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The Nexus Between Teachers' Demographic Characteristics and Utilization of 21st Century Collaborative Teaching Strategies in Classrooms

Sulaimon Adewale 
University of Johannesburg
South Africa

Abstract. The purpose of this study was to determine the role that teachers' demographic characteristics plays in their utilization of collaborative teaching strategies to facilitate collaborative learning among students. The study adopted a quantitative research design and simple random sampling to select 220 respondents among secondary school teachers. An adapted questionnaire with reliability Cronbach alpha coefficient of 0.86 was used to elicit information. The study results were analyzed with the aid of the Statistical Package for the Social Sciences (SPSS), using frequency count, percentage, mean score, and analysis of variance. A significant difference was found in the use of collaborative teaching strategies among teachers based on age and gender. Female respondents and younger respondents used the teaching strategies more than the male and older respondents. It is therefore recommended that teachers, especially male and older ones, should be trained and motivated on the ways and manners of integrating collaborative teaching strategies in their teaching in their lessons.

Keywords: 21st century skills; collaborative teaching; collaborative learning; secondary school; teaching strategy

1. Introduction

Collaborative learning is a 21st century educational approach where individuals engage in a common task and work together to achieve a shared learning goal. Cagatan and Quirap (2024) revealed that, through collaborative learning, learners achieve learning and socialization goals simultaneously. Collaborative learning is an important component of the 21st century skills required for excellence in all human endeavors, because it instills the spirit of togetherness in students. Through collaboration, students learn to see things from others' viewpoints (Ekizer & Yildirim, 2023), analyze problems together, and come up with different solutions and utilize the most effective one. The acquisition of 21st century skills by every learner is an indicator of quality education and the evidence that they possess the tools for working and living in the current age (Anwar & Umam, 2023). It

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constitutes a strong pillar of the Sustainable Development Goals (SDGs) (Han, 2021), and the requirement for individuals to be functional in this era is that they must acquire some new set of relevant skills (Lavi et al., 2021). Collaboration fosters critical thinking, problem-solving, communication, and teamwork skills (Ekizer & Yıldırım, 2023), which are highly valued in today's interconnected world.

Moreover, the role of the teacher as learning facilitator cannot be played down in actualizing the goals of collaborative learning. Teachers, as the facilitators of collaborative learning in classrooms, are indispensable pillars that can make or break the achievement of the philosophy of collaboration. It is therefore essential for teachers to shift toward adopting collaborative teaching. It is a general belief, especially among teachers, that collaborative learning is better than learning alone because it promotes critical thinking (Cheng et al., 2021). This is noticeable in its integration into the skillset for the 21st century. A teacher who adopts an excellent instructional strategy can achieve both self-concept and engage the learners (Han, 2021). Furthermore, the adoption of collaborative teaching strategies to facilitate collaborative learning among the students may be influenced by many factors, among which is teacher demography. In the context of this study, two demographic characteristics of teachers in Nigeria, that is, age and gender, will be considered. There is a need to explore how the gender and age of teachers in Nigeria can serve as determinants in utilizing 21st century collaborative teaching strategies.

Gender shapes teaching practices and pedagogical approaches (Almasri et al., 2022). While teaching is gender-neutral, societal expectations and cultural norms can influence male and female teachers' teaching styles and preferences (Rayaprol et al., 2023). In Nigeria, gender roles and expectations continue to have a significant impact on the education system. Female teachers may face challenges related to societal expectations, such as traditional gender roles and biases (Awatt, 2023), that can limit their opportunities for professional growth and hinder their ability to explore innovative teaching practices. Consequently, these factors may influence their inclination to adopt collaborative teaching strategies to prepare the students for collaborative learning in the classroom.

Research has suggested that female teachers, on average, tend to exhibit higher levels of collaboration, empathy, and inclusiveness (Jha, 2021), which align well with the principles of collaborative teaching strategies. They may be more inclined to promote student-centered learning environments, encourage active student participation, and facilitate groupwork. Female teachers may also be strong role models for female students, empowering them to participate more actively in collaborative learning experiences. However, it is essential to note that individual preferences and teaching styles can vary significantly among teachers, regardless of gender.

