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Insights on Application of Johnson and Johnson's Five Elements of Cooperative Learning to Health Education Curriculum Delivery

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Abstract:

The active participation of the students in the classroom discussion is always being encouraged to strengthen not only the cognitive ability of the learners but also the affective and psychomotor domains. Teachers can use an instructional strategy known as "cooperative learning" to achieve this. Johnson and Johnson (1999) developed a model of cooperative learning comprising five elements. This paper describes how these elements would be applied in Health Education Curriculum in Nigeria. The purpose of this article is to describe the Health Education curriculum in Nigeria, the concepts and effects of cooperative learning in a classroom to see its impact on student learning. Also, the five elements of cooperative learning are discussed as they may be applied to Health Education curriculum. The paper concludes that the five elements of cooperative learning can be utilized to enhance and promote higher student achievement in Health Education curriculum.

Keywords: Cooperative learning, curriculum delivery, health education student achievement, group learning

1. Introduction

Education as widely observed is a tool for change and transmission of enduring values and knowledge in a given society. Education holds the key to socio-political and economic development. In the light of this, the Federal Government of Nigeria, in its opening statement on the National Policy on Education, maintains that "education in Nigeria is an instrument 'par excellence' for effecting national development" (Federal Republic of Nigeria, 2004, p. 1). Education is the means for proving the intellectual fact which is necessary for all forms of development. It is also a tool for fostering a healthy nation as adequate health knowledge is part of what is necessary for national development. It is in recognition of this last point that several countries have sought to improve health education and health promotion services in order to improve health status (Organization for Economic Co-operation and Development, OECD, 1992). In Nigeria, it is clearly stated in the National Policy of Education (FRN, 2004) that there is a need to promote the emotional, physical and psychological health of all children. Hence schools as well as colleges and universities in developed countries often include health education in their curricula.

2. Concept of Health Education

Health education is any combination of learning experiences designed to help individuals and communities improve their health, by increasing their knowledge or influencing their attitudes. Ewles and Simnet (1987) defined health education as a tool which educates and enables people to take more control of their own health. They further state that without education for health knowledge and understanding there can be no informed decisions and actions to promote health. According to Murray and Chavunduka, (1986, p.156) "health education is a process of positively influencing, changing or reinforcing people's health knowledge, attitudes and practices using educational processes, consumer participation, motivation, facilitating helping methods and techniques. According to Fabiyi and Blumenthal (1991), health education are those activities which raise the individuals' awareness, giving the individual the health knowledge required to enable him/her decide on a particular health action. Health education is also defined as any combination of learning experiences designed to facilitate voluntary actions conducive to health (Davis & Cooke, 2007; Green & Kreuter 2005). For the purposes of this study, health education will be viewed as an active teaching and learning situation that has been planned by the people responsible for the teaching of health education, with the recipients participating in the process. In broader terms, one can define health education as providing health information, helping people to change their attitude and behaviour towards healthier

lifestyles, and empowering people to look after their own health. Health Education has strong foundations in scientific fields such as physiology, hygiene, nutrition, biology, physical education and psychology which inform what learners should understand about healthy, safe and active choices. The Nigerian Health education curriculum is informed by these sciences and offers students an experiential curriculum that is contemporary, relevant, challenging, enjoyable and physically active.

3. Health Education Curriculum in Nigeria

Health education, in its various nomenclatures has been a part of the school curriculum in Nigeria since the early twenties. According to Idehen and Oshodi (2008), Health education curriculum development in Nigeria actually started with hygiene and sanitation as school subjects. The authors noted that an earlier report by Ejifigha (1999) reveals that serious efforts were made by the British Social Hygiene Council to teach hygiene in Nigerian schools. Initially, the efforts towards the resolution of the confusion as to what should be taught in hygiene class led to a series of conferences and memoranda. The result is the introduction of the new terminology, health education, which shifted emphasis to the principles of healthful living was based on the fact that the contents of hygiene were inadequate for the promotion of healthful living.

At present, health education is recognized in the curriculum as Physical & Health Education (PHE). The PHE curriculum recognized the demand of the present 6-3-3-4 systems of education, the 9 Years Basic Education concepts of the federal government and the need to attain the millennium Development Goals (MDGs) by 2015. According to the Nigerian Education Research and Development Council (NERDC, 2013), the curriculum gave attention to contemporary issues at local, national and global levels, incorporating concepts such as violence in sports, career opportunities, drug use, misuse, first aid and safety education, human rights education and entrepreneurial skills. Igbokwe (2013), the 9 Years Basic Education ensures continuity and flow of themes, topics and experience from primary school to junior secondary school levels. The course-contents are covered under fifteen themes and are structured across the nine years of Basic Education in a spiral form:

- i. Fundamental movement and rhythmic activities
- ii. Athletics track and field events
- iii. Games and sports
- iv. First aid and safety education
- v. Personal, school and community health
- vi. Physical fitness and body conditioning programmes
- vii. Gymnastics
- viii. Recreation, leisure and dance activities
- ix. Food, nutrition and health
- x. Martial arts
- xi. Swimming
- xii. Pathogens, diseases
- xiii. Issues and challenges in physical and health education
- xiv. Historical and scientific foundations of physical and health education
- xv. Career guidance in physical and health education (NERDC, 2013, 4).

