

Teachers' Preparation of Unit Lesson Plan as Prerequisite for Values Education, Efficiency in Classroom Interactions and Students' achievement

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Abstract

This paper observed that teachers' effective service delivery of school subjects is essential for students' acquisition of knowledge, skills, motivation, values and efficiency in classroom interactions. It focused on how teachers are presently implementing approved subject curricular for schools and noted lack of sequence, integration and continuity in most teachers' structuring of their unit lesson plan and daily lesson notes, Government approved yearly planning notwithstanding. The paper consequently designed a model unit lesson plan to bridge the observed gap between Government's yearly plan of work and the teachers' daily notes of lesson. The paper emphasized the need for trained methodology teachers who are equipped with necessary skills and abilities required to prepare unit lesson plan to refresh practicing teachers. The model unit lesson plan was consequently recommended to all teachers and to teacher training institutions.

Introduction/Background:

Great teachers are committed role models who care about their students' happiness, well-being, and life beyond the classroom. They not only watch students grow but also help them to grow. They inspire and encourage students to strive for greatness, live to their fullest potentialities and see the best in students (Great Teachers, n. d.). The quality of teaching, the academic guidance and the general counseling which teachers give to students in school are of great value towards nurturing them for economic diversification, skill acquisition and positive attitude for self-reliance at all times. Sometimes in the process of teaching, some of what students learn from their teachers in the subjects is not usually written down into details in the subject curricula, though implied. The teacher is expected to fill the gaps during classroom interactions.

In readiness for work in the classroom, great teachers plan and organize their teaching strategy in a professional and predictable way that may be replicated by other teachers. Such planning often requires great efforts. Also, experience has shown that a lesson of 40 minutes could task the teacher hours or days of preparation prior to the actual lesson delivery. The concern of the teacher should always be what topics to teach at particular lessons in school; how best the elements of the topic could be structured to help students acquire the values of the topic, the skills inherent, the application of knowledge and the affection for the subject. The process of planning a lesson of the quality so described is procedural. First, the teacher should have knowledge of the subject content (Awodeyi and Harbor-Peters, 2000). Second, he should be able to use the subject curricular to prepare adequate unit lesson plan, and thirdly, he should be able to prepare adequate lesson notes, in that sequence.

Education by definition is a process of receiving or giving systematic instruction especially at school. It is the action or process of teaching someone, especially in a school;

and it is the knowledge, skills, understanding, affection and values that one gets from attending a school, college or University (Education, n. d.). The significance of these is that education is a systematic process of instruction. It usually follows a sequence that enhances efficiency during classroom interactions (Tyler, 2000; Tyler, n. d.). The teacher should be seen to provide for these values in his lesson delivery (Awodeyi, 2005).

The process of bringing about good classroom interaction is systematic and it requires clear cut statement of specific performance objectives. There are Government approved subject curricula handed to schools for teachers to implement (FRN, 2007). The Government approved subject curricula, also called yearly planning (Umeh, 2016) contain performance objectives of what learners would achieve in the topics. Subject teachers are expected to further split the objectives into specific objectives that are achievable in lessons of 40 minutes each. In addition, teachers should group the specific performance objectives into unit lesson plan (also called weekly lesson plan). This is a collection of the lessons of the week into one unit at a glance, in an arrangement that is sequential, continuous and integrated (Cunningham, 2009). It is only then the teacher would be certain that arrangement of his prepared daily lesson notes is adequate.

Theoretical Framework

Tyler's three principles of continuity, sequence and integration is relevant to this study. The principle of continuity prescribes that revisiting materials more than once reinforces students learning by allowing them to practice skills they learned earlier and to consider old information in a new way reinforcing it. The principle of sequence states that the information you present today should build on information that you presented yesterday with materials organized in a chronological order and by complexity. The principle of integration focuses on making connections for students, allowing them to engage in relevant, meaningful activities that can be connected to real life (Principles of continuity, sequence and integration).

