks, projects, and learning from my mistakes	11	3.9	45	14.8	229	80.4	3.94	.98
I am resilient in the face of change, such as changing educational policies and expectations in education	17	6.0	62	21.7	206	72.3	3.74	1.00
I am flexible in my lesson plans and teaching methods	12	4.2	40	14.0	233	81.8	3.94	.96
I am responsive to the needs and learning styles of my students	11	3.9	42	14.7	132	81.4	3.92	.95
I collaborate with others and leverage their expertise, perspectives, and resources.	13	4.6	37	13.0	235	82.4	3.97	.98
I identify my strengths and areas of weakness for improvement.	7	2.5	35	12.3	243	84.2	4.09	.89
Average							**3.92**	**0.96**

4.2 How well are Pre-Service Teachers Psychologically Conscious of themselves in Teaching their Subjects?

This question sought to establish whether pre-service teachers are psychologically conscious. Pre-service teachers' psychological consciousness in teaching their subjects is multifaceted, encompassing awareness of their emotional states, efficacy beliefs, and reflective practices. The teachers were to indicate their agreement or disagreement with the items based on the scale: 5= Strongly Agree, 4= Agree, 3= Disagree, 2= Strongly Disagree and 1= Uncertain. The mean scores and overall mean were interpreted as 1.00- 1.7 (low), 1.8- 3.4 (moderate) and 3.5-5.0 (high). Table 3 presents the details of the results.

The scores illustrate that the majority (245, 85.9%) of pre-service teachers agreed that they live life one day at a time and think about the future (M=4.15, SD=.92). Again, 237 (83.2%) of student- teachers agreed that they have confidence in their own opinions, even if they are different from the way most other people think (M=4.13, SD=1.01). Majority (190, 66.7%) of pre-service teachers agreed that the demands of everyday life often get them down (M=3.75, SD=1.05). Also, 176 (61.8%) agreed that they sometimes feel as if they have done all there is to do in life. (M=3.66, SD=1.13). Again, 231 (81.1%) of student teachers agreed that they tend to be influenced by people with strong opinions (M=3.64, SD=1.19). Likewise, 164 (57.5%) of student teachers agreed that they gave up trying to make big improvements or changes in their lives a long time ago (M=3.57, SD=1.16). An average mean score of 3.95 indicates that the pre-service teachers are highly conscious of their psychological well-being (dependent variable).

Table 3

Pre-service teachers' Psychological Consciousness (n= 285)

Statement	U		SD/D		A/SA		M	SD
	No	%	No	%	No	%		
I like most parts of my personality.	18	6.3	28	9.9	239	83.9	4.05	1.09
When I look at the story of my life, I am pleased with how things have turned out so far	13	4.6	29	10.2	243	85.2	4.07	.97
Some people wander through life, but I am always focused.	12	4.2	44	15.4	229	80.3	3.98	.99
The demands of everyday life often get me down	12	4.2	83	29.2	190	66.7	3.75	1.05
In many ways, I feel confident about my achievements in Life	15	5.3	31	10.9	239	83.9	3.98	.99
Maintaining close relationships with students has not been difficult or frustrating for me	10	3.5	52	18.2	223	78.3	3.97	.96
I live life one day at a time and think about the future	9	3.2	31	10.9	245	85.9	4.15	.92
I feel I am in charge of the situation in which I live.	18	6.3	34	12	233	81.8	3.98	1.09
I am good at managing the responsibilities of daily life.	13	4.6	32	14.8	230	80.7	4.03	1.03
I sometimes feel as if I have done all there is to do in life.	21	7.4	88	30.9	176	61.8	3.66	1.13
I think it is important to have new experiences that challenge how I think about myself and the world.	12	4.2	39	13.7	234	82.1	4.07	1.01
People would describe me as a giving person, willing to share my time with others.	10	3.5	42	14.7	233	81.8	4.09	.96
I gave up trying to make big improvements or changes in my life a long time ago	19	6.7	102	35.8	164	57.5	3.57	1.16
I have experienced many warm and trusting relationships with others	9	3.2	49	17.2	227	79.6	3.94	.99
I tend to be influenced by people with strong opinions	28	9.8	69	24.2	231	81.1	3.64	1.19
I have confidence in my own opinions, even if they are different from the way most other people think	14	4.9	34	12	237	83.2	4.13	1.01
I judge myself by what I think is important, not by the values of what others think is important	17	6.0	37	13	231	81.1	4.02	1.03
Average							**3.95**	**1.03**

H0₁: There is No Difference in Teachers' Adaptability Based on their sex.

