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Effective Classroom Management and the Use of TPACK: Implication for Pedagogical Practices

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Abstract
This study was essentially exploratory, investigated the acquaintance and strategies of instructional materials usage by the teachers. It examines classroom management, preparation and handling of instructional materials. Classroom management in this context is the skill in organization and presentation of lessons in such a way that all learners are actively involved in learning. In the study two instruments were administered to science teachers; the first instrument was to ascertain the acquaintance of instructional materials by the teachers. The second instrument was classroom observation. The results revealed that acquaintance on the use of instructional materials by the teachers was very high but they hardly use them. Moreover, correlation coefficient of .721 which is positive and significant @ .05 showed that instructional materials contributed to effective classroom management. The study has implication for practicing teachers and the stakeholders.
Key words: classroom management, instructional media, content, knowledge, pedagogy.

Introduction

Classroom management and effective pedagogy are major challenges in areas of research and classroom practice in educational thinking in recent times. The advents of research and practice in classroom management and school effectiveness have been part of major concern in recent times. Long ago, the focus of researchers was predominantly on the paradigm of relating pupils and achievement to features of children's home background, community characteristics and individual intellectual and personal attributes (Reynolds 1994). But the classroom situation is the avenue that helps pupils' to grow in school environment by facilitating their development. Though a lot of problems hindered pupils' development in the classroom situation, some of these problems as identified by Corcoran (1985) include: methods of imparting knowledge to educators, inadequate instructional materials., poor attitudes to information seeking behaviour etc. These problems have been blamed in part on the method of information seeking behaviour and utilization, on the method of imparting knowledge to learners, on school effectiveness and products of schooling (Olatoye, 2002).

To measure school effectiveness, we need to identify qualities that are associated with conditions of schooling. Those conditions as mentioned by Corcoran (1985) are:

1. Information seeking attitude
2. Information utilization and dissemination
3. A safe, orderly disciplined and supportive school climate.
4. Well structured curriculum - learning objectives, learning activities and appropriate achievements measure.

School effectiveness according to Scheerens (1992) has four components which are: high achievement among all pupils' groups, high pupils and staff attendance, high employee and pupils' satisfaction, and high public confidence in schools. This assertion is shared by Corcoran (1985), when he states that effective schools/ school districts also "add value" to the performance levels of pupils: the longer pupils are in schools, the higher the increase in the level of pupils' performance are in schools. Effectiveness standards are those standards achieved by top twenty percent of the school district in a given category. In statistical terms, effectiveness standards are those standards achieved at one standard deviation above the mean of the population. Before one says a school is effective, what are the qualities that one should look out for? These qualities are strongly associated with specific conditions of schooling. These conditions are commonly called the correlates of school effectiveness (Reynolds, 1994). Lack of Pedagogical Content Knowledge (PCK) of teachers' to handle different attitudes, or traits that emanate during teaching and learning call for immediate solution in the educational block. Scrutiny of how well students are learning is an important part of classroom practice (Hopkins & Antes, 1990).The assessment of the effectiveness of classroom practices using adequate instructional materials that enhanced learners' motivation and also facilitate efficient pedagogical process in the classroom seek for attention. Pedagogical content process is a recent development in the field of teacher education and classroom management. It becomes imperative in educational practices to focus attention on pedagogical process.

Pedagogical process in this context is the process technology or knowledge involving skill in the organization and presentation of pedagogy, content and knowledge of subject matter that does not devoid adequate classroom management through technology of instruction or instructional media.

Shulman (1986) asserts that PCK focuses on the strategies employed in teaching that bring about the best learning experiences for every learner. These strategies of PCK also include being flexible and adjusting instruction to account for various learning styles, abilities and interests. It is important to note that effective classroom management is positively linked with efficient use of PCK. Many scholars in fields of educational technology and teacher education have linked Shulman opinion on PCK with technology of instruction now called Technological, Pedagogical and Content knowledge (TPACK) (Mishra & Kohler, 2009). According to Cox (2008), TPACK could be defined as knowledge of the dynamic, transactional negotiation among technology, pedagogy, content and how that negotiation impacts students learning in a classroom context.

The essential features of TPACK as identified by Cox (2008) are: (a) the use of appropriate technology, (b) in a particular content area, (c) as part of a pedagogical strategy, (d) within a given educational context and (e) to develop students' knowledge on a particular topic or meet an educational objective or students need.

