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Instructional Design Principals for Business English Language Teaching at Tertiary Level

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Abstract

In the world of business, trade and commerce today, English is widely used as a major medium of communication in both large corporate entities and small business concerns. Thus having an excellent proficiency in English language has become a vital issue in achieving success in this arena. As a matter of fact, efficiency in English language skills (listening, speaking, reading and writing) is an asset for business correspondence. A poor presentation can destroy the prospect of a quality product or a selling technique or even a marketing policy. It is evident that the students of this area are highly motivated by business related study. "Business English" can bridge the both domains of English and Business. "Business English" which is an issue of English for Specific Purposes (ESP), has a very thoughtful and research-oriented arrangement of language teaching on the basis of needs analysis, formulation of goals and objectives, specific syllabus design, appropriate material development, effective teaching as well as accurate evaluation. 'Advertisement is harmful' is a stormy, argumentative topic for debate in English class. Topics like Business Ethics, mortgage loan, poverty alleviation, bidding, microcredit, currency, tax, morality can be chosen for speaking and writing from real life experience. Activities like role playing, making phone or conference calls, doing presentations, taking part in meetings, writing minutes, being involved in negotiations, writing emails and reports will

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help learners achieving proficiency in English class. It helps in processing and disseminating information quickly and accurately in real life situation of professional life. The paper reflects how an effective ESP course can be designed for a particular group of students of Business Administration.

Keywords: ESP**,** register analysis, rhetorical or discourse analysis, Target situation analysis, Skills and strategies, learning - centred approach

Introduction

Massive advancement in every field of life now-a-days in global perspective has reduced the distance among the countries in different ways. The development of art, culture, business, research, technology and communication has thoroughly changed the objectives of English language teaching. English for Specific Purposes (ESP) has emerged to meet all the rising demand of the academic and professional learners.

ESP has got planning of language teaching for all particular groups of learners. At tertiary level, it is expected that a student will develop a good command of English language. If s/he fails to have a good command of the skills of English language like listening, speaking, reading and writing, s/he should be taught intensively. ESP has very innovative and research-oriented arrangement of language teaching on the basis of register analysis, rhetorical or discourse analysis, target situation analysis, skills and strategies, learning – centred approach etc. for a group of academic or professional learners.

The learners of tertiary level are invariably stimulated by their subject related texts. Myth, fairy-tales, rhetoric terms, semantics, pragmatics, life of writers, interesting extract from poem, fictions can be interesting materials for teaching English language to the students of English literature, medical students will be interested in the description of newly identified diseases or recently invented medicines

and/or instruments. On the other hand, the students of the Department of Law or professional lawyers may have interest on different new and complex case studies, investigation reports, or challenging crime issues and solutions. A wonderful presentation of launching a product can attract the student or professionals of Business faculty. ESP believes that if the point of interests of the learners varies, why will we generalize all learners with same materials? The target for learning language and levels of previous knowledge will also vary. Thus, for an individual group of learners, a tailor-made ESP course is thus suitable, motivating, interesting, and effective.

The whole activities are divided into two major groups:

ESP is an ever growing or developing area. From its beginning in the 1960s, it has undergone several changes.Since the mood of life and lifestyle is getting changed, ESP is reviewing its planning. On the basis of such changing, two major arena have emerged in the world of ESP:

a. Pedagogy in course Planning
b. Diversity in teaching

Pedagogy in course Planning encompasses the following areas of research:

The concept of special language: register analysis

Nature of language used by the lawyers is different from the language used by the students of literature. Medical English is different from English for the engineers. Teaching English to students at tertiary level must be specific and area-related while their career groups are based on individual preferences (*e.g.*, Doctor, Lawyer, and Businessman). If we analyze the type of language used by the scientists, we will see that present simple tense, passive voice and nominal compounds are commonly used. So while preparing a tailor made ESP syllabus for the scientists/ would be scientists, we need to give priority on these

focused structures. In ESP, register analysis of the language of target area is a significant turning point.

Beyond the sentence: rhetorical or discourse analysis

When we move forward, we reach from sentence to text level. Like sentence structure, organization of texts also vary from area to area of tertiary level. Science texts are thus different from commercial texts. So when to deal with beyond sentence level, an ESP teacher do care whether to focus more on narrative or argumentative.