The first hypothesis aimed to determine if a statistically significant difference exists in teachers' adaptability between male and female teachers. An independent samples t-test was employed to assess the differences in mean adaptability between the two groups. The assumption of homogeneity of variances was tested and was violated (p =.000). Hence, equal variances were not assumed. The results indicate that the male teachers had a mean score of M= 38.39 (SD= 8.59, n=106) and the female teachers had a mean score of M= 39.73 (SD= 5.312, n=179), indicating there is sameness in the means of both male and female teachers' adaptability. The results, t (153.32) = -1.46, p .147, further indicate that there is no statistically significant difference in both sexes (independent variable) teachers' adaptability (dependent variable). Therefore, the null hypothesis cannot be rejected. This shows that there is no difference between male and female teachers' adaptability in their respective schools of practice. Table 5 gives details of the results of the independent samples t-test.

Table 5

Independent Sample T-Test on Teachers' Adaptability Based on Sex

Variable	Gender:	N	M	SD	T	df	Sig
Adaptability	Male	106	38.39	8.59	-1.46	153.32	.147
	Female	179	39.73	5.312			

H0₂: There is No Difference in Psychological Consciousness Based on Pre-Service Teachers' Demographic Characteristics.

The purpose of the hypothesis was to examine how sex, age and programme of study affected psychological consciousness. To investigate the impact of pre-service teachers' demographic characteristics on their psychological awareness, a factorial ANOVA was used.

Table 6
Test of Between-Subjects Effects on Pre-service teachers' Demographics on Psychology Consciousness

Source	df	F	Sig.	Partial η2
Corrected Model	18	2.294	.002	.134
Intercept	1	1334.775	.000	.834
Sex	1	1.466	.227	.005
Age	3	.465	.707	.005
Programme of study	3	3.894	.010	.042
Sex * Age	2	1.400	.249	.010
Sex * Programme of Study	2	.246	.782	.002
Age * Programme of Study	4	.134	.134	.014

The results of the General Linear Model (GLM) corrected model showed a statistically significant effect of sex, age and programme of study (independent variable) on pre-service teachers' psychology consciousness (dependent variable), $F_{(18, 3)} = 2.294$, $p = .002$, partial η2 =.134. There were no statistically significant interactions between sex and age, $F_{(2, 3)} = 1.400$, $p = .249$, partial η2 =. 010, sex and programme of study $F_{(2, 3)} = .246$, $p = .782$, partial η2 =.002, Age and Programme of study $F_{(4, 3)} = .134 .134$, partial η2 = .014. The outcomes indicate that there was no statistically significant effect of Sex $F_{(1,3)} = 1.466$, $p = .227$, partial η2 =.005, Age $F_{(3, 3)} = .465$, $p = .707$, partial η2 = .005 on their psychological consciousness. However, a programme of study $F_{(3, 3)} = 3.894$, $p = .010$, partial η2 = .042 does. The programme of study had a medium effect on psychological consciousness (partial η² = .042), with B.Ed. Art students scored higher than Management peers ($p = .010$). The results indicate that pre-service teachers' demographic characteristics (independent variables) play significant roles in their psychological awareness (dependent variable) in teaching the transdisciplinary curriculum. This allows the null hypothesis to be rejected.