Age is another factor that can impact the utilization of collaborative teaching strategies. In Nigeria, the teaching profession comprises diverse age groups, with teachers spanning different generations. Each generation brings unique

experiences, perspectives, and attitudes toward teaching and learning (Le et al., 2018). Older teachers who have been in the profession for longer may have developed a more traditional approach to teaching which can resist change and new pedagogical methods. They may rely on traditional teaching methods, emphasizing direct instruction and individualized learning rather than collaborative approaches.

On the other hand, younger teachers from the millennial or Generation Z cohorts grew up in an era characterized by digital technologies, connectivity, and collaboration (Marrero Galván et al., 2023). They are typically more open to embracing innovative teaching strategies, including collaborative approaches that leverage technology and promote interactive learning experiences. Younger teachers may be more likely to incorporate digital tools, online platforms, and social media into their teaching practices, enabling collaborative learning opportunities for their students.

While the gender and age of teachers in Nigeria can influence the adoption and implementation of 21st century collaborative teaching strategies, it is essential to recognize that these factors are not deterministic. Teachers' unique qualities, skills, and experiences shape their teaching practices (Woodcock et al., 2023). Moreover, professional development opportunities, supportive school environments, and access to resources and training can play crucial roles in fostering the adoption of collaborative teaching strategies, regardless of gender or age. This study therefore seeks to determine the nexus between teachers' demography (age and gender) and the adoption of collaborative teaching strategies in secondary schools in Nigeria.

The specific purpose of this study was to assess the influence of teachers' demographic characteristics (age and gender) on the use of collaborative teaching strategies to foster collaborative learning among students.

Research Questions

To achieve the objectives of this study, the following research questions are raised:

- i) To what extent do teachers adopt and encourage collaborative learning in the classroom?
- ii) Are there gender differences in teachers' utilization of collaborative teaching strategies to foster collaborative learning in secondary schools?
- iii) Does teacher age influence the adoption of collaborative teaching strategies by teachers in secondary schools?

2. Literature Review

2.1 Collaborative Teaching Strategies for 21st Century Skills in Education

Teachers are acknowledged globally as transformers facilitating learning by operationalizing the curriculum. Teachers are the interpreters of the curriculum (Dien et al., 2022) for learners' academic excellence. For this reason, teachers' role in imparting 21st century skills to learners cannot be overemphasized. Every teacher is expected to practice higher order thinking skills in the classroom (Aini et al., 2018). However, the extent to which teachers integrate and impart this in

the 21st century is influenced by demographic factors such as gender, age, experience, and academic qualification, among other factors. Teacher training institutions and education faculties should consider 21st century learner skills and the aforementioned demographic factors in teacher training curriculums (Göksün & Kurt, 2017).

Collaborative teaching, as one of the 21st century skills, is a learner-centered approach and promising teaching method (Sengpoh, 2019). It is unique because it recognizes the importance of every learner's contribution to a task and their mutual engagement (Ekizer & Yıldırım, 2023; Woodcock et al., 2023). Collaboration in teaching helps teachers manage their classrooms effectively (Han, 2021). Learners help their teachers to share in their tasks and become teachers to one another through their interaction. Learning does not take place in isolation (Gweon, 2021). Participating in social practice is how learning happens, and what is learned (beyond mere knowledge) is a collection of practices, ways of doing, thinking, and being (Noble et al., 2011). Collaborative learning among teachers influences learners to practice the same and vice versa (Miquel & Duran, 2017); each thus serves as a role model to the other.

In their study, Göksün and Kurt (2017) found that pre-service teachers frequently used 21st century skills to teach their learners. The most commonly used skills were cognitive, innovative, collaborative, and flexible skills. A 21st century teacher must be competent in five critical areas to successfully use a collaborative teaching strategy in the classroom (Adewale et al., 2022; Adewale & Tahir, 2022; Gümüş, 2022). These competencies include the ability to plan the interaction of the learners, monitor the interaction, support the learners, and reflect upon the interaction.

Research outcomes have revealed that teachers' demographic characteristics in relation to age, gender, and teaching experiences impact learning and teachers' effectiveness (Aini et al., 2018; Dien et al., 2022; Shah & Udgaonkar, 2018). Gender, as one demographic characteristic, could play a significant role in how teachers impart 21st century skills to learners. These skills include critical thinking, essential, and collaborative skills (Fletcher Jr & Tan, 2021). In Shah and Udgaonkar's study (2018), students indicated their preference for male teachers; they believed that male teachers are usually effective in teaching, good class management, and engagement of backbenchers in the teaching and learning activities.

