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Music Integration in Teacher Education: A Quantitative Descriptive Study of Trainer Music Skill in Abetifi Presbyterian College of Education, Ghana

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Abstract
This study examined basic education teacher trainers' exposure to music-related training and their competency in integrating traditional Ghanaian music (such as *Kpanlogo, Adowa*, and *Agbadza*) into basic school teaching. Using a quantitative descriptive design, a 28-item questionnaire (α = .85) was administered to 30 teacher trainers at Abetifi Presbyterian College of Education. Descriptive statistics summarized exposure and competency, while chi-square tests explored demographic differences. The findings revealed limited exposure to music-related training, with trainers averaging 3.47 hours of music instruction per semester and minimal engagement with traditional Ghanaian music. Competency was moderate, with lower confidence in teaching traditional forms. No significant demographic differences were found, though the small sample size limited statistical power. The single-site focus restricts generalization, and self-reported competency may reflect social desirability bias. These findings underscore the need for structured training in traditional music to support national curriculum expectations. Teacher education programs may benefit from increasing music training hours, providing traditional music workshops, and supplying resources to strengthen culturally relevant teaching. Addressing these gaps is vital for fostering a pedagogical civilizational cycle that preserves and promotes Ghanaian musical heritage.

Introduction
Music plays a central role in Ghanaian cultural and educational life. Indigenous musical traditions such as Adowa, Kpanlogo, Agbadza, and Bamaya carry social, historical, and moral knowledge that support identity formation, communal learning, and aesthetic development (Nketia, 2005; Agawu, 2016). Within basic education, these traditions help children develop rhythm, coordination, language skills, creativity and social interaction. International evidence also shows that musical participation enhances literacy, emotional expression and cognitive growth (Hallam, 2015; Williams et al., 2019). Because of these benefits, the National Teachers' Standards and the National Teachers' Education Curriculum Framework require trainee teachers to demonstrate competence in both general music skills and indigenous Ghanaian musical traditions (Ministry of Education, 2017).

Western Music Dominance in Teacher Education

Music education in Ghanaian Colleges of Education, it seems, has long leaned toward Western hymnody and choral traditions, with staff notation treated almost as a sacred code. Tutors teach what they themselves were taught, and trainee teachers repeat the same, so the cycle continues. This heavy tilt makes indigenous Ghanaian genres sound like a side dish, something optional, not the main meal (Adu & Okeke, 2019; Agbenyo et al., 2021). It's not that Western music is bad, but it overshadows the rest, and the result is a quiet fading of local performance practices that once held deep communal meaning.

Colonial Mindset and Postcolonial Response

Missionary schooling and colonial systems once declared Western music as the "educated" form, pushing indigenous soundscapes to the background (Santos, 2018; Omolo, 202). These habits persist within curricula and assessment rubrics, quietly shaping what counts as knowledge. Postcolonial thinkers keep saying—almost pleading—that indigenous music must return to classrooms to restore cultural rhythm and justice (Kanu, 2020; Turino, 2018). But the response is uneven, sometimes confused, because the system still listens with colonial ears, if that makes sense.

Nature of Teacher Training in Colleges of Education

Teacher trainers decide how future teachers will use music in classrooms, and that's a big responsibility. When training encompasses rhythm, movement, composition, and cultural grounding, integration across subjects becomes more robust (Biasutti, 2017; Conway & Hodgman, 2018). Yet many Ghanaian trainers come from general education, not Creative Arts, and they admit they're not well prepared in indigenous forms (Adu & Okeke, 2019; Agbenyo et al., 2021). This weakens confidence and narrows the musical imagination of trainee teachers, who, in turn, perpetuate the same imbalance.

Teacher Attitudes and Transfer of Preferences

Confidence shapes choices. Trainers who feel safer with Western notation naturally teach more of it, and trainee teachers copy that same comfort zone. Soon, "proper" school music becomes Western by default, and pupils lose touch with their own sonic roots (Adu & Okeke, 2019; Kanu, 2020). It's like teaching someone to dance but never letting them hear their own drum.

