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# GHANA NATIONAL TEACHERS' STANDARDS AND COLLEGE TUTORS' PRACTICE: A GENDER AND AGE ANALYSIS

**Courage Kobla Adenyoh[1i],**
**Shine Lilian Agbevivi[1],**
**Nixon Saba Adzifome[1],**
**Charlse Nyarko Annobil[1],**
**Munkaila Seibu[2],**
**Nelson Amponsah[3]**
[1]Department of Basic Education,
School of Education and Lifelong Learning,
University of Education, Winneba,
Ghana
[2]Department of Health, Physical Education, Recreation and Sports,
Faculty of Health, Allied Sciences and Home Economics Education,
University of Education, Winneba,
Ghana
[3]Department of Educational Administration and Management,
School of Education and Lifelong Learning,
University of Education, Winneba,
Ghana

**Abstract:**
Many Colleges of Education (CoEs) tutors in Ghana struggle to integrate the National Teachers' Standards (NTS) into their pedagogical practices, resulting in inconsistencies in teaching quality and student learning outcomes. To address this challenge, the study investigated how CoE tutors implement the NTS in their professional practice, explored the relationships among professional knowledge, values/attitudes, and practices, and assessed the effects of gender and age on tutors' implementation of the standards. The design for the study was cross-sectional. Using a multistage sampling approach of cluster and simple random techniques, 112 tutors were selected from 15 public CoEs in Ghana. Primary quantitative data were gathered through a closed-ended questionnaire and an observational guide. The instruments were pilot-tested and yielded acceptable reliability scores. Statistical tools, including the Pearson product-moment correlation coefficient and Two-Way between-groups ANOVA, were used to analyse the data. Results revealed strong positive correlations among professional knowledge, professional attitudes and values, and professional practices related to the NTS. Additionally, no statistically significant main or interaction effects of gender and age on professional practice were

[i] Correspondence: email ckadenyoh@uew.edu.gh

found. The study concluded that while tutors demonstrate interconnected professional competencies, there remain significant areas for strengthening the implementation of the NTS to enhance teaching quality and educational outcomes in the Colleges of Education.

**Keywords:** National Teachers' Standards, professional practice, College of Education tutors, teacher quality, professional development

## 1. Introduction

In recent years, teacher education has drawn more attention, particularly in developing nations like Ghana, which is cognizant of the twin nexus between nation-building and education. In response, the Ghana government, through the Ministry of Education and National Teaching Council (NTC), has created and put in place the first collectively bargained National Teacher Standards (NTS) standards for all (in-service and pre-service) teachers across all levels to inform practice, teacher education in the country (NTC, 2021). The Standards have been designed as a professional instrument to guide teacher educators, teachers, student teachers and other stakeholders in the education sector through what the teachers should know and be capable of doing, the attributes they should possess and some behaviours they should exhibit.

NTC governs the profession of teaching by establishing and implementing standards in licensure, professional behaviour, teacher certification, and professional development (NTC, 2021). Tertiary level has the CoEs tutors obligated to exhibit the NTS and also teach preservice teachers since their preparation and future development call for the best possible standards of knowledge, practice and conduct within the work environment.

Despite the release of the Ghana National Teachers' Standards (NTS) as a benchmark for tutors' professional knowledge, values, attitude, and practice, very little has been documented on the extent to which tutors in Colleges of Education (CoEs) have translated the standards into practice.

Previous studies have revealed limitations, including poor resources, infrastructural bottlenecks, and problems with interpreting the standards, rendering effective application a mirage. Yet, fewer have been the concerns with how gender relations impact tutors' relationships with the NTS. In Ghanaian teacher training, gender will probably shape professional development access, positions of authority, and professional competence judgments that have an indirect impact on standards compliance. Although the NTS has been created as gender-free, its implementation occurs in socio-cultural and institutional environments where gendered roles and expectations might function to reinforce differences in professional practice. This leaves one to question whether gendered tutor experiences are an indicator of how they complete the NTS, and therefore, one has to consider the extent to which compliance with

the standards and the extent to which gender and age determine tutors' professional activities.

To the best of our knowledge, little research has been done on the use of NTS in Initial Teacher Education (ITE) programs, such as its effect on education and quality of delivery (Dassah & Yelletuo, 2022; Ananga, 2021), and how CoE tutors utilise the NTS as part of their pedagogical and professional practice. According to the CoEs Act, 2012, Act 847, teacher education in Ghana to instruct at basic school is conducted in the CoEs. Today, there are 48 CoEs, up from 38 in 2014 (Buabeng *et al.*, 2019), and during the 2018/2019 academic year, all the Colleges of Education in Ghana were upgraded to University Colleges of Education to conduct a Four-Year Bachelor of Education degree (Kokutse, 2018). Nevertheless, this study was conducted on 15 COEs under the University of Education, Winneba.