Target situation analysis

It is a unique trend in ESP to analyze the target situation before designing English language course. Huchinson and Waters (1987) have considered it as 'Learners' reasons for learning'. According to them "Given that the purpose of an ESP course is to enable learners to function adequately in a target situation, that is, the situation in which the learners will use the language they are learning, then the ESP course design process should proceed by first identifying the target situation and then carrying out a rigorous analysis of the linguistic features of that situation. The identified features will form the syllabus of the ESP course." (Page 12)

Skills and strategies

Specifying or determining the skills and strategies is the 4th stage of designing ESP course. It is obvious that where the physicians need to develop all the four skills of language e.g. listening, speaking, reading and writing, the nurses need only the first three skills to develop. Hence, the ESP syllabus for nurses will mainly be based on speaking and listening based whereas, a medical English course will focus on covering all the four skills to equip them to meet the challenge of their target situation.

A learning – centred approach

ESP has innovative ideas about language learning. ESP unlike other approaches, does not deal with mere description and exemplification rather it deals the use of language. So 'learn language, not about the language' can be the slogan in this regard. Huchinson and Waters (1987) once again have considered it as "A truly valid approach to ESP must be based on an understanding of the processes of language learning" (Page, 14)

Diversity in teaching

'Be ESP teacher, be effective teacher' is a maxim for ESP teachers. An ESP teacher has to perform so many roles. S/he needs to perform the role of a needs analyst, a setter of goals and objectives, a syllabus designer, a materials developer, a teacher and an evaluator.

We cannot ignore the necessity of learning English as a medium study or profession, neither can we avoid the failure of teaching English language proficiency teaching. So we need to keep teaching English to the students of tertiary level. If we be the teacher of ESP, we will be the successful teachers.

Success of a teacher depends on sound learning of the learners. ESP ensures learning language to the students with different interest in academic area and profession. Since ESP has got very strong point of engaging students from very first step of student learning to the last step, it can claim to be effective approach. Diverse teaching includes the following methods:

Active teaching

Active teaching concentrates on learners and ensures diversity in teaching activities inside the classroom and outside too. Here, the teacher will brainstorm on how to involve learners into different creative activities. ESP is synonymous to active teaching. S/he will rush to the possible future work places of his/her learners to assess the

nature of language. Then s/he will design the materials, teach them by creating mock real life situation through role playing. So besides mere teaching, en ESP teacher know how to involve his/her learners for an effective result.

Motivating teaching

ESP courses are tailor made courses based on the specific needs analysis. Syllabus design is particular. Materials are collected from the learners' academic or professional areas. Teaching is diversified. So ESP is enriched with so many motivating factors to ensure English language teaching.

Engaging teaching

In ESP, both the teacher and students get engaged before starting the course. The first step entitled needs analysis is determined on the basis of the necessities, lacks and even wants of the learners. Syllabus is based on the skills they need to develop. Materials are chosen and used in classroom in a very creating way. So from beginning to end it is an engaging arrangement for both the teacher and learners.

Outcome based teaching

ESP ensures language learning for a particular group of learner. The use of the word ensure is very desperate in this sentence. But ESP has the arrangement to meet the challenge since it is based on the outcome or target situation analysis. ESP learner are mature and more motivated. A cosmetic purpose of paying more money is remarkable. So the teacher and the learners are accountable in the whole process.

Planned teaching

The journey of ESP teaching is an enthusiastic journey 'from complex to simple' for a teacher. The teacher knows the destination of the learners; S/he knows the starting level of the learners. S/he knows the interest and intention of the learners. So to lead the learners towards

their destination is not a big challenge for him/her. The ESP syllabus is derived from a detailed analysis of the language features of the target situation. The learners feel interested because the syllabus is designed only for them even considering their opinions. Teaching materials are designed from the area of the job or study of the learners. Teaching is versatile.

Teaching provided by a versatile teacher

In ESP, the person who is a needs analyst is also a setter of goals and objectives, a syllabus designer, a material developer and a teacher as well as an evaluator. Therefore, there is no gap among the steps of a whole project of language teaching. ESP syllabus indicates why to teach besides what to teach. So instruction is clear. Moreover, the teacher himself /herself select, adapt or write the materials. So s/he can use those very effectively in classroom situation and outside the classroom, An ESP teacher obviously takes his, her learners from remembering , understanding level to analyzing, applying, evaluating and creating level.