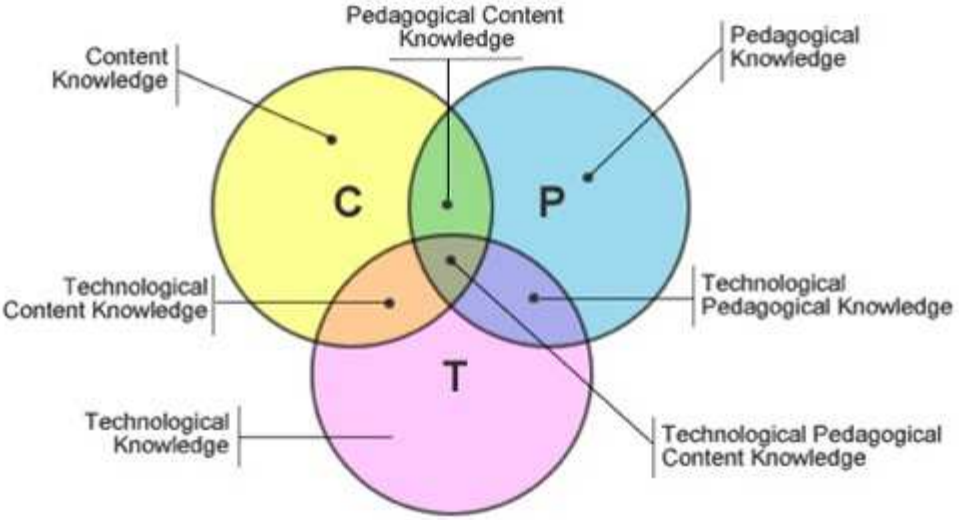

Figure 1: Technological pedagogical and content knowledge (Mishra & Koehler, 2009)

The integration and negotiation of synergy captures complexities inherent within the teachers' knowledge framework and captivate: content knowledge, pedagogy, technology and learners in classroom context. Pedagogical knowledge involves essential teaching skills regardless of the content area. Mishra & Koehler, (2009) identified several components of process technology (TPACK) namely:

- Technology Knowledge (TK) is knowledge about various technologies, ranging from how technologies such as the internet, games, digital video, interactive white board etc.
- Pedagogical Content Knowledge (PCK) refers to the content knowledge that deals with the teaching process (Shulman, 1986), this is different from various contents, it blends both content and pedagogy with the goal being to develop better teaching practices in the content area.
- Technological Content Knowledge(TCK) is knowledge of how technology can create new representation for specific content, this suggests that teachers understand by that using specific technology this can change the way learners practice and understand concepts in a specific content area.
- Content Knowledge (CK) knowledge about actual subject matter that is to be learned or taught. Teachers must know the content they are going to teach and how different the nature of knowledge is for various content areas.
- Pedagogical Knowledge (PK) is a method and process of teaching which includes knowledge in classroom management, assessment, lesson plan development and student learning.
- Pedagogical Content Knowledge (PCK) refers to the content knowledge that deals with the teaching process (Shulman, 1986), this is different from various contents, it blends both content and pedagogy with the goal being to develop better teaching practices in the content area.
- Technological Pedagogical Knowledge (TPK) is how knowledge of various technologies can be used in teaching and understanding.
- Technological Pedagogical and content knowledge (TPACK) is knowledge required by the teacher for

integrating technology into their teaching in any content area.

Indeed TPACK offers the fields of educational technology and classroom practice a research framework for knowledge assessments guiding pre and in service teachers. Knowledge assessment and development as well as technology integration in classroom management are linked with effectiveness and efficient classroom practice. Smith & Laslene (1999) identified the following factors linked with effective classroom practice namely:
The learner control system: this involves using rewards, encouragement, praise and appreciation with less punishment or ill words due to misbehavior or act of not knowing. This could also be referred to as misuse of words that discourage learners.

The involvement of learners: efficient and effective classroom practice should give learners a position of responsibility to run educational activities within the classroom or outside the classroom, be it activities within curriculum or extra curriculum.

The academic development of learners: with effective schools, making positive use of home work, setting clear and explicit academic goals, and with teachers in these effective schools having high expectation of and positive views of the capabilities of the learners.