Before the 2018/2019 academic year, CoEs awarded diploma certificates and Bachelor of Education (B.Ed.) degrees and Postgraduate Diploma in Education (PGDE)/certificate in education that were awarded by universities. Since the 2018/2019 academic year, however, universities and CoEs have been running and continue to run Four-Year Bachelor of Education (B.Ed.) curriculum degree programmes (Naami & Mort, 2023). All the CoEs in Ghana share the same 4-year Bachelor of Education New Curriculum and are informed by the National Tertiary Education Curriculum Framework (NTECF) and NTS to respond to a national priority of re-engineering the content and structure of the education system from examination passing only to character building, values education, and the development of literate, confident, and participative citizens with the skill of thinking critically; enhance the quality of pre-tertiary education, with emphasis on science and mathematics as cornerstones for success in either tertiary education or early employment (National Teaching Council -NTC, 2020).

National Teachers' Standards (NTS) is a crucial set of standards for teacher education and professional development (Ananga, 2021). Designed to raise the level of teaching, the NTS specifies some competencies and standards for educators at various levels within their careers, providing an equal strategy for the efficiency of teachers across the country. The significance of the NTS in teacher education stems from its application as a basis for assessing and reaffirming the skills needed to establish nurturing learning environments. By linking teacher training programs to such standards, schools can better equip future teachers to meet the diverse needs of students and deal with the challenges in the teaching field. Moreover, the implementation of the NTS can enhance ongoing professional development, wherein teachers are encouraged to follow reflective practices that improve teaching quality and enable them to make meaningful contributions to Ghana's educational vision (Wei, 2023; Abubakar *et al.*, 2022).

In examining the teaching methods utilised by tutors on the National Teachers' Standards, it is apparent that effective teaching methods make an invaluable contribution to an enriched learning experience of student-teachers. Research indicates that tutors who utilise various modalities of learning, such as group work and technology-driven

learning, facilitate enhanced learner engagement and critical thinking ability among their learners (Dassah *et al.*, 2022). This adherence to the National Teachers' Standards is crucial in an attempt to create a learning environment in which all learners, whether of different schooling needs, are provided with equitable attention and care. Existing studies indicate that tutors' practice may not always fit the NTS model as envisioned at first, leading to loopholes where the future teachers are poorly prepared. For example, Ananga (2021) analysed the application of the NTS in the context of Ghana's ITE programs and found blips in the complete coverage of the NTS as it was conceptualised.

This shortfall is attributed to factors such as the lack of learning and teaching resources, infrastructural constraints, and resource shortfalls within CoEs, hindering productive implementation. Further, some teachers need further training in order to develop a clear vision of and perform the requirements, since they consider the NTS guidebook to be complicated. Therefore, it is unclear where areas of NTS teachers effectively incorporate into the class teaching and where bottlenecks remain. This imbalance eventually destabilises the effectiveness of teacher preparation programs as it makes it more difficult to provide tutors with specialised support. Therefore, the purpose of the research was to analyse the level of application of the national standards of the tutors' practice by the CoEs.

The study was guided by the following hypotheses.

**$Ho_1$:** Professional practice will not significantly differ by gender and age categories among CoEs tutors in Ghana.

**$Ho_2$:** There will be no relationship between Professional Knowledge and Professional Values/Attitudes among CoEs tutors in Ghana.

**$Ho_3$:** There will be no relationship between Professional Knowledge and Professional Values/Attitudes among CoEs tutors in Ghana.

**$Ho_4$:** There will be no relationship between Professional Values/Attitudes and Professional Practice among the college of education tutors in Ghana.

**$Ho_5$:** There will be no relationship between Professional Knowledge and Professional Practice among CoEs tutors in Ghana.

Findings from the research would provide valuable insights towards understanding challenges faced by tutors and help inform ways of improving their professional practices. The research has the potential to influence policy and aid in focused interventions that will enhance the quality of teacher training in Ghana, allowing for future teachers to be appropriately equipped to meet the demands of modern classrooms and aid in national educational development.

In education, the coming together of professional practice, values, and knowledge is of utmost significance to the creation of effective pedagogies and productive learning experiences. Teachers must move beyond facile traditional ideas of teaching as rote memorisation, with an awareness of the need to create a more active, learner-centred practice.

As discovered in the study, continuous professional and personal growth is essential, as it develops values and emotional responses needed to participate effectively in rich educational environments (Bozalek *et al.*, 2013). This reflective practice allows teachers to mould their approaches in a way that seamlessly aligns knowledge, skills, and attitudes into a coherent teaching philosophy. Moreover, pedagogic effectiveness also requires sensitivity to the social nature of pedagogical practices, which relates to the importance of ethical principles in practice and the need for teachers to anticipate and respond to students' diverse needs (Silva *et al.*, 2012). In this integrated approach, the ultimate goal is to enrich the learning environment so that both teachers and learners can thrive.

## 2. Literature Review

### 2.1 Professional Practice

In addition to presenting content, teachers are required to reflect on ethics, encourage critical thinking, and adjust their practice to suit students' individual needs. Contemporary educational models emphasise the ideological and political dimensions of teaching and combine traditional subject matter with a greater socio-political perspective (Chang, 2024; Wan *et al.*, 2019). Innovative methods and assessments are used by teachers to build stimulating learning environments that promote learning and shape students' career ambitions and social conscience.