Continuous research based teaching

An ESP teacher is all in all. If at the middle of the semester, it is found that the expected output is not seen, the teacher can review the syllabus, redesign the materials and refine teaching method. S/he can motivate his /her learners towards learning. The teacher needs to design a fresh course for the new batch with same professional target group. So it is ever engaging approach and thus innovative and effective.

Implementation of both Pedagogy in course Planning and Diversity in teaching in Business English in classroom situation

Teaching is a unique art and ESP has taught its teachers to be proficient in this art. Learners, teachers, materials, classroom facilities all are the ingredients of teaching process, ESP showed us how to blend all materials harmoniously towards its goal of effective teaching.

My teaching experience, after adopting ESP approach, is really worthy one. It taught me how to engage the learners into their classroom or real-life situation. If once we, the teachers, can arouse curiosity and engage them, learning materials will no longer be confined within the covers of the books rather it will come up to the life of the learners and will enlighten. Thus we can achieve the outcomes of teaching.

After the rigorous practice of theory of ESP, I found myself to be well equipped. In Summer 2016, I was offered to teach an English language course to 34 students of the Department of Business Administration. While all my colleagues were teaching all their students with same general language materials, I was thinking of designing an ESP to reach the outcomes:

At the end of the course the learners can

- Identify the real life situation and clarify the mood of delivering thoughtful and prospective speech
- Compare and contrast the formal and informal situation and expression
- Play the role of significant imaginary characters
- Can make conference call, virtual records and phone calls
- Can present a topic very attractively
- May call a meeting, participate and even preside over a meeting
- May negotiate in some prescribed deals
- Finally can write business letter, emails and reports

Keeping the outcomes in mind, I have analyze the register of the language necessary to serve the above mentioned purposes. I have determined the pedagogy of clarifying discourse of language. While analyze the target situation, I found that along with a very good command in English language, clear logic, strong argumentative power, sharp sense judgment, high convincing power, strong defensive quality they should develop. So, besides the theoretical

reviews of some basic sentence structures, we marched to discourse level.

According to the plan, through lecture, interactive session, and brainstorming group discussion, we completed comprehending levels of study. Then we compared and contrasted the prospect of some real life issues on the basis of their contributions to enrich the life, community and surrounding. Then I as a facilitator, I gave the students the authority of individual topic, they selected their topics and planned to uphold through some creative ideas and exemplifications. All of the students seemed to be interested and serious as well to highlight the distinguished features, major/ representative characters from reality.

In their endeavor, they utilize both their intellectual and creative power. With very limited resource, they designed costumes to represent the characters. As they could engage themselves devotedly in playing roles, I am sure they will never forget these as they usually forget after traditional memorization process.

It is evident that the learners have enjoyed the contents and feel affinity with the sequences given to them. They could learn a lot since they could interpret the situation from real life experience. Mock job interviews have given new ideas and understanding. Role playing on the basis of dialogues between employers-employee, shopkeeper – consumer, presenter –participants, two parties in negotiation have taken them to the height reality. Thus they could really explore elementary level of remembering and understanding level to higher creative level. They seemed to be very confident when they could complete preparing a new product by determining the target consumers and by selecting publication media. While the students were debating over brainstorming issue like ‘Advertisement is harmful’ both the parties were restless to exemplify from their practical perspective. While dramatizing their English script on practicing values and moralities, or business ethics, they seemed to just be motivated to the virtues and avoid the vices in their lives.

Actually, they could have the insight that this sort of an ESP course can contribute in their professional progress. Automatically they were motivated to grasp the art and achieve the skills.

Conclusion

Instrumental motivation like appreciation, achieving handsome score or availing a job or promotion or scholarship is related to such types of courses. There is a cosmetic purpose, too (of paying and earning handsome amount of money) which makes the both the parties conscious of their achievement of prescribed skills out of the program. In this discussion, it is clear that ESP is a way out to teach particular group of learners intensively as well as effectively through the steps needs analysis, formation of goals and objectives, syllabus design, materials development, teaching and evaluation.