However, the effectiveness of the curriculum depends on a number of factors such as: availability of instructional materials, skills and motivation of the instructor who may be the teacher, use of appropriate teaching technique and the quality of the contents of the health instruction. One of such techniques is cooperative learning. The NERDC (2007) recommended the use of cooperative learning as one of the instructional strategies for implementing the curriculum. However, it appears that most teachers do not have a complete understanding of cooperative learning. Jones and Jones (2008, p.64) pointed out that "there is also a general confusion as to what the term 'cooperative learning' means. Very often, this phrase is a blanket term, applied to any sort of group work or interaction between classmates that results in a product. Educators often operate under the false assumption that putting adults in groups automatically assumes that they are being 'cooperative' and that they are 'learning.' Neither of these assertions is necessarily true (Johnson & Johnson, 1994)". As such, incorporating cooperative learning into lessons has been difficult for some teachers to accept and implement in their classrooms.

4. The Concept of Cooperative Learning

Co-operative learning (CL) refers to any of a variety of teaching methods in which learners are placed in small groups to help one another learn academic content. In co-operative classrooms, learners are expected to discuss and argue with each other, assess each other's current knowledge, and complete the gaps in each other's understanding (Jones & Jones, 2008; Keraro, Wachanga & Orora, 2007). Co-operative learning replaces individual seat work with collaborative group work but rarely replaces direct instruction by the teacher. When properly organized, learners in co-operative groups work with each other to make sure that everyone in the group masters the concepts being taught (Slavin, Lake, & Groff, 2009). The idea is that lessons are structured in a way that students must cooperate in order to achieve their learning objectives (Iyer, 2013; Booisen & Grosser, 2014). The cooperative group is usually three to four students who are connected by a common purpose - to complete the task and to include every group member. Cooperative groups are appropriate for all ages, subject areas and types of students. Regardless of age, almost everyone loves to socialise, be with others, and to work together.

The essential issue of CL was that all students in cooperative groups contributed to the academic and social benefit of the group (Keramati, 2005; Booisen & Grosser, 2014). CL help to eliminate the perception that high academic achievement is unattainable and makes academic achievement a classroom norm. By having students work together cooperatively, the only way that an individual student can succeed is if all the members of the group succeed (Garfield, 2013). Thus, students begin to encourage one another to work hard and strive for maximal achievement together and these attributes become the norm for student behaviour. Hence, cooperative learning, with the incorporation of its basic elements, as an instructional methodology provides opportunities for students to develop skills in group interactions and in working with others that are needed in today's world.

5. Elements of Cooperative Learning

The one most widely used elements of cooperative learning is probably that of David and Roger Johnson of the University of Minnesota. This model focuses on developing a specific structure that can be incorporated with a variety of curriculums with an emphasis on integrating social skills with an academic task. According to the Johnson & Johnson (1999) model, cooperative learning is instruction that involves students working in teams to accomplish a common goal, under conditions that include the following elements:

- i. Positive interdependence.
- ii. Individual accountability.
- iii. Face-to-face promotive interaction.
- iv. Appropriate use of social skills.
- v. Group processing.

According to Johnson and Johnson (1999), these key elements must be present in order for a small group learning activity to be cooperative. Jones and Jones (2008) noted that these five elements form the 'five pillars' of cooperative learning which Johnson, Johnson, and Smith (1991) used as their basis for utilizing such practices in the college classroom. These elements are subsequently discussed.

5.1. Positive Interdependence

Positive independence means that a gain for one student is associated with gains for the others; that is, when one student achieves, others benefit, too. Students feel responsible for their own and the group's effort. The more learners care about each other, the harder they will work to achieve mutual learning goals (Kerraro, et al, 2007). Positive interdependence, which developed from social interdependence theories has formed the backbone of CL, because without it, students tended not work together to achieve success (Gillies, 2003). Without it, it becomes difficult to put into practice all other essential elements of CL because the students adopt either an individualistic or competitive approach to their learning. Through careful planning, the teacher can establish positive interdependence can be established by having students achieve:

- a) mutual goals, such as reaching a consensus on specific solutions to problems or arriving at team-generated solutions;
- b) mutual rewards, such as individually assigned points counting toward a criterion-referenced final grade, points which only help, but never handicap;
- c) structured tasks, such as a report or complex problem with sections contributed by each team member; and interdependent roles, such as having group members serve as discussion leaders, organizers, recorders, and spokespersons.