Successful teaching practices are fundamental to performance achievement and reflect the ultimate objectives of professional practice. For improved results, teachers ought to connect methods of teaching with the aims of the curriculum as well as learning requirements. Instructional quality research suggests reform of schools often fails when it ignores instruction (Wurtzel, 2006). Managed instruction models also aid standardisation of lessons and promotion of interest (Wurtzel, 2006). Professional development, mentorship, and lesson planning also contribute to building efficacy of teaching (NaCCA, 2019). Combined, each of the practices portrays the primary interrelation of professional educators' skills and students' performance.

### 2.2 Professional Knowledge

Professional knowledge has a fundamental function because it involves both theoretical knowledge and skills practice required for quality instruction. Professional knowledge involves more than curriculum knowledge; it also involves pedagogy, assessment techniques, and knowledge of students' socio-cultural context. Systematically developed professional growth assists teachers in tailoring their approach and accommodating students' needs and educational outcomes. Adoption of a similar conceptual framework ensures uniformity in the assessment of such initiatives (Desimone, 2009). Furthermore, the interplay of teachers, principals, and educators ensures continuous refining and adaptation of educational practices (Thornicroft, Deb, & Henderson, 2016).

In the present challenging learning environment, subject matter knowledge of high quality and professional learning are crucial. Teachers with deeper knowledge of subject matters yield deeper lessons and improved outcomes from students. Professional learning helps keep educators current with research and improved teaching methods, and facilitates the differentiation of classroom needs (Dimmock *et al.*, 2016). Tools like the STAR assessment contribute towards the measurement of professional standards and skills of teachers (Sharma *et al.*, 2024). Investment in knowledge and professional learning increases professional proficiency and benefits learning positively.

**2.3 Professional Values and Attitudes**

Teachers' attitudes and professional values are vital for their growth and their students' learning. Learning through activities like action research develops expertise as a teacher and facilitates a transition of their professional identity and emotional resilience (Witney *et al.*, 2021). With teachers facing modern issues like digital ethics, cultural and professional responsibilities are pertinent in sustaining a desirable and ethical teaching practice (Carpenter *et al.*, 2022). Effective teachers value enthusiasm, consideration, and empathy, and build classroom teamwork that develops active students' participation and critical thinking skills (Chung *et al.*, 2006). With teachers' values congruent with their attitudes toward teaching practice, they foster learning environments conducive to academic success and students' independence (Torruella *et al.*, 2020).

The interconnection of professional practice, knowledge, and values underlies good teaching. It enables teachers to perform their jobs efficiently and aid the growth of students in a complex educational environment. Professional knowledge entails knowledge teachers hold regarding their subject and how it ought to be taught, while practice involves applying such knowledge to assist varying types of students. Teachers' values determine how they are positioned regarding teaching, how students are involved, and their moral orientation. Increasingly, teacher training has to incorporate a wide range of international perspectives to cope with an education system that goes global. Both-pronged approach enables learning inclusively and enhances students' success and general learning experiences (Robinson *et al.*, 2020).

Ananga (2021) considered the use of Ghana National Teachers' Standards (NTS) during Initial Teacher Education. A mixed-methods research study involved data from 368 tutors and 3,600 students. Tutors were inconsistent in applying the NTS, and the student teachers demonstrated limited knowledge of them. Ananga recommended professional development beyond the current level. Kyriakides and Creemers (2011) also emphasised frequent use of feedback and effective classroom management through teaching standards. In their other research (2008, 2009), they too emphasised interactive teaching and learning with active student participation as core professional practice.

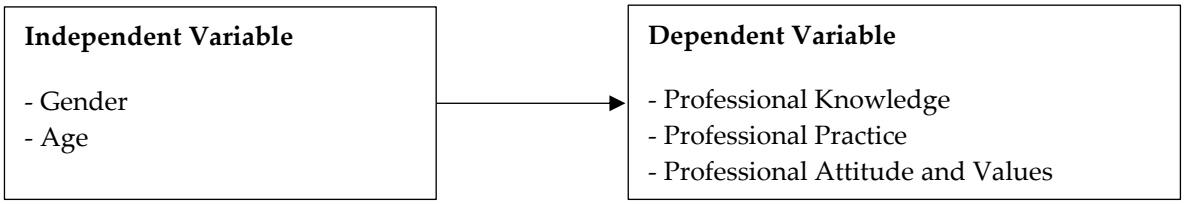
Mishiwo (2022) considered the attitudes of future teachers towards methods of teaching at Akatsi College of Education. Most teachers applied student-centred methods, yet a few applied teacher-centred methods. It recommended closer adherence to national

assessment policies by tutors through active learning. Dassah and Yelletuo (2022) examined with a mixed-method approach how NTS impacted the quality of learning in ten northern Ghanaian colleges. They concluded that the standards positively impacted effective teaching. Isaiah (2024) also applied mixed methods to determine how tutors' experience and training impacted their teaching of maths. Although more training improved teachers, there were still a few gaps.

## 3. Conceptual Framework

The conceptual framework outlines how tutor characteristics and experiences influence their knowledge, values/attitudes, and practices related to the Ghana National Teachers' Standards.

**Figure 1:** Conceptual Framework of How Tutor Characteristics and Experiences Influence Their Knowledge, Values/attitudes, and Practices




**Source:** Author's Construct, 2024

### 3.1 Demographic Information

These are the background characteristics of respondents. Gender was measured as Male or Female and used in this study as an independent variable. Age refers to the chronological age of the tutor.