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Curriculum and Learning the Course *World Civilization* at Bangladesh Islami University, Bangladesh

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Abstract

Pedagogy is critical aspect of classroom teaching at all educational levels and particularly in tertiary level. Globally there has no unique teaching style to educate undergrad students, despite most universities basically follow the old-fashioned lecturing style. To assess students' learning, written examinations, assignments, presentation and field work are still followed while main emphasis put on formal examinations. *World Civilization* as a 100-mark mandatory course involving three credit for the third year law students in Bangladesh Islami University outlines wide coverage of the entire journey of human civilization that encompasses from the beginning of the universe to recent phenomena. The course vastly helps the students to extend their knowledge of different ancient, medieval and modern civilizations, major religions that immensely contributed the world, major wars that accelerated civilization growth and recent phenomena of world politics. This article about the pedagogy what I follow to educate undergrad students in and out of the classroom, curriculum what the department prescribed for them to understand the civilization and the assessment style what the university stipulated.

Keywords: Pedagogy, Curriculum, World Civilization, Assessment

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Introduction

As the teaching and learning of 'World Civilization', a course under broader discipline of World History, the scope for using diverse teaching tools is very limited except lecturing or storytelling. However, with the growth of modern technology, multimedia presentation involving image, video, sound and music has become popular in classroom presentation to the lecturers who are accustomed with the technology. The lecturing method is still dominating method at classroom teaching while taking written examinations is popular to assess the learners. This study is solely centered university level pedagogy and curriculum of 'World Civilization' with no scope of practical knowledge except visiting some convenience museums and watching related documentaries. Apart the tasks defined by curriculum and students' demand of summarizing diverse and vast information, I try to take the students out of the lecture-centric learning by suggesting them to watch relevant documentaries and movies, and read fictional novels to get deep understanding of the course subject matter. Therefore, for assessing the learners' acquirement, I try to use some diverse tools like multimedia presentation, assignment and debate.

Pedagogy of University Teaching

As new university faculty members are often hired with no previous teaching experience or formal knowledge about pedagogy (Harris & Cullen, 2008, p. 58), I am not an exception. Globally concentration of study of pedagogy are more focused in primary and secondary school learning than university teaching and learning that laid confidence on faculties' intelligence and personal development.

According to Bain (2004) the best college teachers recognize that intelligence is expandable (students can learn), know their subjects extremely well, are active scholars, create environments that are supportive yet challenging, have a strong trust in students, and care about student learning and deep knowledge. Professors with deep understanding of their subjects are more likely to find alternative ways

of explaining concepts, create meaningful metaphors, and provide meaningful rationale for learning.

Filene (2005) posited that effective teachers take students out of their comfort zones and challenge them with "unsettling ideas, set high standards, demand introspection and hard work – all the while, heeding how students are responding" (p. 3). And Finkel (2000) defined "good teaching" as "…the creation of those circumstances that lead to significant learning in others" (p. 8). He went on to say that "Learning is the end; teaching is a means to that end. Teachers must never forget that end when devising ways to teach" (p. 8).

In 1995, Tom Drummond compiled a collection of practices that he believed constituted excellence in college (also university) teaching. The following are his core set of Best Practices:

1. **Lecture Practices** are defined as effective ways to present new information orally to fit differences in learning styles.

2. **Discussion Group Triggers** are ways to present common experiences to engage a group in discussion.

3. **Thoughtful Questions** are effective ways to formulate questions that foster engagement and confidence.

4. **Reflective Responses to Learner Contributions** establish mutually beneficial communication by reflective listening.

5. **Rewarding Learner Participation** is a way to support learner actions with well-timed, encouraging positives.

6. **Active Learning Strategies** foster active, constructive participation.

7. **Cooperative Group Assignments** are ways to assign formal cooperative tasks.

8. **Goals to Grades Connections** establish a logical agreement of goals and objectives, flowing to measures of performance, criteria and grading.

9. **Modeling** represents openness, continuous learning, and trust.

10. **Double Loop Feedback** facilitates the mutual awareness of how one learns to learn.

11. **Climate Setting** regulates the physical and mental climate.

12. **Fostering Learner Self-Responsibility** allows the learners to plan and evaluate much of their learning.

Many of Drummond's best practices and techniques are supported by other research. In 1916 John Dewey wrote that education is not an experience of 'telling and being told', but an active and constructive process. Even though this was realized over ninety years ago, lecture, which is clearly a method of telling, is still widely used today (Rieg and Wilson, 2007).