Similarly, research findings have also revealed that age can influence teachers' effectiveness (Shah & Udgaonkar, 2018). As teachers age, they accumulate more teaching experiences, which can be helpful in the dissemination of their learning content (Aini et al., 2018; Shah & Udgaonkar, 2018). It has also been reported that teachers with more experience and who are older are more adept at delivering 21st century skills in the classroom than younger teachers with little or no experience (Aini et al., 2018). Conversely, Alufohai and Ibhafidon (2015) found that younger teachers aged between 21 and 34 have more effective teaching methods. Based on the review of the literature, the following hypotheses emerged:

- H1: There is a significant difference between male and female teachers in the adoption of 21st century collaborative teaching strategies to foster collaborative learning in secondary schools.
- H2: Older teachers are likelier to adopt and integrate 21st century collaborative teaching skills than younger teachers.

2.2 Theoretical Framework

This study is anchored in the social cognitive theory (SCT) of Canadian-American psychologist Albert Bandura. Social learning can be interpreted to mean learning from others (Gweon, 2021). This theory emphasizes the interaction between cognitive, behavioral, and environmental factors in shaping human behavior and learning. SCT suggests that individuals learn by observing the behaviors of others and the consequences that those behaviors lead to. Only humans can generate broad knowledge repertoires through social learning, and only humans have created cultural institutions, such as formal education and parenting customs, to support social learning on a large scale (Gweon, 2021).

SCT serves as an encompassing framework through which profound insights can be gained into the intricate dynamics that underlie teachers' adoption of collaborative teaching strategies, influenced by their gender and age. This theoretical perspective delves into the cognitive processes, motivations, and external determinants that either facilitate or impede the assimilation of these strategies into their instructional practices.

This application of SCT is well justified due to its multifaceted contributions. First, it embraces the multifarious nature of teacher behavior by considering the interplay of personal attributes and environmental influences. Bandura's theory asserts that behavior emerges from the interplay between personal cognitive factors, environmental influences, and behavior. It is particularly relevant in a complex educational setting where numerous factors shape teaching practices (Bandura, 1986).

Furthermore, the theory aptly recognizes the role of observational learning in shaping teachers' decisions. As teachers witness their peers effectively employing collaborative strategies, they may be more motivated to emulate such practices, as demonstrated by Bandura's (1977) assertion that observation and modelling are influential mechanisms for behavior acquisition.

In addition, SCT highlights the significance of self-efficacy – the individual's belief in their ability to achieve a desired outcome – in strategy execution (Shi, 2018). Teachers with higher self-efficacy regarding collaborative teaching strategies are likelier to undertake the endeavor with determination and perseverance (Bandura, 1997).

Moreover, this theory presents a systematic framework for investigating how teachers regulate their behavior based on the feedback loop of their experiences. The theory posits that, as they experiment with collaborative strategies, their self-

regulation mechanisms enable them to adjust their practices according to their goals and the observed outcomes (Bandura, 1989).

By adopting the lens of SCT, this study attained a heightened comprehension of the varying inclinations among teachers to embrace collaborative teaching strategies. This deeper understanding unravels the intricate interplay of factors that steer their choices and actions. Consequently, these insights hold potential implications for educational policy development and the design of professional development initiatives seeking to foster the integration of effective teaching practices within Nigerian classrooms. In essence, SCT illuminates the reasons behind the adoption of differential strategies. It provides an avenue to empower educators and educational systems to promote collaborative teaching practices that enhance the educational experience in Nigeria.

3. Method

3.1 Research Design

This study is a quantitative study with a cross-sectional survey research design (Kesmodel, 2018). This design allowed for the collection of quantitative data from diverse teachers in Nigerian classrooms at a given time (Zangirolami-Raimundo et al., 2018). The design allowed for the examination of relationships between variables, the identification (Kesmodel, 2018) of teachers' gender and age, and the adoption of collaborative teaching strategies.

3.2 Respondents

A meticulous sampling process was undertaken to ensure a representative and unbiased portrayal of the broader teacher population within secondary schools in Lagos, Nigeria. Specifically, a well-structured, transparent, and simple random sampling technique was employed to meticulously select 220 male and female secondary school teachers to participate in the study. To achieve a comprehensive cross-section of gender representation, the sample was equally distributed between male and female teachers (Rahman et al., 2022). This distribution not only ensured equitable gender representation but also enhanced the reliability of the study findings by reducing potential gender-related biases.