The school environment and effective learning of the learners: effective teaching and learning enable schooling of learners. Schools must provide good working conditions for learners and their teachers must be responsive to learners' needs and also provide buildings and other necessary instructional materials that enhance conducive and efficient teaching and learning.
Teachers' modesty: teachers are seen as good models of behaviour by exhibiting good time- keeping, exemplary in conduct and always willing to deal with learners' personal and social problems.
In order to promote classroom effectiveness with process technology (TPACK) the teacher has to a create classroom atmosphere that is conducive for learning. Classroom atmosphere can therefore be referred to as a situation in which activities take place during lesson time. The Ability of a teacher to manage, administer and control various learning activities within the period that lesson takes place is called adequate classroom management (Olatoye, 2008). This is an indication that such a teacher is effective and efficient. It is imperative for a teacher to engage the learners' right from the beginning of the lesson to the end because if the learners are engaged in activities they become productive throughout the class and they learn meaningfully well Smith & Laslene (1999); Hopkins & Antes (1990). Instructional materials or process technology or instructional media such as charts, projector etc shall be displayed or well arranged and the necessary instruction should be written on them to guide the usage.

1. Classroom Management and Effective Use of TPACK

The following are ties in effective classroom management and efficient use of TPACK identified by Olatoye and Atughonu, (2008):

Firstly, attention of learners during lesson: when the teacher is teaching, she needs to employ diverse teaching methods. While explaining a concept, a step should be taken to caught the attention of the learners at all time and carry the learners along, regardless of their learning abilities and preferences.

Secondly, sitting and teaching arrangement; learners should be sited based on:

- Their eye contact to the board or display point i.e the short sighted learners should sit in front row close to the board, while the long sighted should sit not close to the board or display point.
- Study group: class activities should be structured in groupings such that the learners learn from each other; the slow learners must be grouped with the fast learners. This will create integration of ideas.

Moreover, the teacher's standing position in the classroom is crucial: teacher is not expected to face the board or display point with back to his the learners while teaching. Her position while teaching matters a lot, she should stand in the position that facilitates eye contact with the learners at all times. He should not lose sight on any group or particular student while teaching.

Nevertheless, creative and activism:

- The teacher needs to be creative by creating activities that will focus the minds of learners in the lesson. This can be done through: (1) learners' involvement in discussion process, demonstration or activities that engage them. (2) Class control: learners from different home background, different attitude to learning and also different traits meet in a class for learning. The teacher should endeavor to control misbehavior by maintaining decorum, such that the introvert shall be encouraged to talk while the extrovert shall be checked with his excessive acts.

The major concern of educators and process technologists are that; how can this change for better and improve classroom teaching? Will teachers' content knowledge and adequate use of TPACK enhance effective classroom practice? What are the implications of all these to pedagogical practices? These are the questions the study intends to empirically seek answers to.

2. Research Questions

1. Are the classroom teachers acquainted with the use of instructional media?
2. What instructional media (materials) do teachers adopt in their classroom effectiveness?
3. What are the implication of questions 1 and 2 for effective pedagogical practices?

3. Methods

(i) **Sample and Sampling procedure**

Lagos state is stratified into five educational zones. Simple stratified zonal sampling was used to select two schools from each educational zone and five teachers from each school using systematic random sampling in picking the teachers. The total sampled size consists of fifty teachers from ten schools within these five educational zones in Lagos state.

(ii) **Instruments**

Two instruments were used for this study. The first was Teachers' Knowledge in the Use of Instructional Media (TKUIM) constructed by the researcher with eight items revolving around the use of instructional media (materials). The reliability coefficient of this instrument using Cronbach alpha method after administering to a representative sample of twenty eight teachers yielded a value of 0.83.

The second instrument was Classroom Observation on the Use of Instructional Materials (COUIM), this consists of two (2) categories. The first category consists of ten (10) items designed to assess methods teachers adopted to make their classes effective with the use of different methods of handling teaching process. The reliability coefficient of Cronbach alpha gave a value of **.79** when the first category was administered to a twenty eight teachers. The second category consists of six (6) sub-activities that deal with different class activities with the use of instructional materials. This assessment becomes necessary because it is known that most times teachers pay lip service to the use of instructional materials (process technologies). This category was employed so as to elicit information on learners' engagement as the teacher teaches in line with Flanders method. Here the coding was done for every3second in a forty minutes lesson and sub activities were specified in order to make all instruments inclusive. Ten (10) lessons were observed for inter rater reliability using Scott's formula and result obtained was **.82.**

4. Data collection and Analysis

The first two instruments were administered to the teachers by the researcher. The observation technique was carried out from three teachers and three schools that were randomly selected for the third instrument. This observation was done nine times, three times per teacher. Simple descriptive statistics was used to analyze the data obtained from all the instruments, while correlation coefficient was used to establish and ascertain relationship among the data collected on the subject matter.