Positive interdependence is created in the cooperative integrative cases by having the students volunteer for specific roles – manager, timer, checker, encourager and contributor. Progress goals are also established where, after each question, it is the role of the checker to ensure that each student understands the concepts covered, before moving on to the concept. Finally all students are encouraged to bring resources to the case session. Students will often bring different resources – one student might bring a computer with internet access and another will bring a textbook, and others will bring class notes. The students share all of these resources to help the group answer the questions interdependently.

5.2. Individual and Group Accountability

Cooperative learning includes individual and group accountability. This means that each student is responsible for doing their part; the group is accountable for meeting its goal. Group accountability exists when the overall performance of the group is assessed and the results are given back to all group members to compare against a standard of performance (Jones & Jones, 2008). As a pillar for cooperative learning, individual accountability ensures that "students learn together, but perform alone" (Johnson, Johnson & Smith, 1991). If we acknowledge that the whole point of cooperative learning is to provide students with the resources they need to subsequently perform better on their own, than individual accountability strengthens the group dynamic as well as individual performance (Foundation Coalition, 2008). Cooper (1990) emphasized that individual accountability is an important element of CL because it holds the individual accountable for their own learning. As a result, students work hard to learn the content during the cooperative activity, because they know they will be responsible for it at an individual level, even though the content is discussed by the group.

Group goals are necessary to motivate students to help each other learn by giving them a stake in one another's success. Individual accountability, in turn, deters the likelihood that one or two group members will do all the work. If the group's success depends on the individual learning of each group member, then group members are more motivated to engage every member in mastering the material being studied (Johnson & Johnson, 2009). Depending on how individual accountability is structured and assessed, it may be a means

to facilitate positive interdependence. Slavin et al (2009) described a method within CL where a group's success was based on the averages of the individual accountability scores of all the group members. As a result of this method, the group must work together and help each other to learn the material and make every effort to obtain a high level of achievement. If one or more members have difficulty understanding a concept, it affects the entire group. Therefore, the group must work together to address that conceptual misunderstanding in order to achieve success., however, that caution must be exercised when using this type of assessment. For example, when students receive a specific task such as worksheet or case study to complete cooperatively, the health education teacher can tell students that one group member — unidentified ahead of time — will be responsible for reporting the group's work.

5.3. Face-To-Face Promotive Interaction

Face-to-face promotive interaction, also known as group interaction, involves having students work together and, most importantly, promote each other's learning (Jones & Jones, 2008; Musingafi & Rugonye, 2014). Students do this by helping and encouraging one another to learn and understand concepts discussed during the cooperative small group interaction. Promotive interaction entails equal participation to improve learning through explanation and elaboration of concepts, discussion of ideas and misconceptions, and building on prior knowledge.

There are two techniques to ensure promotive interaction in Health Education curriculum delivery. The first is turn allocation, which means that students are expected to take turns while speaking and to contribute to the discussion when their turn comes. The second is division of labour, which means that each group member is assigned a specified role to play in the group. In cooperative group, group members meet face to face to work together to complete assignments and promote each other's success. Group member needs to do work together. A health education teacher can take some steps to encourage promotive interaction among group members such as:

- schedule time for the groups to meet.
- create learning tasks for positive interdependence that requires members to work together to achieve the goals of the groups.
- monitor groups to encourage promotive interaction among group members.

In order to create a Health Education environment that is conducive to promotive interaction, it is necessary to break up the larger class into smaller groups. The ideal number of students per group in order to facilitate positive group interaction to promote learning has not been clearly defined. Between two and five members per group has been recommended to produce the best promotive group interaction (Keramati, 2005; Zakaria, Lu Chung & Daud, 2010).

5.4. Social Skills

In order to facilitate promotive group interaction the students must practice the basic social skills required for effective CL interaction (Johnson & Johnson, 1999). Teachers' understanding the proper social skills required for a small group to function optimally is essential in order to maximize learning. Knowledge and application of appropriate social skills such as effective communication skills, trust building, decision making and conflict management is as important to the CL exercise as learning the content itself, because the learning that occurs is dependent on the functioning of the group. It is the duty of a Health education teacher to for instance, ensure that students engage in task work and teamwork simultaneously.