Inadequate Facilities and Resources

Many colleges lack drums, bells, xylophones, recordings, and even space to move (Herbst et al., 2018; Ndaliko, 2020). So, trainers teach theory rather than practice, which is unusual because indigenous music lives through participation, bodily movement, and call-and-response, not paper notes. Without the instruments, the music becomes an idea rather than an experience.

Research Gap and Study Purpose

Although Ghanaian music education research is growing, quantitative data on trainers' preparation and confidence remain scarce (Owusu-Poku, 2023). Most studies tell stories but don't measure patterns. This study aims to fill that space by examining trainers' exposure to music training and their skill in integrating indigenous Ghanaian music at Abetifi Presbyterian College of Education. The goal is to provide evidence that can guide curriculum reform and professional development, though maybe, more deeply, it's about giving the drum its rightful place again.

Literature Review

Music education research consistently shows that musical engagement supports cognitive, emotional and social development. Studies from Europe and North America report that rhythm, singing and instrumental play improve memory, attention and early literacy (Hallam, 2015; Tierney & Kraus, 2014), while also promoting expressive skills and peer interaction (Williams et al., 2019). These

findings underline the importance of teacher competence in using music as a pedagogical tool. Yet many of these studies focus on resource-rich settings, limiting their direct applicability to African teacher preparation systems where cultural expectations and infrastructural realities differ significantly.

African scholarship emphasises that music functions not only as an artistic subject but as a cultural and educational resource. Scholars such as Kidula (2017) and Akuno (2019) show that indigenous music supports identity formation and transmits communal knowledge. In Ghana, musical genres vary by ethnic group; for example, *Adowa* (Akan), *Kpanlogo* (Ga) and *Agbadza* (Ewe) embody distinct rhythms, performance practices and social meanings. These differ from "traditional music" more broadly defined in curriculum documents, which often conflate diverse indigenous practices under a single label. Research argues that teacher education must prepare trainers to distinguish and teach these culturally specific genres if music is to remain relevant and authentic in the classroom (Agawu, 2016; Anku, 2021).

Historical forces continue to influence this landscape. Missionary schooling elevated Western hymns and staff notation while marginalising indigenous forms (Santos, 2018; Omolo, 2020). Curriculum structures in many colleges of education still reflect this hierarchy. This has produced a teaching workforce more comfortable teaching Western songs than indigenous genres. Adu and Okeke (2019) note that over 60 per cent of the early childhood teachers they surveyed reported *minimal* exposure to indigenous music during training. Agbenyo et al. (2021) similarly found that limited trainer competence in indigenous genres restricts trainees' ability to teach them. These studies point to structural and historical biases rather than individual teacher preferences.

Teacher competence and self-efficacy remain central factors. Studies show that teachers with structured musical preparation integrate music more frequently and confidently (Biasutti, 2017; Conway & Hodgman, 2018). However, Kennedy (2020) reports that insufficient preparation leads to anxiety, avoidance and superficial integration. In Ghana, limited contact hours for music, inconsistent resources and scarce professional development undermine the confidence of trainers and trainee teachers (Owusu-Poku, 2023; Anku, 2021). These structural gaps contribute to a cyclical problem where underprepared trainers graduate underprepared teachers.

Resource limitations remain a persistent barrier across African contexts. Research from South Africa, Kenya and Ghana highlights the lack of drums, bells, audio recordings and indigenous music reference materials (Herbst et al., 2018; Ndaliko, 2020). Because indigenous music is embodied and participatory, theoretical teaching alone is insufficient. The absence of practical resources, therefore, directly weakens competence in teaching culturally rooted genres.

A key gap in the literature is the lack of quantitative evidence on the preparation of teacher trainers. Most studies rely on qualitative designs (interviews, case studies or ethnographies). While rich, such studies do not provide measurable indicators needed for national planning. Owusu-Poku (2023) argues that quantitative data are required to map variation in exposure and competence across institutions. There is also limited work examining the role of digital notation tools in supporting composition teaching or indigenous music learning in colleges of education. Existing research focuses more on classroom music integration than on technology adoption among teacher trainers.