Statement of the problem

The import of Tyler's three principles is that teacher's preparation for lessons must follow mandatory sequence. The sequence should be continuous and learning materials must be integrated within the unit lesson plan and within daily lesson notes. Unfortunately, many science and mathematics teachers in the field had problems with the preparation of unit lesson plan, and by so doing break the sequence of teaching. The attendant effect is that classroom interactions are ineffective and inefficient, resulting in poor students' achievement of the learning tasks.

The teacher's pre lesson activities may be illustrated symbolically as shown below:

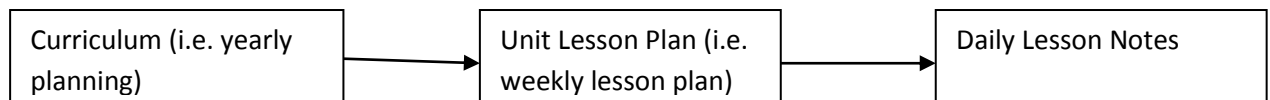


Illustration 1: Sequence of teacher's pre lesson activities

Advantages of continuity sequence and integration of lesson materials:

Teachers' pre teaching activities as described in the foregoing have invaluable advantages particularly to the teacher in the classroom and to the senior teacher whose responsibility it is to supervise the subject teacher's lesson notes and his actual teaching in the classroom. These advantages may be listed as follows:

- Teacher will easily organize teaching objectives in a good sequence
- Teacher will be able to ensure continuity of tasks and lessons

- Teacher would easily critique his arrangement of tasks, topics and lessons and reverse himself if he feels any section should be improved upon or come up before another
- Subject heads will easily point out any inadequacy in the class teachers' arrangement and suggest corrections prior to actual teaching
- A different teacher may easily fit in if the actual subject teacher is absent from school.

Lesson Plan:

A plan is a detailed proposal for doing or achieving something; an intention or decision about what one is going to do; a written account of intended future course of action (sometimes as a list of steps, a map, diagram or tabulation) aimed at achieving specific goals or objectives within a specified timeframe; the details of what needs to be done, when, how and by whom (Plan¹, n. d.; Plan², n. d.; Plan³, n. d.). In these definitions the key words to note are: intentions (objectives); decision (content selected); and timeframe (lesson duration). Others are activities (for both teacher and student); resources (instructional materials); achievement or performance (in values, skills, knowledge and affection). They early planning otherwise called the subject curriculum, the unit lesson plan and the daily notes of lesson are examples of educational planning. The teacher should skillfully prepare the latter two as mandatory pre lesson exercise.

The unit lesson plan contains all activities, skills, knowledge, values and affection which are galvanized together by the teacher as approved and supervised by the school for learners in the subject curriculum in a given week or week(s) of the school year (Cunningham, 2009). It is a unit plan of actions that enables the teacher to see all the actions he has planned for the week at a glance, in an arrangement that is sequential, continuous and integrated. The experience of this writer with both pre-service and in-service teachers alike is a lack in the skills required for the preparation of unit lesson plan. Also, the least applied among yearly plan, unit lesson plan and the lesson notes in schools is the unit lesson plan. This is the gap that attracted this paper.

Purpose of the Paper:

Generally, the purpose of this paper is to bring to the fore teachers' problem with the preparation of a unit lesson plan in which all required learning material are arranged in an order that is sequential, continuous and integrated for enhanced classroom activities.

Specifically, the paper sought to:

1. Purview unit lesson plans as it is currently being prepared by some practicing teachers in schools, bringing to the fore examples of what they prepare poorly.
2. Present a model unit lesson plan.
3. Prepare sample daily lesson notes from the unit lesson plan to serve as guide to teachers.

Research Questions:

The following research questions guided this paper.

1. How are teachers presently structuring their unit lesson plan in schools?
2. How should the weekly lesson plan be structured for efficiency of classroom interaction in order that students would acquire adequate knowledge, skills, and the deserved values in the topics?

Unit Lesson Plan as currently practiced in some Schools in Uyo locality, Nigeria:

Two cases of teachers' unit lesson plan in biology and mathematics are presented in Tables 1 and 2. These two are similar to how teachers prepare unit lesson plan in other school subjects in the area of study i.e. Uyo, in Akwa Ibom State, Nigeria.