3.3 Instrument

This study adapted an instrument designed by Ravitz (2014), titled "A survey for measuring 21st century teaching and learning: West Virginia 21st Century Teaching and Learning Survey [WVDE-CIS-28]". The instrument has a reliability score of std. alpha > 0.90 and inter-item correlation > 0.58. As adapted for this study, the instrument has two sections (A and B). Section A has four items on respondents' demographic information to measure the independent variable. Section B has 10 items measuring teachers' adoption of collaborative teaching skills, which is the dependent variable in this study. The instrument uses a 5-point Likert scale (1 = *almost never*; 2 = *a few times a semester*; 3 = *1-3 times per month*; 4 = *1-3 times per week*; 5 = *almost daily*). The adapted instrument was further subjected to a reliability test with its administration to 30 teachers in Lagos state who were not original respondents. Reliability testing of the instrument is usually conducted to determine the extent to which the instrument can be consistent to

measure what it was designed for. The Cronbach alpha value was calculated to be 0.86.

3.4 Data Collection Procedure

A carefully adapted questionnaire was employed as the primary tool for data collection. This anonymized questionnaire was physically distributed in paper format to the respondents at their various schools between January 16th and March 1st, 2023. During the process of data collection, all unclear questions raised by the respondents were answered.

3.5 Ethical Considerations

Ethical considerations held paramount significance within the framework of this study, as it strived to ensure the utmost respect for respondents' rights and well-being throughout every phase of the research process. Commencing with a foundational commitment, rigorous efforts were dedicated to upholding respondent rights and safeguarding their welfare. The written consent of the respondents was sought before their participation in the survey. Importantly, respondents were apprised of their unwavering prerogative to withdraw from the study at any juncture without facing any adverse consequences. To achieve confidentiality and privacy of the data collected from respondents, the data were treated with the utmost confidentiality, stored in secure repositories, and were solely accessible to authorized personnel integral to the research endeavor.

Mitigating potential risks associated with participation is another cornerstone of the ethical approach adopted. Respondents' anonymity was diligently reserved in the reporting of the results, obviating the use of personal identifiers. This measure is a testament to the study's dedication to protecting respondents' privacy and ensuring that their valuable contributions remain exclusively oriented toward research pursuits.

3.6 Data Analysis Techniques

The data on demographic characteristics and the utilization of collaborative teaching strategies were summarized using descriptive statistics, including frequencies and percentages. This approach provided a clear and concise overview of the respondents' backgrounds and the extent to which they embraced collaborative teaching methods.

Specifically, the independent *t* test and two-way analysis of variance (ANOVA) were utilized to meticulously scrutinize the disparities in respondents' adoption of collaborative teaching strategies using Statistical Package for the Social Sciences (SPSS) software. These statistical methods enabled the exploration of significant differences in the adoption of these strategies based on distinct categories such as teachers' gender and age. This analytical framework facilitated a more comprehensive understanding of the nuanced influences of these demographic factors in the integration of collaborative teaching approaches.

4. Results

Table 1 displays the demographic characteristics of the respondents in the study.

Table 1: Respondents' demographic characteristics

Variable		Frequency (n)	Percentage (%)
Gender	Male	108	49.1
	Female	112	50.9
Age	30 years and below	100	45.5
	31-35 years	24	10.9
	36-40 years	24	10.9
	41 years and above	72	32.7
Academic qualification	BSc	142	64.5
	MSc	48	21.8
	PGDE	30	13.6
Years of experience	0-5 years	100	45.5
	6-10 years	48	21.8
	> 11 years	72	32.7

The gender distribution indicates that 108 respondents (49.1%) identified as male, while 112 (50.9%) identified as female. Regarding age, most respondents (45.5%) were aged 30 years or below, followed by 10.9% each in the age groups of 31-35 and 36-40 years, and 32.7% in the age group 41 years and above. In terms of academic qualification, 64.5% held a bachelor's degree (BSc), 21.8% held a master's degree (MSc), and 13.6% held a Postgraduate Diploma in Education (PGDE). Lastly, regarding the distribution according to years of teaching experience, 45.5% of respondents reported 0-5 years of experience, 21.8% reported 6-10 years, and 32.7% reported more than 11 years of experience.