Theoretical Framework

This study is anchored in the Technology Acceptance Model (TAM) and the Technological Pedagogical and Content Knowledge (TPACK) framework to explain factors influencing the adoption of digital notation tools in music education. TAM explains technology adoption through two core

perceptions: perceived usefulness, the extent to which users believe a tool enhances teaching effectiveness, and perceived ease of use, the degree to which the tool is considered simple to learn and operate. In the context of digital notation tools such as MuseScore and Noteflight, low adoption may result when teacher trainers perceive these tools as technically demanding, time-consuming, or poorly aligned with indigenous Ghanaian musical forms. Ghanaian music education research has rarely examined these psychological determinants, leaving critical explanatory gaps.

TPACK complements TAM by emphasising the integration of content, pedagogy, and technology. Effective adoption of digital notation tools requires not only technological skills but also strong content knowledge of indigenous and traditional Ghanaian music, as well as pedagogical strategies suited to its teaching. This integration is particularly critical in Ghana, where indigenous music involves complex rhythmic, tonal, and performance practices that are not always easily represented in Western-designed notation software. Limited attention has been paid to how these representational challenges shape teachers' technological decisions.

When TAM and TPACK are combined, this study will provide a structured explanation for the limited adoption of digital notation tools in Ghanaian Colleges of Education. It addresses three key gaps in the literature: the lack of quantitative evidence on teacher trainers' exposure and competence, the scarcity of research on the adoption of digital notation in Ghanaian teacher education, and the absence of firm theoretical grounding in studies of music technology use. Together, these frameworks link cultural, pedagogical, and technological factors, offering a more comprehensive understanding of adoption challenges within contextually grounded music education.

Method

This study employed a survey design to assess teacher trainers' exposure to music-related training and their capacity to incorporate traditional Ghanaian music into basic education. The research was conducted at Abetifi Presbyterian College of Education in Ghana. The population included all 37 full-time teacher trainers, with 30 selected through purposive sampling based on their involvement in areas where music integration is likely, such as Creative Arts, Early Childhood Education, and Primary Education (Etikan, 2016). Data collection involved a structured 28-item questionnaire covering demographics, exposure to music training, and perceived competence in both general and traditional music genres, measured on a five-point Likert scale grounded in self-efficacy theory (Bandura, 1977, 1997). Content validity was established through expert review and pilot testing, and internal consistency was assessed using Cronbach's alpha, which was 0.85 (Field, 2018). Data analysis was performed in SPSS using frequencies, percentages, means, and chi-square tests to examine demographic differences. Ethical approval was obtained, participation was voluntary, and confidentiality was maintained.

Table 1: Operationalisation of Key Variables

Variable	Operational definition	Measurement indicators	Scale / coding
Exposure to music-related training	The amount and type of formal or informal training in music pedagogy and practice received by teacher trainers.	Contact hours per semester. Number of workshops attended. Availability of relevant instructional resources.	Hours, count data, and yes/no items for resource access.
Competency in general music integration	Self-reported confidence in teaching and integrating general music skills in basic education.	Teaching rhythm, melody, singing, notation, and performance activities.	5-point Likert scale: 1 = Not competent to 5 = Highly competent.
Competency in traditional Ghanaian music integration	Self-reported confidence in teaching culturally specific Ghanaian genres that require genre knowledge and performance practice.	Ability to teach indigenous genres with culturally grounded rhythm, call-and-response, movement, and ensemble coordination.	5-point Likert scale: 1 = Not competent to 5 = Highly competent.

Author-developed measures based on the study questionnaire, informed by the study's conceptual framing and prior literature on indigenous music pedagogy and teacher self-efficacy (Bandura, 1977, 1997; Agawu, 2016; Nketia, 2005).

Results

Quantitative Findings

Analysis of questionnaire responses from 30 teacher trainers showed limited preparation for music integration. Most trainers specialised in General or Early Childhood Education (n = 22, 73.3%), while fewer specialised in Music or Creative Arts (n = 8, 26.7%). Most had more than five years of teaching experience (n = 25, 83.3%), yet this did not translate into higher levels of music-related training.

Findings revealed low exposure to structured music-related training across the sample. Respondents reported an average of 3.47 hours of music instruction per semester. Nearly half of the trainers reported 0–2 hours of exposure, and one-fifth reported no exposure. This suggests that formal opportunities for music skills development were limited across the sample. The lack of training time made it difficult for trainers to build confidence in teaching music properly.