Curriculum of World Civilization

The curriculum is the key reference point for teachers, particularly in developing countries, where it is encoded in the official textbook and teacher guides, often the sole resource used by teachers (Westbrook et. al, 2003, p. 12). Teachers' pedagogic approaches, strategies and practices thus serve to enact the curriculum. The curriculum links the macro (officially selected educational goals and content) with the micro (the act of teaching and assessment in the classroom), and is best seen as 'a series of translations, transpositions and transformations' (Alexander, 2009, p.16; original emphasis). The official curriculum is transacted and in the process gets transformed, as 'teachers and students interpret, modify and add to the meaning' embodied in the official specification (ibid.). Thus, curriculum, pedagogy and assessment are interrelated and mutually influence one another in the day-to-day classroom interaction (Bernstein, 1975, Alexander, 2009).

Definitely curriculum developed by experts or professors intent to gain some objectives. The objectives of the course (World Civilization) are to enable the students understand the origin of the universe and mankind; to educate them how the ancient nomads survived in the formative volatile earth; which civilizations in how extend affected the modern knowledge, technology and culture; the change-making events that accelerated global formation; and today's technology-based civilization and its crisis. The aim of the course is to yield enthusiasm in the heart of the students to contribute for the humankind, not only lead an ordinary life.

Course Curriculum: The course curriculum engaged almost every chapter of human civilization. The curriculum of the course is: origin of the universe and man, ancient civilization: Egyptian, Mesopotamian, Sinic, Indian, Greek and Roman, Persian and others, rise and spread of Christianity, Judaism, Islam, Hinduism, Confucianism, Buddhism and Jainism, Islam and medieval knowledge society, Renaissance, Reformation and Enlightenment movements, French and Industrial revolutions, Colonialism and Imperialism, First and Second World Wars, Cold War and Capitalism, clash of civilizations and New World Order.

How I Teach the Course

The course is prescribed as core for every third year student of Law Department and pass before graduating from the university. The course World Civilization is a 100 marks course involving three credits. As the academic activities divided into trimester, I get only four months to educate the vast syllabus and assess the students. I have to conduct two classes in each week according to routine and in this way total class number never remains 20-24 in each trimester. Usually I follow the lecturing model to teach the students as McKeachie (2002) noted that

> Lectures are good for presenting up-to-date information, summarizing material from a variety of sources, adapting

> material to the background and interests of a particular group of students at a certain time and place, helping students read more effectively by giving an orientation and conceptual framework, and focusing on key concepts or ideas.

Advantages to lecturing include that the lecturer has face to face contact with students and this shared experience can form a relationship. Pragmatic reasons for lecturing are cost efficiency and pedagogical efficiency (Filene, 2005). The students are assigned to do group works like writing assignment and multimedia presentation that enhance their oratory capacity as I believe what Filene said "the best lecturers add variety and drama into their teaching".

As a lecturer, I normally prepare my lecture one week before the commencement of the schedule class of each trimester; because the department provides us with the course distribution attached with its content. I usually prefer reference book than making lecture note for the students as students can know more if reference books are followed. If any topic becomes too much ambiguous and diverse to understand, I prepare comprehensive lecture note. I also organize some power point slides thus student can go back to the old civilization period by watching relevant images and videos. Majority students prefer lecture note than following reference books as lecture note is comprehensive, confined to the topic and easy to understand but I believe without engaging reference books understanding the topic and acquiring knowledge will be incomplete.

During the lecture, I try to present the topic easy to understand and use whiteboard to write definitions according to different scholars thus helps the students to take preparation for examinations and achieve good result. This is because it is the first time the students come across the course; thus, they need to have a clear view of it so that they would appreciate it. To draw students' attention sometimes I deliberately tell wrong information or write in wrong spelling. As the lecture progress, I throw questions in relation to what I have just explained. Some questions need more explanation, more citation and

more examples to what I given them. In some classes, I ask the students to read out the texts from reference book or lecture note that aware students to draw their attention.

