

**TEACHERS ATTITUDE TOWARDS IMPROVISATION, ITS EFFECTS ON THE
STUDY OF SCIENCE AT THE JUNIOR HIGH SCHOOLS IN AOWIN
MUNICIPALITY-GHANA**

Isacc Asare¹, Joseph Parker² and Valentina Osei-Himah³

¹Foso College of Education, P.O. Box 87, Assin Foso. C/R-Ghana.

²Enchi College of Education, P. O. Box 44, Enchi. W/R- Ghana.

³Atebubu College of Education, P. O. Box 29, Atebubu. B/A

ABSTRACT: *Teaching science requires science teachers to provide enough materials to enable students to learn by using all their senses. Therefore, where the schools are isolated or inaccessible, materials can be improvised to enhance science teaching and learning. This paper seeks to investigate the attitudes of teachers towards improvisation and its effects on the study of science and to suggest recommendations for school administrators. The instrument used was a structured questionnaire. Data for the study were obtained by administering 120 questionnaires to 120 teachers. Ten public Junior High Schools were selected. 12 teachers were sampled randomly from each Junior School making a total of 120. 120 questionnaires were fully answered and returned. The data were analyzed using frequency counts and percentages.*

KEYWORDS: Improvisation, Attitude, Perception, Learning, Achievement, Teaching

INTRODUCTION

A multiple case study by Burnard (2000) found that children's concepts about improvisation were influenced by their teachers' concepts of improvisation. The way a teacher values and perceives improvisation will influence the ways students view improvisatory experiences. Eventually, students should develop their own understanding by using improvised materials during the teaching and learning process. The definition of improvisation presented in this research provides a framework for the survey questions that were used to gather data for this study. In reference to the importance of using improvisation in science education, when a teacher provides students with the readiness and skills to create and improvise their own materials, science literacy becomes the property of the students themselves, and this should represent the ultimate goal of all science teachers. Until students have formed personal experiences and understanding of improvisation, their concepts will most likely be based on their teachers' values.

On one hand, concern about the difficulty and appropriateness of using improvisation may influence teachers' value. On the other, the merit of improvisation in sequential learning could contribute to positive teacher attitude.

REVIEW OF RELATED LITERATURE

Teacher attitude was defined as expectation of a positive or negative outcome of using improvisation in the classroom based on their perception of how the academic and social community would respond to improvisation in the curriculum. The attitude scale of the

survey was designed to measure the participant's anticipation of a positive or negative consequence as a result of success in completing the task (Fennema & Sherman, 1976; Wehr-Flowers, 2006). Attitude was included because teacher attitude toward the subject matter influences what is taught, how it is taught, and who is expected to be able to learn it (Darling-Hammond, 2005). Social perspectives of the aims of education in regard to subject matter often affect what and how teachers choose to teach (Kelly, 2009). Therefore, the diverse ways teachers perceive improvisation in their social context in addition to their own value may influence their attitude.

In addition to social consequences, teacher perspectives about who is capable of learning using improvisation may influence their attitude. According to Goldstaub (1996) and Hamann and Gillespie (2009), improvisation is a teaching tool that can be accessible to teachers from many backgrounds. However, Goldstaub (1996) also observed that some teachers see improvisation as something that people either do or do not do. Therefore, attitude is the teacher's expectation of a positive or negative outcome based on social acceptance and student achievement.

Several articles have been published in support of using improvisation as a teaching tool. The teaching of form, scales, modes, chords, nomenclature, instrumental and vocal technique, ear training, rhythm, articulation, forward motion, theory, melodic construction and development, and style all can be approached through the use of improvisation. The value of improvisation is apparent. However, little research and writing has been done recently to describe the attitudes of teachers regarding the success of using improvisation as a teaching tool, especially in schools where the real teaching materials are not available.

Educators are challenged to learn while teaching when a relatively unfamiliar concept is introduced as a teaching strategy. According to Sherin (2002), the attitude a teacher has when approaching a new device may influence the success of the tool's incorporation.

When teachers were challenged to incorporate new materials, develop adaptive teaching styles, and direct student-centered instruction, they learned to formally consider what pedagogical devices would best fit a situation. As new pedagogical ideas are developed and tried, teachers who have open, willing attitudes towards learning and adjusting content and pedagogical knowledge may be more successful. Potentially, teachers can gain as much science and pedagogical growth as students from using improvisation as a teaching tool, but attitude may be a factor in teachers' capacity to adapt.

Again, a teacher's attitude will have an effect on what and how curriculum is used in the classroom (Darling-Hammond, 2005). Though moving away from tradition and personal experience may be challenging, teachers are in a position to accept and teach new values, such as creativity (Azzara, 1999; Riveire, 2006). Teachers need to be involved and supportive if students are to learn and use improvisation (Aaron, 1980; Baker, 1980).