### 3.2 Independent Variables

These are variables that are expected to influence the dependent variables. All independent variables are grouped into categories and not measured numerically. Gender was categorised as Male or Female by asking the question, "What is your sex?". Professional Development Seminar Attendance was categorised as Yes, I do, or No, I do not. Whether or not the tutor has attended a Ghana National Teachers' Standards (GNTS) related training. Academic Qualification was used to test its effect on knowledge, attitude, or practice. This variable helps to see if different groups of tutors perform differently on GNTS-related measures.

### 3.3 Dependent Variables

These are the main outcomes measured in the study. They are continuous variables measured on a 4-point Likert scale ranging from (Always, Usually, Sometimes or Never). Knowledge refers to the knowledge of the GNTS and explains how well the tutor

understands the GNTS. Practice refers to the extent to which the tutor applies or implements GNTS in their actual teaching. Professional Values/Attitude refers to the tutor's beliefs, values, or disposition toward GNTS. For instance, whether tutors think the standards are relevant or not.

## 4. Material and Methods

### 4.1 Research Design

We employed the cross-sectional survey design to collect data on the practices of CoE tutors regarding their level of utilisation of the National Teachers' Standards (NTS). A cross-sectional design provides a snapshot of a population at a specific point in time, allowing researchers to assess variables such as behaviours, attitudes, or conditions as they exist in the present moment (Creswell, 2014). Concerning this study, the design enabled the examination of how teachers incorporate the NTS into their work and teaching methods.

### 4.2 Population

The population comprised 15 public CoEs in Ghana affiliated with the University of Education, Winneba, representing 604 tutors. These CoEs tutors teach and train pre-service teachers professionally, following the NTS. This population is very relevant to the study as these tutors, for whom training is very important, determine how well the NTS is carried out, which is a crucial factor of concern for the quality of teacher preparation programs.

### 4.3 Sample and Sampling Technique

One hundred and twelve (112) tutors from CoEs were selected using a multistage sampling approach. First, 15 public CoEs affiliated with the University of Education, Winneba, were drawn using cluster sampling at the first stage, where the colleges were grouped into three geographical zones—Northern, Middle, and Southern Ghana, based on regional location (Volta, Central, Ashanti, Bono, Ahafo, Northern, and Upper East). Four (4) colleges were then randomly selected from each zone using simple random sampling. Thereafter, simple random sampling using a table of random numbers was used to select individual tutors from the 15 sampled colleges. This approach reflects multistage sampling, in which cluster sampling is used initially to select clusters (colleges), followed by simple random sampling to select individuals within those clusters (Barbie, 2012).

The sample size for the study was calculated apriori using G Power analysis software (version 3.1.9.7) using parameters- alpha, power, and effect size (Mertler & Reinhart, 2017), and to ensure that the sample is representative and the findings have statistical validity (Faul *et al.*, 2009). Based on the parameters, one would see that the data implied a small to medium effect size, evidenced by Cohen's d = 0.30, with 80% statistical

power expressed as 1-β = 0.80, a 5% level of significance expressed as $\alpha = 0.05$, maximum variability expressed as p=0.5, and a 5% margin of error.

According to Cohen (1988), an effect size of 0.2 is considered small, 0.5 is considered medium, and 0.8 is considered large. The sample choices were made by conventions in the field of education research for the reliable detection of effects. A minimum sample size was calculated to be 88 tutors. Furthermore, to account for possible non-respondents or incomplete questionnaires, the sample size was increased by 27%. Hence, the actual sample size has been set to include 112 respondents.

**4.4 Instrument**

Primary quantitative data were collected through a survey questionnaire that was developed specifically to evaluate the tutor's performance based on specific NTS domains (Professional Knowledge, Professional Practice, and Professional Values and Attitudes) and an observational guide. Demographic variables were addressed in Section A. An example is Gender, which was labelled as 1 = Male, 2 = Female. Age, in years of life, was assessed with one item, "Age range," labelled as 1 = 30- 40 years, 2 = 41-50 years, and 3 = 51-60 years. Section B contained items measured on a 4-point Likert scale: 4 = Always, 3 = Usually, 2 = Sometimes, and 1 = Never. A 4-point scale eliminates the neutral or middle option, forcing respondents to take a stand, either positively or negatively, which provides clearer insights into their attitudes or opinions (Allen *et al.*, 2007).

To supplement the self-reported data and enhance the credibility of findings, an observational guide was also employed. This instrument was used by trained observers to systematically evaluate tutors' classroom behaviours and practices against selected NTS indicators. Observations focused on practical aspects of professional practice and classroom interaction, such as instructional strategies, student engagement, ethical conduct, and inclusivity. The guide featured a checklist format with rating scales aligned to the same three domains (Professional Knowledge, Practice, and Values/Attitudes) and was administered during scheduled lesson observations.

Experts in curriculum studies, measurement and evaluation and pedagogy reviewed the questionnaire to validate its content. The questionnaire was also tested with a pilot sample of 20 tutors from CoEs that were excluded from the final sample to determine its reliability. Cronbach's alpha was found to be r=0.83 for the questionnaire and r=0.82 for the observational guide, thus showing that the internal consistency was acceptable (Tavakol & Dennick, 2011) as presented in Table 1.