Lecturing is not all time serve the objectives of teaching what Filene (2005) stated that lecturing works less effectively than discussing for promoting independent thinking or developing cognitive skills. To make variety, in one or two classes, I show them video clips that exceptionally present the life of any particular civilization and ask them to take note from that. I try to take the students to make a journey in that civilization and their everyday life which demised hundreds years ago. Sometimes, I ask the good students to summarize my lecture and point out what I delivered thus other can understand in their own language. If I feel comport with the students attention in the class, I divided some students into several groups to engage constructive debate on, like, Egyptian Civilization contributed more than the Babylonian. Such debate compels the students to concentrate more and read attentively to win over the other teams.

As the medium of instruction is English, I usually go through my lecture in English but it needs translation into Bengali (the mother tongue) for better understanding of the topic. When, I feel any particular topic is hard to understand and digest for the students, I point out some key words and interlink them covering whole story that bereft off students from memorizing. Taking the basic topic unchanged, I sometimes walk through out the lane of knowledge and information that give them test of alternative learning and attractive topic within curriculum.

I think I follow most of the Tom Drummond's Best Practice for teaching in my class. Table 1 shows what I follow (either full or partial) or what I do not follow.

Table-1: Application status of Tom Drummond's method

Categories	Yes, I follow	No, I don't follow
Lecture Practices	√	
Discussion Group	√	
Thoughtful Questions	√	
Reflective Responses to Learner Contributions		√
Rewarding Learner Participation		√
Active Learning Strategies	√	
Cooperative Group Assignments	√	
Goals to Grades Connections		√
Modeling		√
Double Loop Feedback		√
Climate Setting	√	
Fostering Learner Self-Responsibility	√	

Assessment

Many students are aware of summative assessments from their secondary and higher secondary experiences. University has fixed two summative assessments like midterm examinations and final examinations and devised formative assessments like class test, assignment and presentation and class attendance which are not attractive to all students. Each category carries a defined mark that totals 100 marks. The marks distribution is given in Table 2.

In midterm examinations, students have to answer three questions and in final examinations, they have to answer the four questions. I usually take one class test in each trimester but sometimes, students prefer two class tests for their convenience. I prescribe group assignment and individual presentation in the beginning of trimester. The former posters the students' ability to write their understanding and critical thinking while the later exposes students' capacity to present their acquired knowledge and understanding. After

presentation, the other students and I usually ask some relevant questions to assess their apprehension about the topic what earlier prescribed to him/her. The class attendance mark depends on students' attendance in class and the class performance considers their attaining goal what I assess time to time in class.

Table-2: Marks Distribution

Categories of Assessment	Marks
Midterm Examinations	30
Final Examinations	40
Class Test	10
Assignment and Presentation (5+5)	10
Class Attendance and performance (5+5)	10
Total	100

Benefits of the learners

As the educator of the course, I think the students who taught the course World Civilization become well-information about the great civilizations which contributed today's development like each stair of a long staircase. The course develops the worldview of the students and after four months in acquiring knowledge, their keen to acquire more knowledge about the civilizations develops. The course yields a motivation to do something for the betterment of mankind. A developed worldview helps the students throughout their life to respect other culture, society and civilizations that contribution immensely for which we blessed today.

Suggested major books for the course

1. Pearce, F. G. (1965). An outline history of civilization. Bombay: Oxford U.P.

2. Wells, H. G. (1922). A short history of the world. New York: The Macmillan Co.
3. Huntington, S. P. (1996). The clash of civilizations and the remaking of world order. New York: Simon & Schuster.
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Conclusion

Education is the process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs, and habits in which teacher is the key role player to make education or educational system perfect and empirical. As the course World Civilizations is historical, it might help the students know about the past undertaken the learning of history into practice in the different fields of orientation. The success of the history analysis mainly depends on how a teacher belongs to this area of study in terms of knowledge. But scholarly, the area of specialization is the key to the success of history analysis. And the course 'World Civilizations' requires complete deservingness of area of specialization, which may be the catalyst to teach this course. The logistic materials and all over supports of BIU to conduct the course are convenient, that has made the teaching and learning processes conducive to the teachers and students respectively. For being a history based course, it is enriching the students' knowledge under systematic teaching procedure. In fact, the course under formal setting has effect on the way one thinks, feels, or acts.