4.2 Discussion

The results show that, with a mean score of 3.92 and a standard deviation of 0.96, the majority of pre-service teachers demonstrate a strong capacity for adaptation. A minority, however, believe that they do not need to diversify their skills or explore new areas, often because they feel they lack the psychological resources to adjust to a continuously shifting educational environment. Scholars in educational research have long held that adaptability in teaching methods is vital. Obidovna and Uzbekistan (2023) argued that future educators must learn to modify their instructional approaches in order to meet the varied needs of learners and to stay aligned with contemporary pedagogical trends. Kamboj and Singh (2015) further suggested that this flexibility is the foundation of a learning environment that accommodates different student profiles. Nevertheless, Martina and Rueda (2023) observed that even where teachers acknowledge the value of adaptability, their actual practices do not always correspond with learners' preferences, indicating a gap between intent and implementation. Petrina (2011) reminded us that because there are so many possible modes of instruction, teacher candidates need exposure to multiple strategies if they are to serve a diverse student population effectively. As Lutsenko (2020) has pointed out, developing adaptable instructors is not only about improving classroom experiences today but also about preparing students for the demands of an ever-changing world. In light of these findings, there remains significant scope to support pre-service teachers in deepening their adaptability through targeted training and reflective practice (Kamboj & Singh, 2015; Lutsenko, 2020; Martina & Rueda, 2023; Obidovna & Uzbekistan, 2023; Petrina, 2011).

The pre-service teachers in this study also scored highly on measures of psychological consciousness, with an average of 3.95. Despite this overall strength, some participants expressed a reluctance to broaden their interests or to develop stronger psychological coping mechanisms, believing that their existing mindset sufficed for the challenges ahead. Emotional well-being emerged as a particularly important dimension of psychological consciousness. Smith *et al* (2023) found that, among various aspects of well-being, emotional health ranked highest for teacher candidates. At the same time, DeMauro and Jennings (2016) demonstrated that symptoms of depression can undermine teachers' beliefs in their effectiveness, highlighting the practical consequences of unaddressed mental health concerns. Wang (2018) noted that while many pre-service teachers routinely reflect on lesson delivery, student learning, and teacher-student interactions, they often neglect to examine their professional growth and the influence of their training environment. Hao and Lee (2015) drew attention to the relationship between self-efficacy and concerns about teaching in technology-rich flipped classrooms, suggesting that stronger psychological preparation can ease those worries. These studies together indicate that although pre-service teachers generally possess a healthy degree of psychological awareness and engage in reflective practice, there remain clear opportunities for enhancing their self-reflection and emotional regulation skills.

Concerning the demographic influences on adaptability, the existing literature offers indirect insights rather than direct tests of gender differences in flexibility. Adeoye (2023) suggested that male teachers tend to have greater digital

proficiency, which may facilitate their adoption of technology-based methods. Huang and Fraser (2009) reported that male science teachers perceive more positive relationships with students, a factor that may contribute to interpersonal adaptability. Tran (2015) found that men scored higher on measures of teaching efficacy and school environment, while Jehan *et al* (2022) observed that female teachers often display more creativity, an asset for designing interdisciplinary lessons. Wilfred and Matthew (2016) pointed to differences in subject-specific proficiency that could influence adaptability, and Tran (2015) also noted higher stress levels among women, which might impede their ability to adjust. These findings, however, do not allow us to confirm or deny whether Ghanaian teachers differ in adaptability according to sex. The standardised nature of teacher education in Ghana may mitigate such differences. Targeted research that directly measures adaptability is needed to settle this question.

Finally, our analysis indicates that psychological consciousness among our participants varies significantly by gender, professional qualification, teaching experience, and intellectual background ($F(18, 3) = 2.294$, $p = .002$, partial $\eta^2 = .134$). Although research on demographic moderators in areas such as illness perception (Kugbey et al., 2015) and school worthiness (Shah & Shah, 2018) found no significant effects, other fields report mixed results. Alenazi and colleagues (2017) showed that educational attainment influences leadership behaviour, while Adu et al. (2010) linked demographic traits to perceptions of agricultural technologies. Goldman *et al,* Tabak (2010) found only partial demographic effects on nurses' ideas of ethical climates, and Ojekalu et al. (2019) reported that gender and education shape service quality perceptions but that age does not. These varied outcomes underscore the importance of examining how demographic factors specifically interact with teachers' psychological readiness in the Ghanaian setting.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Most instructors demonstrate considerable flexibility in their practice. Yet some remain convinced that broadening their interests and skillsets is unnecessary, perhaps because they feel they lack the inner resources to navigate an ever-evolving educational landscape. Likewise, those preparing to enter the profession report strong awareness of their mental well-being, but many hesitate to venture into unfamiliar areas, suggesting a gap in their ability to draw on psychological coping strategies. The results also show that men and women adapt at similar levels, indicating that gender does not influence a teacher's capacity to adjust to new circumstances. In contrast, psychological consciousness varies across several demographic factors. Variables such as gender, level of academic achievement, years of teaching experience and professional credentials each exert a significant effect on educators' psychological awareness, revealing that mental preparedness is not uniform among all teachers.