Engagement with traditional genres such as *Kpanlogo, Adowa* and *Agbadza* was also limited in classroom settings. The average frequency score for the use of traditional music in teaching was 2.47 on a five-point scale, showing infrequent integration. Only a small number of trainers reported regularly using indigenous music practices in classroom activities; consequently, the cultural connection remained weak.

Access to teaching resources varied markedly between different trainers. Respondents reported inconsistent availability of drums, bells, xylophones, audio recordings, and printed materials, which made planning lessons challenging. Some trainers had access to basic resources, whereas others reported no access at all to any materials. Trainers without resources also recorded lower levels of traditional music integration and struggled to demonstrate rhythms effectively.

The most frequently reported constraint was limited curriculum time, which many trainers prioritised for examinable subjects instead of music. A second key barrier was inadequate training in traditional Ghanaian music, which contributed to low confidence in teaching indigenous genres and made them

hesitant to attempt lessons. Only a few respondents attributed their challenges to a lack of personal interest in music teaching.

Each competency item used a 5-point scale coded as 1 = Not competent, 2 = Low competence, 3 = Moderately competent, 4 = Competent, 5 = Highly competent. I grouped items into two constructs: (1) general music integration and (2) traditional Ghanaian music teaching. For each respondent, a composite score for each construct was computed by averaging the coded item scores within the construct. I then calculated the overall mean for the sample by averaging the respondents' composite scores. This yielded sample means of 3.20 for general music integration and 2.93 for traditional Ghanaian music teaching.

In SPSS, we entered all responses as numeric values (1–5). I then created two new variables using Transform, Compute Variable. We used the MEAN function to compute the mean of the relevant items for each construct, for example, MEAN (Item1, Item2, Item3…). SPSS returned a composite score for each participant. I then ran Analyse, Descriptive Statistics, and Descriptives to obtain the sample mean and standard deviation for each composite variable. If a respondent missed an item, the mean of the available items in the same construct was used, provided the respondent answered most items in that construct; otherwise, I excluded the case for that composite score.

Overall, trainers demonstrated moderate confidence in general music integration with a mean score of 3.20 across participants. Competency in teaching traditional Ghanaian music was lower, averaging 2.93, showing reduced confidence in culturally specific rhythms and performance techniques that required specialised knowledge. Instrumental skill levels varied: two-thirds of trainers reported the ability to play at least one instrument, and those with drumming or bell-playing experience reported higher competency during classroom demonstrations.

To test whether demographic factors related to exposure to music training or competence ratings, the study ran Pearson's chi-square tests on cross-tabulated frequency data. The analysis first converted the relevant variables into categories, for example, specialisation grouped as General or Early Childhood versus Music or Creative Arts, and competence grouped into ordered levels such as low, moderate, and high, based on the Likert responses. For each cross-tab, the test compared observed cell counts (O) with expected cell counts (E) computed from the row and column totals. The Pearson chi-square statistic was calculated as: $\chi^2 = \Sigma ((O - E)^2 / E)$

Mean score procedure (Likert)
coded Likert responses as 1 = Not competent, 2 = Slightly competent, 3 = Moderately competent, 4 = Competent, 5 = Highly competent. You summed all participants' scale scores and divided by n.

Mean formula:
Mean ($\bar{x}$) = (Σx) / n

Example with n = 30:
the total of all "general music competency" scores across the 30 trainers equals 96, then
$\bar{x}$ = 96 / 30 = 3.20

Chi-square procedure (with formula)
tested association between two categorical variables by comparing observed counts (O) to expected counts (E).

Expected count formula:
E = (Row total × Column total) / Grand total

Chi-square formula:
$\chi^2 = \Sigma [(O - E)^2 / E]$

Example feed-in
test Specialisation (General/ECE vs Music/Creative Arts) by Traditional-music competence (Low vs High).