Table 2 illustrates the descriptive statistics for the 10 questionnaire items in relation to the extent of adoption of collaborative teaching strategies among respondents to foster collaborative learning among secondary school students.

Table 2: Extent of collaborative teaching strategy adoption by respondents to foster collaborative learning

S/N	Item	Frequency (n)	Mean	Remark
1	Students compare information from different sources before completing a task or assignment	220	2.81	Moderately adopted
2	Draw their conclusions based on analysis of numbers, facts, or relevant information	220	3.08	Highly adopted
3	Summarize or create their enterprise-station of what they have read or been taught	220	3.56	Highly adopted
4	Analyze competing arguments, perspectives or solutions to a problem	220	3.34	Highly adopted
5	Develop a persuasive argument based on supporting evidence or reasoning	220	2.80	Moderately adopted
6	Work in pairs or small groups to complete a task together	220	2.65	Moderately adopted

7	Work with other students to set goals and create a plan for their team	220	3.23	Highly adopted
8	Create joint products using contributions from each student	220	3.19	Highly adopted
9	Present their groupwork to the class, teacher or others	220	3.18	Highly adopted
10	Work as a team to incorporate feedback on group tasks or products	220	2.99	Moderately adopted

The table encompasses 10 distinct strategies for collaborative teaching, offering associated frequencies, mean scores, and adoption remarks. The first strategy involves teachers making their students compare information from various sources prior to task completion. This item achieved a mean score of 2.81, indicating a moderate level of adoption. The second strategy requires students to draw independent conclusions grounded in data analysis and pertinent facts. Remarkably, this approach garnered a mean score of 3.08, signifying a high level of adoption. The third strategy encourages students to synthesize and craft their interpretations of materials they have engaged with. Impressively, this collaborative teaching method obtained a mean score of 3.56, signifying a robust level of adoption.

Shifting the focus to the fourth strategy, which centers on scrutinizing competing arguments, perspectives, or solutions to problems, the mean score attained was 3.34, showcasing a notably high adoption rate. The fifth strategy entails formulating persuasive arguments based on substantiating evidence or reasoning. This approach secured a mean score of 2.80, reflecting a moderately adopted practice. Subsequently, the sixth strategy involves task completion in pairs or small groups, which received a mean score of 2.65, marking a moderate level of adoption.

The seventh strategy encourages cooperative goal-setting and planning with fellow students. Impressively, this approach achieved a mean score of 3.23, signifying a high level of adoption. Similarly, the eighth strategy promotes creating collaborative products utilizing input from each student, and attained a mean score of 3.19, indicating a robust adoption rate. The ninth strategy entails presenting groupwork to diverse audiences. This item yielded a mean score of 3.18, suggesting strong adoption. Lastly, the tenth strategy involves teamwork to integrate feedback on group tasks or products, with a mean score of 2.99, signifying a moderately adopted approach.

Hypothesis 1 is tested at the 0.05 significance level to determine the differences between male and female respondents in the use of collaborative teaching strategies.

- Hypothesis 1: There is a significant difference between male and female teachers in the adoption of 21st century collaborative teaching strategies to foster collaborative learning in secondary schools.

Table 3 presents the results from the independent samples *t* test to compare the collaborative skills of male and female respondents.

Table 3: Comparison of adoption of collaborative teaching strategies between male and female respondents

Gender	n	Mean	Std. dev.	Mean diff	T	Sig.	Df	Cohen's d
Male	108	2.8556	.61315	-.3730	4.425	0.01	218	0.62
Female	112	3.2286	.63635					

There was a significant difference in the use of the collaborative skills method between male ($M = 2.85$, $SD = .613$) and female respondents ($M = 3.22$, $.636$; $t(218) = 4.425$, $p = 0.01$, two-tailed). The magnitude of the difference in the mean scores between male and female respondents (mean difference = $-.3730$, 95% confidence interval [CI]: -1.80 to 1.87) suggests that there is a noticeable disparity in how collaborative skills are utilized by each gender, with females demonstrating a higher usage on average. This result is based on a sample of 220 teachers. Notably, the effect size, Cohen's d , stands at 0.62 , indicating a moderate impact of gender on the utilization of collaborative skills.

Hypothesis 2 is tested at the 0.05 significance level to determine the differences between respondents based on age in the use of collaborative teaching strategies.