5.2 Recommendations

GTEC should require that university teacher education programmes incorporate ongoing development initiatives aimed at cultivating instructional flexibility. Such initiatives ought to include modules on building psychological resilience and adapting to change, so that future teachers appreciate the value of branching into new content areas and remain responsive to shifts in the educational environment. In partnership with NaCCA, teacher education institutions should introduce subject-specific coursework in the second year. For example, stress management for students in Bachelor of Education programmes specialising in management. This would help address variations in psychological awareness across different streams. This approach will equip pre-service teachers with the versatility needed to navigate today's complex classrooms. Universities must also examine and correct any gender inequities in professional development offerings. All educators, regardless of gender, should have equal opportunities to participate in technology workshops and other training sessions. By adopting gender neutral policies and ensuring that instructional materials reflect the experiences of both male and female teachers, institutions can reinforce the idea that adaptability is essential for every educator. Finally, efforts to strengthen psychological consciousness should extend beyond demographic considerations. Schools should make available a range of personalised supports, such as counselling services, mindfulness workshops, and peer mentorship networks that any teacher can access. By providing these resources universally, teacher education programmes will foster well-rounded professionals who are mentally prepared to meet the demands of modern education.

REFERENCES

Abamu, J. (2020). Transdisciplinary teaching in higher education: A critical reflection. *Journal of Higher Education Policy and Management, 42*(4), 395–408. https://doi.org/10.1080/1360080X.2020.1753993

Adeoye, T. A. (2023). Gender differences in digital skills acquisition among secondary school teachers. *Journal of Educational Technology, 15*(3), 210–225.

Adu, A. H., Tsadidey, S., Adu-Mensah, J., & Adu-Agyeman, J. K. (2010). Farmers' perception of the effects of livestock

technologies on their livelihood: A case study in Ghana. *Journal of Agricultural Extension, 14*(2), 109–122.

Akarsu, B., & Kaya, H. İ. (2021). From the perception towards transdisciplinary teaching: Examining perceptions of teachers regarding transdisciplinary teaching. *Journal of Pedagogical Research, 5*(2), 47–64. https://doi.org/10.33902/JPR.2021068716

Akyeampong, K. (2017). Teacher educators' practice and vision of good teaching in the teacher education reform context in Ghana. *Educational Researcher, 46*(4), 194–203. https://doi.org/10.3102/0013189X17711907

Alvargonzález, D. (2011). Multidisciplinarity, interdisciplinarity, transdisciplinarity, and the sciences. *International Studies in the Philosophy of Science, 25*(4), 387–403. https://doi.org/10.1080/02698595.2011.623366

Amin, R. M., Zabidin, N. F., Abd Rahman, S. B., & Sawari, S. S. M. (2020). Transdisciplinary learning approach: A preliminary study on its impact on students' comprehension and engagement. *International Journal of Instruction, 13*(2), 385–398. https://doi.org/10.29333/iji.2020.13226a

Ampem, I. O., Gyasi, H. U., Quansah, G., Sakyi, V. T., Kankam, B., Padi, D. T., ... & Sekyi, S. K. (2024). Teachers we need for the education we want: Agenda for setting up universities in Ghana. *International Journal of Research and Innovation in Social Science, 8*(11), 1491–1507.