Table 1: Weekly Lesson Plan for SS1 Biology for First Term, Week One, 12 – 16 September, 2016 (School A)

Subject	Class	Lesson/Period	Topic	Content
Biology	SS2	3	Towards Better Health	1) Control of Micro-organisms. <ul style="list-style-type: none"> - Antibiotics - High Salinity - High Temperature - Dehydration - Antiseptics 2) Vectors <ul style="list-style-type: none"> - Definition - Vector 3) Maintenance of good Health <ul style="list-style-type: none"> - Refuse disposal - Sewage disposal - Protection of food - Disease control

The structure of the weekly lesson plan for Biology on Table 1 above has five column headings namely subject, class, lesson, topic and content. This structure is not sufficient to describe a complete unit lesson plan.

Table 2: Weekly Lesson Plan for SS1 Mathematics for First Term, Week One, 12 – 16 September, 2016 (School B)

Subject	Class	Lesson/Period	Topic	Content
Mathematics	SS1	4	Number Base System	1) Conversion from one base to another. 2) Conversion of decimal fraction. 3) Application of Basic operations to number bases. 4) Applying number base system to computer programming.

The structure of Table 2 is similar to that of Table 1 in respect to column headings. Vital column headings of a unit lesson plan are not included such as: the specific performance objectives of the sub-topics, the activities of both teacher and students, and the instructional materials for conveying the lesson. Therefore, the Tables do not possess the qualities of a unit lesson plan. There is the need to design a model unit lesson plan that is adequate for efficiency of classroom interactions. The model is such that arranges sub-topics of lessons in acceptable sequence to make teaching continuous, integrated and exciting to students.

A Model Unit Lesson Plan:

A school subject curriculum is a relevant document for preparing the unit lesson plan. An example of such document is the Nigerian Senior Secondary Education Curriculum (Mathematics) for SS1-3 (FRN 2007). Similar curricula exist for all other school subjects. In these subject curricula which are in tabular form, column headings are: - topic, performance

objectives, content, activities (for teacher and students), instructional materials, and evaluation guide. Topics are listed in the rows. Mathematics topics are organized around five themes namely: Number and Numeration, Algebraic Processes, Geometry, Statistics and Introductory Calculus. The first topic under number and numeration in the mathematics curriculum under reference is “Number Base System”. If we may use this as practical example to design a model, then we observe that number base system is too wide to be taught in one lesson of 40 minutes. Also, the curriculum did not specify the number of 40 minutes lessons that could be carved out for teaching in a unit lesson plan. This is perhaps deliberately left to the discretion of the mathematics teacher. Unfortunately, most teachers fail in this regard. Five specific objectives are listed for number bases in the curriculum. These are that, students should be able to:

- Convert numbers from other bases to base 10
- Convert decimal fractions from other bases to base 10
- Convert from one base to another base
- Perform basic operations on number bases (with the exception of base 2)
- Apply number base system to computer programming.

There is no way the teacher would achieved these five objectives in one lesson of 40 minutes. Therefore, the unit lesson plan in Table 2 should actually be restructured as in Table 3. Similarly, Table1 could be restructured as in Table 4 for biology. Table 3 below is a typical model of unit lesson plan for mathematics as against what is on Table 2.

Table 3: Weekly Lesson Plan for ‘Number Base System’: Senior Secondary School One (SSS I) Mathematics, Week One (School B)