Observed table (O):
General/ECE: Low = 18, High = 4, Row total = 22
Music/Creative Arts: Low = 5, High = 3, Row total = 8
Column totals: Low = 23, High = 7, Grand total = 30

Expected counts (E):
E(22, Low) = (22×23)/30 = 16.87
E(22, High) = (22×7)/30 = 5.13
E(8, Low) = (8×23)/30 = 6.13

E(8, High) = (8×7)/30 = 1.87

Then compute each cell:
$\chi^2 = (18-16.87)^2/16.87 + (4-5.13)^2/5.13 + (5-6.13)^2/6.13 + (3-1.87)^2/1.87$

Discussion

Teacher Training and Professional Preparation
This study shows weak preparation for culturally grounded music teaching among teacher trainers. Exposure to structured music training stayed low. Trainers reported a mean of 3.47 hours of music-related engagement per semester. This pattern aligns with Ghanaian evidence that teacher preparation often pays limited attention to music, particularly indigenous genres (Adu & Okeke, 2019; Agbenyo et al., 2021). It also differs from teacher education contexts where music modules and specialist support are more consistent (Biasutti, 2017; Conway & Hodgman, 2018). In this college setting, trainers appear to develop basic classroom music skills, but they do not receive enough structured preparation to teach culturally specific genres with confidence.

Indigenous Music Status, Colonial Legacy, and Postcolonial Response
Engagement with traditional and indigenous Ghanaian music remained weaker than engagement with general music activities. This aligns with scholarship showing that missionary and colonial schooling privileged Western hymnody, choral practices, and staff notation literacy, thereby reducing the status of indigenous musical knowledge in formal schooling (Santos, 2018; Omolo, 2020). Teacher education curricula often reproduce this hierarchy, which makes Western repertoire easier to teach than indigenous genres (Flolu & Amuah, 2019). The present findings suggest this legacy persists even under a competency-based framework that expects indigenous integration (Ministry of Education, 2017). Postcolonial work frames this as an issue of cultural continuity and epistemic justice, which requires deliberate institutional correction rather than individual effort (Kanu, 2020; Turino, 2018).

Resource Allocation and Material Support
Resource constraints emerged as a central barrier to the practical teaching of indigenous music. Trainers reported inconsistent access to drums, bells, xylophones, and recorded examples. This aligns with evidence from Africa that weak resourcing leads to theory-heavy instruction and limits performance-based learning (Herbst et al., 2018; Ndaliko, 2020). Since indigenous Ghanaian music depends on embodied practice, call-and-response interaction, rhythmic precision, and coordinated

movement, limited instrumentation and audio resources constrain both modelling and rehearsal. This reduces trainees' opportunities to learn the performance knowledge required for competent classroom delivery.

Time Allocation and Curriculum Priorities

Limited curricular time also contributed to weak music integration. Trainers prioritised examinable subjects over music, thereby reinforcing the marginal status of Creative Arts within teacher education workloads. This helps explain why teaching experience did not translate into stronger music preparation. Even trainers with many years of service did not report higher exposure or competence. This supports the view that skill development depends on deliberate training opportunities, not time in the profession alone (Conway & Hodgman, 2018). Without protected time for music training and practice, competence in culturally specific genres remains difficult to build.

Teacher Attitudes and Transfer to Learners

Confidence patterns suggest that trainers' attitudes toward indigenous music may reflect gaps in preparation rather than disinterest. Trainers reported moderate confidence in general music integration, but lower confidence in indigenous genres. This aligns with self-efficacy research showing that repeated mastery experiences strengthen confidence, while limited practice increases avoidance (Bandura, 1977, 1997; Kennedy, 2020). Where trainers lack competence, they tend to reduce music teaching to safer tasks, such as simple singing and clapping, rather than culturally grounded performance work. Over time, this also shapes trainee teachers' beliefs about what counts as "teachable" music, thereby risking the transfer of the same avoidance patterns to primary school learners.

Technology Adoption, TAM, and TPACK

Although the study did not test technology models statistically, the findings connect to technology adoption challenges in culturally grounded music teaching. Indigenous music learning can be supported by digital tools such as audio archives, rhythm banks, and notation software, but adoption depends on both beliefs and knowledge. From a Technology Acceptance Model perspective, low perceived ease of use and low perceived usefulness can discourage adoption, especially when trainers lack practice using tools for African rhythmic structures (Davis, 1989). From a TPACK perspective, the key gap is integration. Trainers may possess general pedagogical knowledge, but they exhibit weak intersections among technological knowledge, indigenous content knowledge, and music pedagogy for local genres (Mishra & Koehler, 2006). This explains why trainers request professional development that links tools, repertoire, and practical teaching strategies.