Below are some of the factors that militate against teachers' attitude towards improvisation according to Arhin and Asimah (2006).

- The innovativeness on the part of teachers could affect science teachers' attitudes either positively or negatively in the production of improvised materials. Some teachers are rigid that they cannot come out with any artefact on their own in place of the unavailable teaching and learning instructional materials. And such teachers are

not resourceful and lack creative thinking which makes them feel lazy in producing improvised instructional materials to enhance his or her teaching.

- Some teachers think that the materials that could be used to produce improvised instructional materials are difficult to come by. That is, materials which could be used for the production of improvised instructional materials could not be found in the local scene.
- Some science teachers are of the view that, the use of improvised instructional materials during teaching and learning process brings about lowers of standards of science.
- Some science teachers also feel reluctant in producing improvised instructional materials with the idea that, improvised materials would make learners not to be abreast with the use of modern equipment.
- The production of improvised materials increases the work load on teachers. That is to say, to produce an instructional improvised material instead of using original material, one would have to spend more time, money and extra attention. This makes it tedious for teachers.

Teachers do not seem to be making class time available for students to participate in creative, improvisatory activities (Azzara, 1999; Barkley, 2006). Science education has been criticized for over-emphasizing science literacy and neglecting creativity since the onset of education in Ghana. The problem persists today. Even when teachers attempt to use improvised materials in their lessons, particularly at the lower levels of educational system, improvisation may be used “superficially and unsystematically” because teachers are unaware of the ways improvisation can be used effectively.

Authors in the field suggest a few reasons improvisation has not been implemented as effectively as possible. According to Riveire (2006), improvisation may be sacrificed due to shortages of resources, including time, money, and lack of teacher experience in improvisation. But in preparing children to live in an increasingly technological, manufactured, and depersonalizing world, it is imperative that science teachers make the time and effort to enrich children's lives. Teachers can be the ones to expand children's future through aesthetic awareness and creative thinking.

The secondary reason teachers may not incorporate improvisation is lack of personal experience (Riveire, 2006). As teachers emulate the methods used in their own education, lack of improvisation in their training may discourage them from using it (Riveire, 2006; Volz, 2005). When a teacher is fearful, lacks confidence, or does not value the use of improvised materials based on previous experiences, there is a higher likelihood it would not be included in his or her instruction.

When the resources needed to produce improvised instructional materials are difficult to come by, a teacher would not bother to improvise. In producing improvised instructional materials some teachers find it difficult in locating the necessary or readily available materials in the local environment. For example, in the construction of pin-hole camera, it is difficult to get tracing paper for its construction.

Lack of technical know-how and creativity is another setback that hinders the production of improvised science instructional materials. That is, many science teachers lack knowledge or ideas in producing improvised instructional materials, hence would not improvise in the absence of the original materials.

Financial constraints also impede the production of improvised instructional materials. Some of the materials needed in producing improvised materials needs to be purchased and are very expensive for science teachers to afford. For example, materials like lenses, PVC pipes in the construction of an improvised astronomical telescope are very expensive.

Getting assistance from the locality is another factor that prevents some science teachers from producing improvised instructional materials. In making improvised instructional materials it the duty of a teacher to seek assistance or consult resource persons like carpenters, blacksmiths, goldsmiths, etc., but sometimes it is difficult in reaching or getting such personnel in the environment. In going round to gather materials and information in the environment to produce the improvised instructional materials, much time is spent than buying the readymade ones and this prevents science teachers from producing improvised materials.

The class size can also deter science teachers from producing the materials. Thus if the class size is so large, the production of the improvised instructional materials could be of great challenge to science teachers because a large number of improvised instructional materials need to be produced thereby deterring some teachers from producing it.

Some science teachers see improvisation to be an extra duty for them. Some teachers think their work is to go to the classroom to teach. For this reason, they tend to ignore improvisational activity with the notion that it is not part of their work.

METHODOLOGY

This study followed a mixed-methods research design. The instrument used was a structured questionnaire. Data for the study were obtained by administering 120 questionnaires to 120 teachers. Ten public Junior High Schools were selected. 12 teachers were sampled randomly from each Junior School making a total of 120. The researchers explained the purpose of the study and emphasized that the participants will remain anonymous. The survey questionnaire consisted of four-point Likert scale items and qualitative items that were developed from and linked to the reviewed literature. 120 questionnaires were fully answered and returned. The data were analyzed using frequency counts and percentages.