**Table 1:** Internal Consistency Results

| **Variables** | **Cronbach's Alpha** |
|---|---|
| Professional Knowledge | 0.89 |
| Professional Practice | 0.84 |
| Professional Attitude and Values | 0.83 |

**Source:** Field Survey, 2024

### 4.5 Data Collection Procedure

The approval and consent of the relevant institutional bodies were obtained to enable the study. With the support of a research assistant, questionnaires were distributed in both hardcopy and online formats, depending on the respondents' preference and availability. Further, reminders were sent out to achieve a better response rate. This ensured that ethical measures such as consent, anonymity, and confidentiality were adhered to, which is very necessary when carrying out educational research (Cohen *et al.*, 2018).

### 4.6 Data Analysis Procedure

All statistical analyses were conducted using the IBM Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA), version 26.0. The unit of analysis was the tutor. Demographic data were analysed using descriptive statistics such as frequency and percentages. The data distribution was assessed using the Kolmogorov–Smirnov test, and the results in Table 2 showed that there were no significant deviations of data from normality.

**Table 2:** Test of Normality for Professional Knowledge, Practice, and Attitudes

| Variables | Kolmogorov-Smirnov[a] | | |
|---|---|---|---|
| | Statistic | df | Sig. |
| Professional Knowledge | 0.118 | 20 | 0.200 |
| Professional Practice | 0.119 | 20 | 0.200 |
| Professional Attitude and Values | 0.137 | 20 | 0.200 |

**Source:** Field Survey, 2024.

Descriptive analysis, such as frequencies and percentages, was performed on demographic characteristics, specifically Gender, Age, Academic Qualification, Department, and Years of Teaching. The use of descriptive statistics was appropriate because the data on these variables were collected using the nominal scale, where categorical data were collected. To test the relationships among Professional Knowledge, Professional Values/Attitude and Professional Practice, we used Pearson correlation analysis. To examine the effect of Gender, Age, and their interaction (Gender * Age) on Professional Practice among tutors, we used a two-way between-groups analysis of variance (ANOVA). The threshold for statistical significance was set at $p < 0.05$.

### 4.7 Data Preparation

Before conducting the data analysis, the data underwent rigorous preparation to ensure accuracy, consistency, robustness and completeness (Mertler & Reinhart, 2017). Data were thoroughly examined to identify and address any missing values, outliers, and inconsistencies that may have resulted from non-response by respondents, data entry errors, or refusal to answer sensitive questions (Tabachnick & Fidell, 2019; Chesney *et al.*, 2018).

Missing data were handled using mean substitution, depending on the extent and nature of the missing values. When no other information is available to the researcher,

the mean is the best estimate for the value of a given variable (Tabachnick & Fidell, 2019). This led to the replacement of 26 missing cases across data sets.

Next, multivariate outliers were identified using the Mahalanobis distance test (Lund *et al.*, 2012) since outliers can distort the results of a statistical test (Stevens, 2001). This is due largely to the fact that many statistical procedures rely on squared deviations from the mean (Aron *et al.*, 2006). In all, 15 outliers were identified and transformed using square root transformations, as the distribution differed moderately, thereby reducing the impact of extreme values and ensuring credibility in the analysis.

In testing for normality, the Kolmogorov-Smirnov test, with Lilliefors significance level, was employed to assess univariate normality. The results of the sample groups were found to be evenly distributed.

### 4.8 Ethical Considerations

Anonymity issues, data storage, confidentiality, informed consent, voluntary data collection, and right of access to relevant data/results were addressed, and reliability concerns were met (Merriam, 2009).

## 5. Results and Discussion

**$Ho_1$:** Professional practice will not significantly differ by gender and age categories among CoEs tutors in Ghana.

A Two-Way between-groups analysis of variance (ANOVA) was used to ascertain whether gender, age and their interaction affected tutors' professional practice concerning the Ghana National Teachers' Standards. The ANOVA results, presented in Table 2, revealed that the overall model was statistically not significant [F (5, 106) = 2.065, p = 0.076, partial eta $^2$ = .089]. The interaction between factors was not significant [F (5, 423) = 2.065, p = .106, partial eta $^2$= .008], indicating that the combined influence of gender and age and their interaction does not significantly predict professional practice among tutors. However, the calculated effect size for each factor indicates that a small proportion of professional practice variance is accounted for by each factor.

**Table 3:** Tests of Between-Subjects Effects

| **Dependent Variable: Professional Practice** | | | | | | |
|---|---|---|---|---|---|---|
| **Source** | **Type III Sum of Squares** | **Df** | **Mean Square** | **F** | **Sig.** | **Partial Eta Squared** |
| Corrected Model | 1.009[a] | 5 | .202 | 2.065 | .076 | .089 |
| Intercept | 110.640 | 1 | 110.640 | 1132.438 | .000 | .914 |
| Gender | .230 | 1 | .230 | 2.359 | .128 | .022 |
| Age | .448 | 2 | .224 | 2.292 | .106 | .041 |
| Gender * Age | .083 | 2 | .041 | .423 | .656 | .008 |
| Error | 10.356 | 106 | .098 | | | |
| Total | 284.490 | 112 | | | | |
| Corrected Total | 11.365 | 111 | | | | |

a. R Squared = .089 (Adjusted R Squared = .046)

**Source:** Field Survey, 2024

At the conventional alpha level of 0.05, this means that the independent variables (gender and age) added to the model were not sufficient to explain observed variance in professional practice. Regarding individual factors, gender was not a significant factor in determining professional practice scores (p = 0.128). This indicates no statistically meaningful difference in practice based on gender alone. Similarly, age was also not statistically significant (p = 0.106), though it approached the threshold, suggesting a potential but inconclusive relationship. The interaction between gender and age was not significant (p = 0.656), indicating that the effect of age on professional practice does not vary by gender.