Lesson	Subtopic	Performance Objective	Content	Teachers’ Activities	Students Activities	Teaching Materials	Evaluation Guide
1	Conversion of numbers from other bases(e.g.3,4,5,6,7,8,9) to base 10	Students should convert numbers from other bases to base 10	Conversion from one base to base 10	Guide students to realize other bases e.g base 4,5(quinary), 8(octal), 16 – hexa decimal, etc	Mention other bases aside binary and ternary	Charts showing the conversion from one base to another	Questions to test the performance objectives
2	Conversion of Decimal-Fractions (DF) from other bases to base 10	Students should convert DF from other bases to base 10	Conversion of DF in a given base to base 10	Guides student to construct D F board and convert decimal fractions from other bases to base 10	Read out DF. Give the place value of a DF accurately.	Diennes blocks. Base board. Charts of given numbers in specific bases.	Convert 17.53_5 to base 10; 135_8 to base 5, etc
3	Conversion from one base to another base	Students should convert from one base to another base	Conversion of number from one base to another base	Guide students to convert from one base to another base	Convert a number in base 5 to 6 , & from base 8 to 7.	Base board. Charts of given numbers in specific bases.	Problems given to test the performance objectives.
4	Performing basic operations on number bases (with the exception of base two)	Students should perform basic operations on number bases	Addition, subtraction, multiplication and division of number bases	Guide students to perform basic operation on number bases	To include: 1. $234_5 + 143_5$ 2. $788_9 - 678_9$ 3. Multiplication/Division of two numbers.	Base board. Charts of operation of numbers in specific bases	Solve problems involving +,-,x of number bases
5	Application of number base system to computer programming	Students should be able to apply number base system to computer programming	Applying the number base system to computer programming	Guide students to see the value of doing number bases in computer programming	Students apply number base system to computer programming	Coding sheets. Samples of coded information	Problems to test the performance objectives

Note: If a school has only four periods of 40 minutes for mathematics on week timetable then the fifth lesson would become the first lesson of following week

Table 3 contains all listed qualities of a true unit lesson plan, unlike Table 2. This makes it easy for the teacher to prepare the daily lesson notes from the weekly lesson plan. It takes concerted training for the teacher to accomplish this feat. Many pre-service teachers, who were observed during teaching practice exercise by the current researcher, evaded the preparation of the unit lesson plan correctly. They felt it was tedious to prepare but this is a skill that must be acquired by teachers.

Table 4 below is a demonstration of what a unit lesson plan for biology should be. It is similar to model for mathematics in Table 3.

Table 4: Weekly Lesson Plan for SS1 Biology (Towards Better Health): First Term, Week One, 12 – 16 September, 2016 (School A)

Lesson	Subtopic	Performance Objective	Content	Teachers' Activities	Students Activities	Teaching Materials	Evaluation Guide
1	Control of harmful micro organism	Students will be able to: describe some ways by which disease-causing micro-organisms and infectious diseases can be controlled	Control of disease causing micro-organisms. high temperature, antibiotics, high salinity, antiseptics, and dehydration	Teacher organizes and takes students to visit sewage treatment plants	Students work in groups to perform experiments on control of micro-organisms using high temp, antibiotics, etc. students discuss result of the separate experiments.	Ovens, antibiotic and Petri- dishes	How can we protect our environment from harmful micro organisms
2	Vectors	Students will be able to 1. State ways to control vectors. 2. List ways to protect man from disease causing micro-organisms spread by vectors	Definition of vectors and ways of controlling vectors	Teacher invites resource persons to talk on public health. students write & submit essay on refuse and sewage disposal	Students perform experiments showing spraying a body of stagnant water with a layer of oil can destroy a vector e.g. mosquito	Charts showing proper refuse treatment and disposal modes	List some vectors of micro organisms
3	Maintaining good health	Students will be able to: 1. Describe some method used in disposal of refuse and sewage 2. State the roles the individual should play to encourage good health	Importance of good health to community; ways in which communities do these:-refuse disposal, sewage disposal, protection of water, protection of food, control of diseases	Display charts of public organizations	Students study charts of public health organizations and their areas of work	Charts listing health organizations and their areas of work	List four national and international health organizations Describe their work

4	Health Organizations	Students will name some national and international health organizations and provide descriptions of what they do	Health organizations	Display charts of public organizations	Students study charts of public health organizations and their areas of work	Charts listing health organizations and their areas of work	List four national and international health organizations Describe their work
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The Daily lesson note:

A good unit lesson plan makes it easy to prepare the daily lesson note as the details of each lesson is already described in the unit lesson plan. A daily lesson note in addition to the information on the unit lesson plan contains examples and exercise to be given to students in class, or to do at home. An example of a lesson note which is derived from existing unit lesson plan in Table 3 is illustrated below:

A Note of Lesson on Conversion of Numbers from Other Bases to Base Ten:

Topic: Conversion of numbers from a base which is less than 10 to a number in base ten.