To get the common goals, students should be encouraged to trust each other. They communicate accurately and unambiguously. They not only accept and support each other but resolve conflicts constructively. Social skills are not innate; students need to be taught and reminded of these skills, therefore, it has been important for teachers to be knowledgeable and prepared to manage cooperative groups to maximize the important attributes of well-functioning groups (Baliya, 2013; Oortwijn, Boekaerts, Vedder & Strijbos, 2008). It has also been important for the teacher to model these behaviours and attitudes and give recognition to groups who practice them appropriately to reinforce them in all groups. Cooper (1990) suggested that important social skills can be added to the course syllabus as requirements for the successful completion of the course.

5.5. Group Processing

In forming cooperative groups, great effort has been made to establish productive group dynamics through positive interdependence, promotive group interaction, and effective social skills. According to Johnson & Johnson (2009), it has not been enough to assume that by putting these elements in place the group will achieve them all in each cooperative session and that they will be maintained in future sessions. Successful CL has been accomplished through group processing. Such processing:

- a) enables learning groups to focus on group maintenance,
- b) facilitates the learning of social skills,
- c) ensures the members receive feedback on their participation, and
- d) reminds students to practice collaborative skills consistently

It is important that students reflect on the functioning of the group because if the group does not function well it will affect student relationships and interactions. This, in turn, will negatively impact their ability to help and challenge one another, which places constraints on their ability to learn. Teacher involvement in group processing is also important, where the teacher notes group interaction and productivity. Monitoring can also include written exercises designed to find out if individual students are learning what teachers think they are teaching.

6. Role of Teacher in Applying the Five Elements in Health Lessons

Cooperative learning can be successful when these principles are in place and when students are actively encouraged to support each other's learning. Teacher involvement in group processing is also important, where the teacher notes group interaction and productivity. Monitoring can also include written exercises designed to find out if individual students are learning what teachers think they are teaching. Johnson and Johnson (1999) suggested five steps that teachers may take in order to improve the quality of group's task.

- Firstly assess the quality of the interaction among group members as they work to maximize each other's learning.
- Secondly examine the process by which the group does its work to give each learning group feedback.
- Thirdly set goals for improving their effectiveness
- fourthly conduct whole class processing session.
- Fifthly conduct small group and whole-class celebrations.

Udovic, Morris, Dickman, Postlethwait, & Wetherwax, (2002:273) listed seven factors for effective use of cooperative learning in teaching as: engaged academic learning time, use of positive reinforcement, cooperative learning activities, positive class atmosphere, higher-order questioning, cues and feedback, and use of practical activities. With careful planning, teachers can develop a variety of cooperative learning to be used as active learning strategies (e.g., discussions, student presentations, debates, simulations) and integrate them into their lessons in a way that challenges students and enhances their learning. Such a thoughtful approach can therefore help teachers avoid feeling overwhelmed and uncertain. As pointed out by Mills (2014, p. 5) for effective application of cooperative learning:

Teachers should think through the proposed group activity by answering key questions. A pundit once quipped: "If you don't know where you're going, you'll probably end up somewhere else." This saying is certainly true for group activities. As a general rule, teachers will want to ask themselves the following questions: What will I do? Why am I doing it? How will this activity further my course objectives? How will I introduce this activity to students? How will I form groups? How will I monitor students' interactions and learning? How will I foster positive interdependence (goal, resource materials, evaluation methods, roles, etc.)? How will I maintain individual accountability? How will I assess student learning, student interactions/contributions, and the overall success of the activity? What problems/challenges do I expect? Careful planning tied to course objectives is essential.

7. Conclusion

The main purpose of cooperative learning in health education curriculum delivery should be to use cooperative learning to actively involve students in the learning process; a level of student empowerment. Such instructional strategies and learning experiences are student-centered, interactive, and experiential. For effective use of cooperative learning in health education curriculum, a teacher can encourage students to ask for help to better understanding of the difficult subjects through forming cooperative groups; on the other hand, students will learn to ask for help in different occasion whenever help seeking transpires in the learning process. The teacher should prepare the activities appropriately to obtain remarkable learning experience on the part of the learners. Providing clear objectives of the classroom activities gives the learners a sense of direction towards the attainment of the group goals. Everyone is an important composition of the team and each member should actively participate.

The teachers should set the environment conducive for learning including the materials to be used, safety of the students during the activity, motivation to participate, and encouragement to obtain high academic performance. For example, teachers can periodically stop lecturing, divide students into groups and ask students to reflect upon and discuss a presented material. Indeed, Health Education teachers can modify their lessons to make the students more involved in the learning process. Regardless of subject matter, the age of the students or academic ability, if utilized correctly under Johnson & Johnson five elements, cooperative learning will only enhance student performance and success. Ongoing professional development and training is critical for helping health education teachers implement cooperative learning in teaching.

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