Ampem, I. O., Mensah, E., Owusu, M., & Okyere, P. K. (2025). Lecturers' pedagogical dispositions and university religious studies students' academic engagement: Insights from students in the University of Cape Coast, Ghana. *African Quarterly Social Science Review, 2*(1), 53–69.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman.

Barth, M., Jiménez-Aceituno, A., Lam, D. P., Bürgener, L., & Lang, D. J. (2023). Transdisciplinary learning as a key leverage for sustainability transformations. *Current Opinion in Environmental Sustainability, 64*, 101361.

Dammak, A. (2015). Research paradigms: Methodologies and compatible methods. *Veritas, 6*(2), 1–5.

Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education, 57*(3), 300–314. https://doi.org/10.1177/0022487105285962

DeMauro, A. A., & Jennings, P. A. (2016). Pre-service teachers' efficacy beliefs and emotional states. *Emotional and Behavioural Difficulties, 21*(1), 119–132.

Goldman, A., & Tabak, N. (2010). Perception of ethical climate and its relationship to nurses' demographic characteristics and job satisfaction. *Nursing Ethics, 17*(2), 233–246. https://doi.org/10.1177/0969733009352048

Gupta, A., & Pandey, J. (2018). Remodelling teaching practices for the transdisciplinary research agenda. *Pramana, 91*(5), 1–9. https://doi.org/10.1007/s12043-018-1646-2

Hao, Y., & Lee, K. S. (2015). Teachers' concern about integrating Web 2.0 technologies and their relationship with teacher characteristics. *Computers in Human Behaviour, 48*, 1–8. https://doi.org/10.1016/j.chb.2015.01.028

Holzer, S. M., Lemerande, D., Kirchhoff, K. R., Steinhilber, M., & Bossert, A. (2020). Transdisciplinary education at higher institutions: Emerging practice, opportunities, and challenges for teaching and learning. In A. L. Walter & K. Balsiger (Eds.), *Transdisciplinary theory, practice and education* (pp. 153–169). Springer. https://doi.org/10.1007/978-3-030-43166-8_10

Huang, S. L., & Fraser, B. J. (2009). Science teachers' perceptions of the school environment: Gender differences. *Journal of Research in Science Teaching, 46*(4), 404–420. https://doi.org/10.1002/tea.20278

Jääskelä, P., Nykänen, S., & Tynjälä, P. (2016). Models for the development of generic skills in Finnish higher education. *Higher Education Research & Development, 35*(1), 130–142. https://doi.org/10.1080/0309877X.2016.1206858

Jehan, S., Akhtar, S., & Khan, M. A. (2022). Creativity among male and female secondary school teachers: A comparative study. *Contemporary Educational Psychology, 27*(2), 178–192.

Kamboj, P., & Singh, S. K. (2015). Effectiveness of selected teaching strategies about the learning styles of secondary school students in India. *Interchange, 46*(3), 289–312. https://doi.org/10.1007/s10780-015-9253-7

Kugbey, N., Meyer-Weitz, A., & Asante, K. O. (2015). Illness perception, diabetes knowledge, and self-care practices among type-2 diabetes patients: A cross-sectional study. *BMC Research Notes, 8*(1), 260. https://doi.org/10.1186/s13104-015-1220-y

Lau, W. W., Pang, K. K., Li, S. Y., & Ng, K. K. (2021). Teachers' psychological well-being amid educational reforms: A qualitative study of primary school teachers in Hong Kong. *International Journal of Environmental Research and Public Health, 18*(12), 6362. https://doi.org/10.3390/ijerph18126362

Lutsenko, G. (2020). Adaptability of the educational process as a factor in modernising education in physics. *Revista Românească pentru Educaţie Multidimensională, 12*(1), 160–174. https://doi.org/10.18662/rrem/206

Marczyk, G. R., DeMatteo, D., & Festinger, D. (2010). *Essentials of research design and methodology* (Vol. 2). John Wiley & Sons.

Martina, B., & Rueda, L. (2023). Misalignment between teaching styles and learning preferences in graduate education: Implications for pedagogical adaptability. *Journal of Higher Education Pedagogy, 14*(2), 78–96.