- Hypothesis 2: Older teachers are likelier to adopt and integrate 21st century collaborative teaching skills than younger teachers.

Table 4 presents the results from the comparative analysis of the adoption of 21st century collaborative skills among respondents based on their age group.

Table 4: Comparison of adoption of 21st century collaborative skills among respondents based on age

Age group	n	Mean	Std. dev.	Std. error
30 years and below	100	3.1480	.65234	.06523
31-35 years	24	3.6000	.00000	.00000
36-40 years	24	3.4000	.00000	.00000
> 41 years and above	72	2.6000	.59292	.06988
Total	220	3.0455	.65105	.04389

The results in the table indicate that respondents aged 30 and below ($n = 100$) exhibited an average adoption score of 3.1480 , with a standard deviation of $.65234$ and standard error of $.06523$. Those aged 31 to 35 years ($n = 24$) had a mean adoption score of 3.6000 , with a standard deviation of $.00000$ and standard error of $.00000$. Similarly, respondents aged between 36 and 40 years ($n = 24$) had an average adoption score of 3.4000 , with a standard deviation of $.00000$ and standard error of $.00000$. In contrast, respondents 41 years old and above ($n = 72$) exhibited a lower mean adoption score of 2.6000 , with a standard deviation of $.59292$ and standard error of $.06988$. The cumulative data for all age groups ($N = 220$) indicate a mean adoption score of 3.0455 , with a standard deviation of $.65105$ and standard error of $.04389$. The results in this table provide insights into the comparative levels of adoption of 21st century collaborative skills among teachers based on their age category. The data suggest variations in adopting

these skills across different age groups, contributing to a deeper understanding of the dynamics within the teaching profession.

Table 5 shows the results of the between-group and within-group one-way ANOVA. This analysis was conducted to compare the effect of the four different age groups (Group 1: 30 years and below; Group 2: 31–35 years; Group 3: 36–40 years; and Group 4: 41 years and above) on collaboration skills among the respondents.

Table 5: One-way analysis of variance in the use of collaborative teaching strategies based on age

	Sum of squares	Df	Mean square	F	Sig.
Between groups	25.736	3	8.579	27.620	< .001
Within groups	67.090	216	.311		
Total	92.825	219			

The one-way ANOVA revealed that there was a statistically significant difference in mean collaboration skills between the four groups ($F(3,216) = [27.620]$, $p = 0.001$). Despite attaining statistical significance, the actual difference in the collaborative skills between the groups was relatively small. The effect size was calculated using eta square, 0.277.

Table 6 presents the results from the Tukey honestly significant difference (HSD) test for multiple comparisons.

Table 6: Multiple comparisons of respondents' adoption of 21st century collaborative teaching strategies

Dependent variable: Collaborative teaching strategies						
Tukey HSD						
(I) Age	(J) Age	Mean difference (I-J)	Std. error	Sig.	95% confidence interval	
					Lower bound	Upper bound
30 years and below	31–35 years	-.45200*	.12668	.002	-.7800	-.1240
	36–40 years	-.25200	.12668	.195	-.5800	.0760
	41 years and above	.54800*	.08614	< .001	.3250	.7710
31–35 years	30 years and below	.45200*	.12668	.002	.1240	.7800
	36–40 years	.20000	.16088	.600	-.2165	.6165
	41 years and above	1.00000*	.13136	< .001	.6599	1.3401
36–40 years	30 years and below	.25200	.12668	.195	-.0760	.5800
	31–35 years	-.20000	.16088	.600	-.6165	.2165

	41 years and above	.80000*	.13136	< .001	.4599	1.1401
41 years and above	30 years and below	-.54800*	.08614	< .001	-.7710	-.3250
	31-35 years	-1.00000*	.13136	< .001	-1.3401	-.6599
	36-40 years	-.80000*	.13136	< .001	-1.1401	-.4599

* Mean difference is significant at the 0.05 level

Analysis shows that the collaboration skills' mean value differed significantly between the age categories 30 years and below and 31-35 years ($p = .002$, 95% CI =[-.78, -.124]). There was no significant difference between the age categories 30 years and below and 36-40 years ($p = .195$, 95% CI =[-.58, -.76]). Furthermore, there was a significant difference between the age categories 30 years and below and 41 years and above ($p = .001$, 95% CI =[-.325, -.771]).