5. Results

Question 1: Are the classroom teachers acquainted with the use of instructional media?

Result: Ordinal scale was adopted, where 4,3,2,1 were attached to responses in positive statement as follows Strongly Agree (SA) (4), Agree (A) (3), Disagree (D) (2), and strongly disagree (SD) (1) respectively.

Table 1: Use of instructional materials by the teachers in classroom while teaching

Serial No. Statements	SA	A	D	SD
1. Instructional materials (IM) make learners to appreciate learning and make the lesson meaningful.	30(60%)	5(10%)	11(22%)	4(8%)
2. IM enhancing learners Understanding, and build inquiry process.	27(54%)	10(20%)	9(18%)	4(8%)
3. Decision about IM usage is based on the content of the topic.	12(24%)	8(16%)	13(26%)	17(34%)
4. IM can be used for all topics of any subject.	10(20%)	2(4%)	18(36%)	20(40%)
5. School authorities don't encourage usage of IM	18(36%)	21(42%)	6(12%)	5(10%)
6. Improvisation should be the best, when IM required for a particular topic is not available.	28(56%)	13(26)	6(12%)	3(6%)
7. IM usage require it know how.	38(76%)	8(16%)	1(2%)	3(6%)
8. My lesson time frame does not permit usage of IM.	13(26%)	7(14%)	22(44%)	8(16%)

Table 1shows that in item one, 70% of the teachers supported that; the use of instructional materials make learners to appreciate the topic and the learners can apply the lesson taught to real life situation. Item two shows that 74% supported that IM enhanced learners understanding and this builds their inquiring process. 92 % of the teachers were in support that, the use of instructional materials required knowledge and usability of the

materials. In items 5 and 6, 78% and 88% of the respondents supported respectively, that there is no encouragement on the part of school authorities for the usage of instructional materials. It can therefore be concluded that; teachers are acquainted with the use of instructional materials and they agreed that effective classroom management can best be achieved through the use of instructional media.

Question 2: What instructional media (materials) do teachers adopt in their classroom effectiveness?

Result: Classroom observation technique was carried out to ascertain how truthful the teachers make use of the instructional materials. The results of this observation in Table 2 reveal that X, Y, and Z represent the three groups of teachers drawn from three different schools. Lessons of forty minutes each were observed for one teacher, per school. Three lessons were observed per teacher, giving the total number of nine lessons. Thus this equal to three hundred and sixty minutes spent on the whole of the observation. Coding was done every three seconds.

Table 2: Results of classroom observation

Activities	X	Y	Z	Total
Traditional method	1602	988	1500	4090
Explain concept	400	326	382	1108
Give Directive	260	134	240	634
Low order Question	430	510	322	1260
High order Question	5	12	40	57
Treatment of students' Responses	30	50	15	95
Responses from students	100	80	90	270
Make Reference (chart, model or book)	-	-	-	-
Students Assessment	30	50	40	170
Engagement of Learners	-	-	-	-

Table 2 shows that teachers from the three groups used traditional method (teacher- centered approach) that is talk- talk and chalk-chalk. No variation in teaching style and none of the teachers made reference or used instructional material.

Table 3: Classroom activities on the use of instructional materials

Activities	X	Y	Z	Total
Handle instruction materials\	-	-	-	-
Listen to teachers	1560	680	1250	3490
Teacher centre approach	1820	1632	1806	5258
Use of instructional media	-	-	-	-
Discussion	20	18	30	68
Demonstration	-	-	-	-

Table 3 reveals that teachers teach without the use of instructional materials. They make the students to be passive participants in the classroom. One will expect an ideal class to be full of activity. There is need for a beehive of activity that increase the inquisitive, and "knowing more" of learners through the use of instructional materials.

Table 4: Test of the use of IM and classroom effectiveness.

Variables	N	df	R	P
Use of IM and Classroom effectiveness	50	49	.721	.05

Table 4 shows correlation coefficient of .721 which is positive and significant @ .05. This implies that the use of IM is related to classroom effective management.

6. Discussion of Results

This discussion shall focus on research question three posed as "what the implications are of questions 1 and 2 for effective pedagogical practices? "

The results from this study showed that teachers were acquainted with the advantages and implications in the use of instructional materials to teach but the majority of them pay lip services to the use of IM. Many of them wrote this in their lesson notes but they failed to make use of it (IM). In reality many of their students are between the ages of twelve and fourteen and have not outgrown the need for concrete references. A good pedagogical practice will be to display and teach students with IM and, this will enhance intellectual activities. In the actual fact lecture or expository method adopted by the teachers does not reveal their responses to the items on the

research instrument. Similar studies carried out by Smith & Laslert, (1999); Cox, (2008); Hopkins & Antes, (1990) corroborated the fact that the use of adequate IM will go a long way to facilitate understanding and concept(s) formation in every learner.