The model's coefficient of determination ($R^2$) was 0.089, meaning that the model explained 8.9% of the variance in professional practice scores. After adjusting for the number of predictors, the adjusted $R^2$ dropped to 0.046, further confirming the low explanatory power of the model. The Scheffé Multiple Comparisons test was not conducted since insignificant p-values were obtained for each factor. Estimates of effect size revealed low strength in associations. These findings suggest that gender, age, and their interaction are not strong predictors of tutors' professional practice. Pedagogical knowledge and belief systems, such as knowledge of the GNTS and professional values or attitudes, may offer more meaningful explanations. Therefore, the null hypothesis, which stated that "Professional practice will not significantly differ by gender and age categories among CoEs tutors in Ghana", was accepted.

**Table 4:** Correlation Matrix: Professional Knowledge, Professional Values/Attitude and Professional Practice

| | | Professional Values and Attitude | Professional Knowledge | Professional Practice |
|---|---|---|---|---|
| **Professional Values and Attitude** | Pearson's r | — | | |
| | df | — | | |
| | p-value | — | | |
| **Professional Knowledge** | Pearson's r | 0.600*** | — | |
| | df | 109 | — | |
| | p-value | <.001 | — | |
| **Professional Practice** | Pearson's r | 0.596*** | 0.743*** | — |
| | df | 109 | 110 | — |
| | p-value | <.001 | <.001 | — |
| Note. $H_a$ is a positive correlation. | | | | |
| Note. * p < .05, ** p < .01, *** p < .001, one-tailed | | | | |

**$Ho_1$:** There will be no relationship between Professional Knowledge and Professional Values/Attitudes among CoEs tutors in Ghana.

A Pearson correlation test was conducted to examine whether there was a linear relationship between Professional Knowledge and Values/Attitudes. Results showed that

there was a strong, positive, and statistically significant correlation between tutors' knowledge of the Ghana Teachers' Standards and their professional values/attitudes ($r= 0.60$, $df=1$, $p<0.05$). Tutors who are more knowledgeable about the standards are more likely to hold positive values and attitudes toward them. Therefore, the null hypothesis which stated that "There will be no relationship between Professional Knowledge and Professional Values/Attitudes among CoEs tutors in Ghana", was rejected.

**$Ho_2$:** There will be no relationship between Professional Values/Attitudes and Professional Practice among CoEs tutors in Ghana

There was a moderately strong, positive, and significant correlation between tutors' attitudes/values and their actual teaching practices ($r= 0.596$, $df=1$, $p<0.05$), implying that tutors who value the Ghana Teachers' Standards tend to apply them more in practice. Therefore, the null hypothesis, which stated that "There will be no relationship between Professional Values/Attitudes and Professional Practice among CoEs tutors in Ghana" was rejected.

**$Ho_3$:** There will be no relationship between Professional Practice and Professional Knowledge among CoEs tutors in Ghana

A Pearson correlation test was conducted to examine whether there was a linear relationship between Professional Knowledge and Professional Practice. Results showed that there was the strongest correlation in the matrix, indicating a very strong and significant relationship between what tutors know and what they do ($r= 0.743$, $df=1$, $p<0.05$). Put another way, "The more they know, the more they practice." Therefore, the null hypothesis, which stated that "There will be no relationship between Professional Practice and Professional Knowledge among CoEs tutors in Ghana", was rejected.

## 6. Summary of Key Findings

### 6.1 No Significant Difference in Professional Practice by Gender or Age

A Two-Way ANOVA revealed that gender, age, and their interaction did not significantly affect tutors' professional practice related to the GNTS. [$F(5, 106) = 2.065$, $p = .076$]. Gender ($p = .128$), age ($p = .106$), and gender × age interaction ($p = .656$) were all statistically non-significant. The model explained only 8.9% of the variance in professional practice scores (Adjusted $R^2 = 4.6\%$), indicating low predictive power. The null hypothesis ($Ho_1$) stating no significant difference in professional practice by gender or age was accepted.

### 6.2 Positive Relationship between Professional Knowledge and Values/attitudes

A strong, positive and significant correlation was found between professional knowledge and professional values/attitudes ($r = 0.600$, $p < .001$). Tutors with higher knowledge of GNTS also held stronger professional values and attitudes. The null hypothesis ($Ho_2$) was rejected.

### 6.3 Positive Relationship between Professional Values/attitudes and Practice

There was a moderately strong and significant correlation between tutors' professional values/attitudes and their actual teaching practices ($r = 0.596$, $p < .001$). Tutors who valued the GNTS were more likely to apply them in practice. The null hypothesis ($Ho_3$) was rejected.