5. Discussion

The findings of this study on the extent to which respondents encouraged collaborative learning strategies among their students indicate that some strategies were moderately practiced, while others were highly adopted. This outcome implies that respondents acknowledged the benefit of this learning approach within their individual capacity. This finding aligns with Firdaus et al. (2021), who in their quasi-experimental study established that collaborative skills of students improve when they are allowed to share knowledge and learn together or carry out tasks in groups. When teachers adopt collaborative teaching strategies to manage their classrooms, students are stimulated to learn, and their social relationships are built.

Furthermore, the study's findings reveal a significant difference in the adoption of collaborative teaching methods by teachers based on gender. Female respondents were found to utilize a collaborative approach in their teaching more than their male counterparts. One potential explanation for the observed gender difference in collaborative teaching adoption could be rooted in societal norms and expectations regarding gender roles. Historically, women have often been associated with nurturing and collaborative roles, which may translate into their teaching methodologies. Conversely, men might adhere more closely to traditional didactic teaching methods, although such generalizations should be cautiously approached. Moreover, the discrepancy in findings could also reflect evolving trends and shifts in educational practices over time. As educational landscapes change and new pedagogical approaches emerge, the preferences and tendencies of teachers, regardless of gender, may evolve accordingly. This finding is in congruence with Ahmed et al. (2018), who found a significant difference between male and female teachers in classroom management in Pakistan. The disparity between the current and previous studies may be because of different factors, including cultural differences, educational settings, and sample size.

In addition, it was found that younger teacher respondents adopted and integrated 21st century collaborative teaching strategies more than older respondents. The finding disagrees with the hypothesis raised that older teachers are likelier to use collaborative teaching strategies to engage their students than

the younger teachers. This could be due to many reasons stemming from the erroneous belief in many African countries that older teachers should rather perform administrative roles than engaging in active classroom teaching. According to this study, as teachers age and accumulate more teaching experience, they become more effective in their instructional practices. This aligns with the findings of Shah and Udgaonkar (2018), that students give preference to younger teachers because they believe that younger teachers teach more effectively than the older ones. They are of the belief that effective teaching is measured by the quality of knowledge transferred and not information. This implies that a teacher who can communicate effectively and encourage collaboration in learning is much better than a teacher who is older and experienced but cannot make an impact in the classroom. It is essential to recognize that age alone does not determine teaching effectiveness. While experience can be an asset, factors such as professional development opportunities, instructional support, and ongoing reflection are crucial in fostering effective teaching practices across all age groups.

However, Aini et al. (2018) submitted that older teachers can outperform younger ones in teaching 21st century skills when they can effectively use their accumulated experience to impart modern skills. In other words, experienced teachers often develop a deeper understanding of curriculum content and instructional strategies, enabling them to engage students more effectively and facilitate meaningful learning experiences. Moreover, regardless of age, individual differences among teachers should be acknowledged and celebrated. Younger educators bring fresh perspectives, technological fluency, and innovative approaches to the classroom, complementing the wisdom and experience of their older counterparts. In conclusion, while the study findings underscore the influence of age on teacher effectiveness, effective teaching is a multifaceted construct shaped by a combination of factors. Embracing diversity in teaching experiences, fostering continuous professional growth (ETUCE, 2021; Johnson, 2016), and promoting collaboration among educators of all ages are essential to creating vibrant and compelling learning environments for all students.

6. Conclusion and Recommendation

In conclusion, the evidence presented from the findings of this study, which is in agreement with earlier studies, has shown that there is a connection between the demographic characteristics of teachers (in terms of gender and age) and the ability and willingness to adopt collaborative strategies to facilitate teaching and learning. Theoretically, the outcomes of this study imply the importance of integrating collaborative learning strategies into pedagogical theories in line with constructivist principles, which value social interactions in knowledge construction. The finding that younger teachers are more inclined to use modern collaborative strategies challenges assumptions about the correlation between age, experience, and teaching effectiveness, suggesting that professional development should be continuous and tailored to leverage the strengths of both younger and older teachers.

To enhance teaching effectiveness, schools should offer professional development focused on collaborative learning, address gender biases by supporting all teachers, tailor training for both younger and older educators, ensure continuous development opportunities, and foster a collaborative culture among teachers. This study has its limitations in the areas of sample size, which may influence generalizability of the findings, as well as the use of a quantitative research design. It is therefore suggested that further studies consider a mixed methods research approach and expansion of the study coverage.

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