Moreover, good pedagogical process in class according to Sulhman, (1986) must involve presenting the learners with enabling learning situations. The situations in which learners' experiences in the broadest sense of the term-try things out to see what happens, manipulate symbols, pose questions and seek their own answers. A good classroom teacher needs to help the students to develop the spirit of inquiry through various simulative IM. This will also assist teachers in activity based strategies than expository or lecture method that was tag as teacher-centred approach in learning. In a similar vein, Cox , (2008) in his study corroborated that teaching in classrooms should be what the concept is about and how the concept works. He is of the view that classroom activities should be a continuous debatable process and not just an epitome of truth that is not open to questioning. The implication of this is that, classroom teachers should encourage acquisition of meaningful knowledge in such a way that learning becomes a permanent change in the behaviour of learners.

7. Conclusion and Recommendation

No matter the acquaintance of teachers on the use of IM in the classroom. Awareness and formal training on the production and usage of IM will go a long way to facilitate meaningful learning and adequate classroom management. It is therefore presumed that: the use of technological pedagogical and content knowledge in classrooms by the teachers will go a long way to manage any form of attitude or behaviour that could emanate in the course of teaching from the learners. IM goes a long way to represent the abstract structure of any topic and force the learners to be more inquisitive on the topic being taught. And a teacher who uses IM facilitates always enhanced understanding of learning. IM reduces monotonous processes of teaching that could be referred to as "chalk – chalk- talk- talk process". It also facilitates "a need to know" from a lesson to the students.

There is need to create awareness on the usefulness and importance on the use of instructional materials in classroom practice. It is therefore necessary to create seminal, workshops or training to facilitate the use of IM.

Nevertheless, a well planned lesson facilitates meaningful learning experience. This creates a mutual developed relationship between the teacher and the learners. This will reduce chaotic, noisy and stressful class. If desired technological breakthrough is not to elude our society, there is a need to infuse the use of TPACK in our classroom.

References

[1] Corcoran, T. B. (1985). Effective Secondary Schools, in A. M. J. Kele (ed). Reaching for excellence: An Effective school sourcebook. Washington, DC: US Government Printing office.

[2] Cox, S. (2008). A conceptual analysis of technological pedagogical content knowledge. Unpublished doctoral dissertation. Brigham Young University.

[3] Hopkins, C.D & Antes, R. L (1990). Classroom Management and Evaluation. Peacock Publishers. Inc, ITASCA ILLINOIS.

[4] Mishra, P., & Koehler, M. J. (2009). Introducing TPCK on Innovation and Technology. Hyperlink http://www.teachingstrategies/technologicalpedagogicalcontentknowledge retrieved, 16th June, 2012

[5] Olatoye, Mukaila. A. (2008). Management: a basic text in contemporary concepts. Published by Meritworth publications, 29, Ondo street, Ebute metta (East), Lagos state, Nigeria.

[6] Olatoye, Mukaila. A and Atughonu, Victoria. (2008). Correlates of classroom practice and examination malpractice on the performance of senior secondary school students in Lagos state, Nigeria. AOCOED Journal of Multidisciplinary studies. 1(2), 232- 246.

[7] Reynolds, D. (1994). Effectiveness and quality in Education in Ribbins and Burridge (Eds). Improving Education, Promoting quality in schools British library cataloguing-in-publication Data Wellington House 125 Strand London.

[8] Scheerens, Jaap (1992). Effective Schooling: Research, Theory and Practice, London: Wellington House.

[9] Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. Educational Researcher, 15(2), 4-14.

[10] Smith, C.J & Laslette, R. (1999). Effective Classroom Management. Rouledge 11, New Fetter Lane, London ECAP 4EE.

[11] Thompson, A., & Mishra, P. (2008). Breaking news: TPCK becomes TPACKS ! Journal of Computing in Teacher Education, 24(2). Retrieved 20th may, 2012 from: hyperlink "http//www.iste.org /content/NavigationMenu/SIGS/SIGTETeacherEducators/JCTE/pastissues/volume24/Number2winter2008/jcte-24–E-Tho.pdf "

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