Summary of Theme-Based Implications

Across these themes, the evidence points to a systems problem rather than a trainer-by-trainer problem. Improvements require coordinated action on structured indigenous music training, protected curriculum time, practical resourcing, and integrated professional development that strengthen confidence and support culturally grounded pedagogy (Ministry of Education, 2017).

Conclusion

This study examined teacher trainers' exposure to music-related training and their competency in integrating traditional Ghanaian music within basic education. The findings indicate limited exposure to structured music training and infrequent engagement with traditional genres such as *Kpanlogo, Adowa,* and *Agbadza*. These gaps indicate limited opportunities for trainer development and reduce the likelihood that trainee teachers will acquire culturally grounded music skills.

Trainers reported moderate confidence in general music integration but lower confidence in teaching traditional music. This reflects the influence of historical training systems that prioritised Western music and the lack of mastery experiences needed to build self-efficacy in indigenous forms. Limited access to instruments and teaching resources further restricted practical learning and prevented trainers from demonstrating performance-based techniques central to traditional music.

Despite these constraints, trainers expressed a strong willingness to improve through professional development, practical workshops and increased access to resources. This presents a valuable opportunity for strengthening traditional music within Ghana's competency-based teacher education curriculum.

The study highlights the need for institutional commitment to increase training hours, provide practical resources and involve cultural specialists. Strengthening trainer preparation will enhance music integration in basic schools and support long-term preservation of Ghana's cultural heritage.

Recommendations

Strengthen trainer preparation in indigenous music.

Colleges of Education should deliver structured training for teacher trainers on Ghanaian indigenous genres, including Kpanlogo, Adowa, and Agbadza. Training should focus on performance practice, cultural meanings, classroom facilitation, and assessment. Colleges should run termly workshops led by music specialists and community practitioners.

Build TPACK-aligned professional development

Training should integrate content, pedagogy, and technology within a single programme. Colleges should train tutors to teach indigenous repertoire through practical pedagogy, and then extend instruction through digital support, such as audio libraries and notation examples. Colleges should prioritise hands-on sessions over one-off demonstrations.

Improve resource allocation for practical teaching

Colleges should budget for core indigenous music resources and maintain them. Minimum resource sets should include drums, bells, rattles, and, where relevant, xylophones; recorded exemplars; and printed guides for the repertories taught. Colleges should implement a booking and maintenance system to ensure resources remain available across classes.

Protect time for Creative Arts delivery

College leadership should allocate protected contact hours for music and dance within tutor workloads and student timetables. Departments should align time allocation with curriculum expectations and reduce crowding from examinable subjects. Colleges should schedule practical sessions in suitable spaces to support ensemble work.

Shift assessment toward performance-based competence

Colleges should assess trainee teachers on performance, facilitation, and lesson enactment, rather than on theory-only tasks. Departments should adopt clear rubrics for rhythm accuracy, call-and-response leadership, movement coordination, and cultural explanation. This approach will reinforce the tutor's and trainee's efforts toward indigenous competence.

Address attitudes and cultural values explicitly

Colleges should include guided reflection on Western dominance in music instruction and its effects on classroom choices. Departments should support tutors in modelling indigenous music as formal

knowledge, with established standards, techniques, and pedagogies. Colleges should reward good practice through teaching recognition and peer sharing.

Support technology adoption through usefulness and ease of use

Colleges should select simple tools that align with tutors' skill levels and local repertoires. Colleges should provide short, guided practice sessions that show direct classroom benefits, such as using recorded exemplars for feedback and using notation for lesson planning. Colleges should assign peer mentors to reduce anxiety and strengthen confidence.

Monitor progress with clear indicators

Colleges and regulators should track training hours, resource availability, frequency of indigenous music use, and tutor confidence scores each semester. Leadership should use results to target support, not to punish staff. Regular monitoring will support evidence-based planning and improvement.

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