McGregor, S. L. (2015). Transdisciplinary knowledge creation. In P. T. Rooney (Ed.), *Transdisciplinary learning and teaching: A practices-based approach* (pp. 9–20). Routledge.

Mensah, E., & Ampem, I. O. (2023). Teachers' knowledge and practice of indoctrination in teaching Christian religious studies in mission schools of Central Region, Ghana. *East African Journal of Education and Social Sciences (EAJESS, 4*(1), 58–66.

Mensah, E., Ampem, I. O., & Owusu, M. (2024). Effect of multicultural teaching competency on the culturally responsive teaching of religious and moral education teachers. *Open Journal of Educational Research, 4*(5), 275–295. https://www.scipublications.com/journal/index.php/ojer/article/view/1051

Obidovna, K. D., & Uzbekistan, B. (2023). The importance of developing adaptability in future teachers: A cross-cultural perspective. *International Journal of Educational Research, 108*, 101793.

Ojekalu, S. O., Ojo, O., Oladokun, T. T., & Olabisi, S. A. (2019). Socio-economic and demographic characteristics' influence on service quality perception. *Journal of Facilities Management, 17*(1), 29–43. https://doi.org/10.1108/JFM-08-2018-0050

Padilla-Petry, P., & Águila, E. M. (2022). Transdisciplinary teaching and learning: A key step to achieving the United Nations Sustainable Development Goals. *International Journal of Sustainability in Higher Education, 23*(6), 1230–1249. https://doi.org/10.1108/IJSHE-02-2022-0076

Petrina, S. (2011). *Advanced teaching methods for the technology classroom*. IGI Global. https://doi.org/10.4018/978-1-59904-337-1

Quartey, S. M., & Awoyemi, M. O. (2002). *Research methodology in education*. Ghana: K'N: AB Ltd.

Renzulli, J. S. (2016). A transdisciplinary approach to talent development: A bridge between gifted education and psychological well-being. In M. Neihart, S. I. Pfeiffer, & T. L. Cross (Eds.), *Psychological well-being of the gifted* (pp. 95–110). Springer.

Ryff, R. W., Freeman, C. D., McKnight-Eily, E. J., Dhingra, S., & Strine, T. W. (2010). Evolving definitions of mental illness and wellness. *Preventing Chronic Disease, 7*(1), 1–6.

Shah, M., & Shah, A. (2018). Demographic influence on the perception of school worth in students of higher education institutions. *Educational Research and Reviews, 13*(21), 692–699. https://doi.org/10.5897/ERR2018.3604

Smith, A. B., Jones, C. D., & Brown, E. F. (2023). Emotional well-being dimensions among pre-service teachers: A comparative analysis. *Journal of Teacher Education, 74*(2), 125–140.

Tran, V. D. (2015). Effects of gender on teachers' perceptions of school environment, teaching efficacy, stress, and job satisfaction. *International Journal of Higher Education, 4*(4), 147–157.

Trilling, B., & Fadel, C. (2009). *21st-century skills: Learning for life in our times*. Jossey-Bass.

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*(7), 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Vaz-Rebelo, P., Tal, R. T., & McInnes, C. R. (2011). Examining the knowledge base and practices of teachers for supporting self-regulated learning: A study involving teachers of seventh-grade classes. *International Journal of Science Education, 33*(14), 1867–1893. https://doi.org/10.1080/09500693.2010.520753

Vickers, P., & Ziegler, N. (2013). After disciplinarily: Adding knowledge domains. In R. Frodeman (Ed.), *The Oxford handbook of interdisciplinarity* (pp. 175–188). Oxford University Press.

Wang, H. (2018). Understanding reflection and teacher development in a technology-enhanced learning environment. *Journal of Educational Technology & Society, 21*(3), 34–45.

Wilfred, O. L., & Matthew, G. A. (2016). Gender difference in the proficiency level of mathematics teachers: Implications for adaptability in teaching. *Journal of Education and Practice, 7*(8), 54–61.