Objective: Students should be able to convert numbers from a base below 10 to a number in base 10 i.e. from base 3 to base 10, or from base 5 to base 10, or from base 9 to base 10, etc.

Content: Conversion of numbers from a base that is below 10 to a number in base 10.

Instructional Materials:

1. Prepared cardboard showing the general number line
2. A Power Point presentation with Micro Soft Word may also be put into use

Teacher’s Activity:

Set induction: The teacher provides a number, e.g. 54326₍₁₀₎ on a prepared chart and tasks students to: read out the number; indicate the place value of each digit; and write out the number in words. Some digits of a number may be left out deliberately on the chart by the teacher as gaps for students to fill or complete. Such gaps are indicated in bold prints in Figure 1. The teacher may provide gaps on the figure, for students to fill as it occurs to him.

Students’ Activity:

1. Students respond to the teacher’s questions.
2. Students provide additional information and fill gaps on the chart as illustrated below:

TM	M	HTH	TTH	TH	H	T	U	
5	4	3	2	6				
				5(10) ⁴	4(10) ³	3(10) ²	2(10) ¹	6(10) ⁰
				50000	4000	300	20	6
		X _n B ⁿ	X ₄ B ⁴	X ₃ B ³	X ₂ B ²	X ₁ B ¹	X ₀ B ⁰	

Figure 1: Place value of large numbers (Numbers in bold were left as gaps for students to fill).

The abbreviations used in the figure above are explained as follows:

1. U represents unit, T for ten, H for hundred, TH for thousand, TTH for ten thousand, HTH for hundred thousand, M for million, TM for ten million etc.
2. X_n represents the digit(X) of the large number with its place value (n) on the number line.
3. Bⁿ represents the base (B) to which the value of a particular digit is written and the power (n) to which it is raised.

Class Exercise:

Convert each of the following numbers in their indicated base to a number in base ten: 21378₍₉₎; 12467₍₈₎; 23156₍₇₎; 32045₍₆₎; 13244₍₅₎; 10323₍₄₎; 12122₍₃₎; and 10101₍₂₎.

The alternative way to set the question is: given that 52347₍₁₀₎ → X₍₁₀₎, find X.

Solution: $21378_{(9)} = 2(9)^4 + 1(9)^3 + 3(9)^2 + 7(9)^1 + 8(9)^0$
 $= 2(6561) + 1(729) + 3(81) + 7(9) + 8$
 $= 13122 + 729 + 243 + 63 + 8$
 $= 14165_{10}$

The required value of X is 14165.

Discussion:

The lesson plans which are indicated on Tables 1 and 2 is deficient in intention, decision, time frame, activities of teacher and students, instructional resources and achievement. The unit lesson plans on Tables 3 and 4 however contains the required details. These tables can only be prepared by teachers who are knowledgeable (Awodeyi, 2005). Furthermore, Tables 3 and 4 enables the teacher to examine critically, the sequence and continuity of his lessons (Tyler, 2010; Tyler (n. d.)). The content of the Tables also offers the Head teacher the opportunity to critic the teacher’s readiness for teaching and also, provide useful input into what his teacher has prepared. The daily lesson note should derive from the structured unit lesson plan.

Conclusion:

Effective teaching can only be achieved by professionals who are skilled in the preparation of unit lesson plan. The teacher should have been entrained for the specific skills required for the exercise prior to certification. The time to make amends for teachers who still lag behind is now.

Recommendation:

1. Specialist teachers should be hired to train or refresh practicing teachers on the preparation of unit lesson plan.
2. Teacher training institutions should note the problem of this paper and ensure that their student teachers or pre service teachers are adequately trained on the art of preparing a unit lesson plan before they graduate.
3. Organizers of academic conferences and workshops nationwide could invite resource persons to lead participants on the preparation of unit lesson plan. The author of this paper will gladly help in this wise.

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