### 6.4 Strongest Relationship between Professional Knowledge and Practice

The strongest correlation observed was between professional knowledge and professional practice ($r = 0.743$, $p < .001$). This finding underscores the critical role of content knowledge in informing actual teaching practices. The null hypothesis ($Ho_4$) was rejected.

The results of the study offer key insights into how demographic variables, such as gender, age, and teaching experience, influence teaching effectiveness and professional practice among secondary school teachers. The discussion of these results will integrate current empirical literature to offer a deeper understanding of the findings.

### 6.5 Gender and Teaching Effectiveness

The study revealed a significant gender imbalance, with 87.5% of respondents identifying as male. However, the results of the two-way between-groups analysis of variance (ANOVA) showed no statistically significant difference in teaching effectiveness based on gender ($p = 0.128$). This finding aligns with some studies suggesting that gender alone does not play a substantial role in influencing teachers' professional effectiveness. For instance, in the study by Mahapatra and Shah (2019), gender was not a significant determinant of teaching effectiveness among school teachers in India. They argue that other factors, such as teaching experience, training, and subject specialization might be more influential. Similarly, in a study by Amadi and Allagoa (2019) in Nigeria, gender did not significantly impact the effectiveness of secondary school teachers, suggesting that teaching competency is more dependent on professional qualifications and teaching methods rather than gender.

### 6.6 Age and Professional Practice

The results also indicated that age did not significantly influence professional practice ($p = 0.106$), though it approached the threshold of significance. This finding is consistent with studies such as those by Aslan and Çelik (2020), who found that while age may have an indirect impact on teaching practices, factors like pedagogical knowledge and professional training were more predictive of teaching effectiveness. The majority of respondents in the study were in the 41-50 years age group, reflecting a more experienced group of teachers. While there is evidence that more experienced teachers tend to use a broader range of teaching strategies (Koehler & Mishra, 2009), this study suggests that, at least in the Ghanaian context, age alone may not be the primary factor in shaping teaching outcomes.

### 6.7 Professional Knowledge, Professional Values/attitudes, and Professional Practice

The Pearson correlation analysis indicated strong positive correlations between professional knowledge, professional values/attitudes, and professional practice. They reinforce the idea that enhancing tutors' knowledge and values could translate into better implementation of professional teaching practices. This finding is consistent with the study by Akyeampong *et al.* (2021), which found that teachers' professional knowledge and their alignment with educational standards significantly impacted their teaching practices. Teachers who are more knowledgeable about teaching standards and value them are more likely to integrate them into their professional activities. This supports the idea that professional development and training programs that focus on enhancing both knowledge and attitudes toward teaching standards can positively affect teaching practices.

In addition, the study by Amalu (2019) highlighted that teachers' professional attitudes and values are often shaped by their professional knowledge, leading to better classroom management and teaching outcomes. This suggests that fostering a deeper understanding of professional standards and ethics in teacher training programs could have a significant impact on teachers' effectiveness in the classroom.

While the study provides valuable insights, it has several limitations. The sample of 112 tutors represents a small portion of the COEs tutors nationwide, and only 15 of the 48 public CoEs were included, potentially omitting diverse perspectives. Self-administered questionnaires may have introduced social desirability bias, leading respondents to give favourable rather than truthful answers. The cross-sectional design captures only a single point in time, which limits causal interpretations. Lastly, the lack of qualitative data restricts a deeper understanding of factors influencing tutors' adherence to the NTS.

## 7. Recommendations

The findings of this study present several recommendations for education policy in Ghana:

1) The significant relationships observed between professional knowledge, values/attitudes, and practice suggest the need for structured and regular professional development sessions focused on the Ghana National Teachers' Standards.
2) CoEs should be supported to align their pedagogical training programs more explicitly with the NTS, ensuring consistency in tutor modeling and student-teacher expectations.
3) A more robust monitoring framework should be established to track tutor engagement with the NTS. This could involve peer evaluations, self-assessments, and performance reviews.

4) While gender did not significantly affect professional practice, the observed imbalance in gender representation calls for deliberate efforts to encourage more female participation in the teaching profession at the tertiary level.
5) Future research should adopt longitudinal designs to assess how adherence to the NTS evolves over time and in response to specific interventions or policy changes.

## 8. Conclusion

This study contributes to the growing body of knowledge on teacher quality and professional standards in Ghana. The study concludes that professional knowledge and values, not demographic factors, are the most critical determinants of effective teaching practice. For Ghana's teacher education system to meet the demands of the GNTS, stakeholders must prioritize continuous professional development that targets conceptual understanding and fosters values-aligned teaching. Such an approach promises to strengthen the professional identity of tutors and ensure a more consistent and effective application of national teaching standards across institutions.

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**Study Limitations**
Even though the study findings were promising, it involved 112 tutors from the 15 public Colleges of Education, all affiliated with the University of Education, Winneba. Given that Ghana has 48 public CoEs, the findings may not fully represent tutors' practices nationwide, especially those in colleges affiliated with other government universities. Future studies should include teachers from all CoEs.

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**Conflicts of Interest Statement**

We declare that we have no competing interests in the publication of this paper.