FINDINGS AND DISCUSSIONS

Research into attitude focuses largely on determining if certain action affect what is supposed to be done and there is a broad range of opinions as to what attitude means and how to study it. This study was carried out to assess the attitude of teachers on improvised materials toward the study of science.

Presenting attitude of teachers on improvised materials, a Likert type items rated Strongly Agree (SA), Agree (A), Disagree (DA) and Strongly Disagree (SD).

Results from Table 1 show that, majority respondents of the respondents strongly agree and agree that preparation of improvised materials is tedious and time-consuming, do not last longer and lowers standard with 101(84.1%), 117(97.5%) and 106(93.4%) respectively. It is also evident that majority of teachers do not use improvised materials since 83(69.1%) indicated disagree and strongly disagree whilst 37(30.8%) indicated strongly agree and agree as their response to item 2. Responding to item 4, 86(71.6%) disagree and strongly disagree that improvised materials are expensive to produce.

Table 1: Attitude of Teachers on improvised materials

Item	statement	Number of teachers = 120			
		SA	A	DA	SD
		(%)			
1.	preparation of improvised materials is tedious and time-consuming	61(50.8)	40(33.3)	9 (7.5)	10(8.3)
2.	I use improvised materials when teaching	12(10)	25(20.8)	46(38.3)	37(30.8)
3.	Improvised materials do not last longer	73(60.8)	44(36.7)	3(2.5)	-
4.	Improvised materials are expensive to Produce	23(19.2)	11(9.2)	16(13.3)	70(58.3)
5.	Improvised materials lower standards	74(66.7)	32(26.7)	8(6.7)	6(5)

Source: Field Survey March, 2018.

CONCLUSION

The results show that teachers' attitude towards improvised materials was not good, though majority of them share the opinion that production of improvised materials was not expensive. When teachers improvise their own materials, science literacy becomes the property of the students themselves, and this should represent the ultimate goal of all science teachers.

RECOMMENDATIONS

Teachers should be encouraged to produce and use improvised materials since they are cheaper to produce or buy. The raw materials could be obtained from local sources, present objects and models in either two or three dimensional views, encourage class participation since majority of the raw materials can be sourced by the students themselves. Again, it motivate learners through participatory activities during production and arouse the interest of the learners because they are made from raw materials they see daily in their environment.

REFERENCES

- Aaron, T. (1980). Music improvisation and related arts. *Music Educators Journal*, 66(5), 78-83.

- Arhin, S. F., & Asimah, G. (2006). *Methods of teaching science for diploma in basic education by distance*. Teacher Education Division, Ghana Education Service, Accra.
- Azzara, C. D. (1999). Audition-based improvisation techniques and elementary instrumental students' music achievement. *Journal of Research in Music Education* 41(4), 328-342.
- Baker, D. N. (1980). Improvisation: A tool for music learning. *Music Educators Journal*, 66(5), 42-51.
- Barkley, M. (2006). *Assessment of the national standards for music education: A study of elementary general music teacher attitudes and practices*. Masters Thesis. Wayne State University.
- Burnard, P. (2000). How children ascribe meaning to improvisation and composition: Rethinking pedagogy in music education. *Music Education Research* 2(1), 7-23.
- Darling-Hammond, L. (Eds.). (2005). *Preparing teachers for a changing world*. San Francisco, California: Jossey-Bass.
- Fennema, E., & Sherman, J. (1976). Fennema-Sherman mathematics attitudes scales: Instruments designed to measure attitudes toward the learning of mathematics by females and males. *Journal for Research in Mathematics Education*, 7(5), 324-326.
- Gbamanja, S. P. T. (1998). *Essentials of curriculum and instructions: The theory and practice*: Port Harcourt. University of Port Harcourt.
- Hamann, D. L., & Gillespie, R. (2009). *Strategies for teaching strings: Building a successful string and orchestra program* (2nd ed.). New York: Oxford University.
- Kelly, S. N. (2009). *Teaching music in American society*. New York: Routledge Press.
- Riveire, J. (2006). Using improvisation as a teaching strategy. *Music Educators Journal* 92(3), 40-45.
- Sherin, M. G. (2002). When teaching becomes learning. *Cognition and Instruction*, 20(2), 119- 150.
- Ugwu, T., & Ogbu, R. (1998). *Strategies for improving teaching and learning of Government in Secondary Schools in Nsukka Education Zone*. Thesis. In the Department of Science Education, University of Nigeria, Nsukka.
- Volz, M. D. (2005). Improvisation begins with exploration. *Music Educators Journal*, 92(1), 50-53.
- Wehr-Flowers, E. (2006). Differences between male and female students' confidence, anxiety, and attitude toward learning jazz improvisation. *Journal of Research in Music Education* 54(4), 337-349.