**About the Author(s)**

**Courage Kobla Adenyoh** is a Lecturer in Physical Education at the University of Education, Winneba's Department of Basic Education. He serves as Programmes Coordinator for Basic Education at the College of Distance Education and e-Learning (CODeL). Courage's research focuses on Physical Education, Physical Activity, and Technology, investigating topics like non-communicable diseases, tech in youth football, and physical activity levels among students. He teaches courses including Physical Activity for Healthy Living, Measuring Physical Activity, and Assessment of Learning, Inquiry into Action Research, Practice and Coaching of Limited Contact Sports, Practice and Coaching of Non-Contact and Full Contact Sports, and Supported Teaching in Schools (STS). Courage conceptualised and designed the study, supervised data analysis, and drafted the initial manuscript.
ORCID: https://orcid.org/0000-0002-5933-5257

**Dr. Shine Lillian Gifty Agbevivi** is a Senior Lecturer in English Language in the Department of Basic Education, University of Education, Winneba. She holds a PhD in English language from the University of Venda. Dr. Agbevivi served as the Coordinator of the HIV AIDS Unit and currently, the Director of Basic Schools. Her researches advance English language education, teacher development, and literacy studies within basic and tertiary contexts with focus on inclusion and diversity, early literacy development, language proficiency and pedagogy, academic literacies, multimodality, and AI in academic writing. Dr. Agbevivi has presented research papers in local and international conferences and contributes actively to capacity-building initiatives within education. Beyond academia, she supports community-based programmes aimed at supporting educational access and vulnerable groups. Dr. Agbevivi supervised the overall project and critically reviewed the final manuscript for important intellectual content.
ORCID: https://orcid.org/0009-0003-0102-0978

**Dr. Nixon Sabah Adzifome** is a Senior Lecturer in the Department of Basic Education, University of Education, Winneba. He was the past Head of Department for the Department of Basic Education. His research advances mathematics education, teacher development, curriculum and pedagogy. He teaches Research Methods and Mathematics. He participated in data collection and validation and contributed to refining the methodology.
ORCID: https://orcid.org/0000-0002-4428-8793

**Prof. Charlse Nyarko Annobil** is an Associate Professor with specialisation in Religious and Moral Education curriculum and pedagogy in the Basic Education Department,

University of Education, Winneba. Professor Annobil is the Vice-Dean of the School of Education and Life-Long Learning (SELLL). He contributed to the writing of the literature review and assisted in revising the manuscript.

**Prof. Munkaila Seibu** is an Associate Professor in Physical Education in the Department of Health, Physical Education, Recreation and Sports (HPERS), University of Education, Winneba. He holds a PhD in Physical Education with a major in Curriculum and Pedagogy from the University of Cape Coast, Ghana. He currently serves as Deputy Director at UEW's Institute for Teacher Education and Continuing Professional Development (ITECPD), contributing to strategic planning, policy implementation, quality assurance, staff development, and coordination of professional programmes for UEW and affiliated Colleges of Education nationwide. He also served as Acting Director (ITECPD), Acting Dean of the faculty of Health, Allied Sciences and Home Economics Education (FASHEE), Head of Department of HPERS, and Graduate Coordinator of HPERS. Prof. Seibu has contributed significantly to national teacher education reforms and curriculum development, collaborating with NaCCA, GES, MoE, UNICEF, and T-TEL in designing Physical Education curricula and teacher/learner resource materials for schools nationwide. His research interests include Physical Education Teacher Education (PETE), Physical Activity, Sports and Health, curriculum, pedagogy and assessment, and mentoring and career development. Prof. Seibu's research output includes peer-reviewed articles, curriculum documents, and books, reflecting his commitment to scholarship, research-informed practice, and academic excellence. He assisted with the editing of the methodology and supervised the literature review.

ORCID: https://orcid.org/0000-0002-5131-7230

**Dr. Nelson Amponsah** is a Lecturer in the Department of Educational Administration and Management, School of Education and Life-Long Learning in the University of Education, Winneba (UEW), Ghana. He holds a Doctor of Philosophy in Educational Leadership, a Master of Philosophy in Educational Administration and Management, as well as a Bachelor of Education in Basic Education. Prior to his appointment as a Lecturer at UEW, Dr. Amponsah had acquired a wealth of experience in Pre-tertiary Education sector in Ghana, having served in various capacities for more than two decades. Currently, he teaches courses at both undergraduate and graduate levels at UEW, including Advanced Quantitative Research Methods, Advanced Mixed Methods Research, Statistics and Measurement in Educational Research, Organizational Development of Higher Education, Educational Leadership, and Trends in Education and School Management in Ghana. Dr. Amponsah is proficient in applying research analytical software such as SPSS, AMOS and NVivo to analyse quantitative and qualitative data. His research interests include instructional leadership and supervision in schools, continuous professional development of teachers, teacher commitment to school, and students' learning outcomes. He is also interested in how schools are led and managed in Ghana. He served as the Internship Coordinator in the Department. Currently, he is the Coordinator of the Professional Education Leadership Programme

(PELP) of the Department. He assisted with data analyses and contributed to the review and refinement of the manuscript.
ORCID: https://orcid.org/0009-0007-6978-3401

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