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Wilhelm Von Humboldt: A Critical Review on His Philosophy of Language, Theory And Practice of Education

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Abstract

Wilhelm Von Humboldt was among those philosophers who used language as a tool to study the human mind and interpret human cultural differences. Humboldt equated language and thought as inseparable. His model of language can be summarized as follows: the character and structure of a language expresses the inner life and knowledge of its speakers, and that language must differ from one another in the same way and to the same degree as those who use them. Humboldt's approach to Allgemeine Bildung or well-rounded education was based on his own experience and lifelong learning process. The study of Humboldt's work 'helps to clarify the central problems and questions of recent educational theory as matters concerning all of us, and also help to resolve issues which require further theoretical and practical analysis' (Benner,1990)

Introduction

Language is part of culture. In fact, it is the basic tool of learning. It represents our worldview and expresses the specific features of national mentality. Therefore, questions as such arise, *"Do speakers*

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of different languages think differently? *Are there distinct habits of thought and feeling that correspond to English, Malay, Arabic or any other language*? *Do speakers of different languages view the natural, social, and spiritual worlds with different lenses*? Wilhelm von Humboldt was among those philosophers who attempted to find answers to these questions. He used language as a tool to study the human mind and interpret human cultural differences.

A Brief Biography

Wilhelm von Humboldt (1767-1835), one of the most influential linguists of the nineteenth century, was a statesman and a pedagogue. He is remembered for his contribution in linguistics - the philosophy of language and the field of educational reform. The Humboldt University in Berlin was named after him. In particular, he is acknowledged as being the founder of the Prussian education system which was used as a model for education systems in countries such as the United States and Japan**.** However, his interests were not only historical like most of his contemporaries. Robins (1997) states that:

> Humboldt wrote voluminously on various topics in linguistics and on various languages. He was concerned with explaining the infinitely creative aspect of language, both grammatical and lexical, by which the necessarily finite resources available to each speaker can be made to respond to all the needs that as an individual and as a member of a nation or a speech community he may encounter.

In addition, Humboldt regarded language as an activity that arises spontaneously from the human spirit. In his opinion, languages are different just as the characteristics of individuals are different.

From the early nineteenth century until his death in 1835, Humboldt used his connections as a statesman to correspond with people all over the world, which helped him gather information from missionaries, traders, diplomats, colonial administrators, explorers, and fellow scientists. He collected word lists in Quechua; studied Sanskrit grammar; pored over epics in Javanese; scrutinized Bible

passages in Malagasy and exchanged letters with scholars on Egyptian hieroglyphics and Chinese characters.

Humboldt's philosophy of language was in line with Enlightenment views and thoughts. According to Robins (1997):

> Humboldt joined others of his age in their eulogies of Sanskrit as a magnificent example of inflectional structure. He was fully alive to the importance of Sanskrit and to the now developing Indo-European comparative historical linguistic.

He did not rank languages in a hierarchy - languages in his view were all equivalent and each one carries value and worth. For this reason, he has rejected the notion favored by Schlegel's brother Friedrich that Sanskrit was a language given by God to the early Indo Europeans, and he certainly did not believe it to be the indicator of a deeper Aryan racial superiority. Even though this was the case, he agreed that Indo-European languages were superior due to their inflectional grammar.

Philosophy of Language

In contrary to the common beliefs of philosopher and linguists of his time, Humboldt equated language and thought as inseparable, as language completely determining thought, in a hypothesis known as the Weltanschauung (world view) hypothesis (Brown, 1968). Humboldt (Cited in Robbins, 1997) claims that:

> Language is, as it were, the external manifestation of the minds of peoples. Their language is their soul, and their soul is their language. It is impossible to conceive them ever sufficiently identical.

Humboldt (Cited in UNESCO, 2000) further elaborates that language:

> A world that lies between the world of external phenomena and the inner world of man. Language is an integral part of us. It is in our mind, memory and it

> changes shape with every movement of thought, with each new socio-cultural role. The language is active in all areas of spiritual life as creative force, the language is an important method of formation and existence of man's knowledge about the world.

He also emphasized "profound semantic" differences between languages which lead to varying "cognitive perspectives," an idea commonly known as cultural relativity (Wierzbika, 3).

Although little attention was given to this extreme view at the time, this same idea drew much interest and criticism in the 1930's in the emergence of the hypothesis known as the Sapir-Whorf Hypothesis (Linguistic Relativity). According to Sapir (1928, Cited in Salzmann, 1993, p.153):

> Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language which has become the medium of expression for their society… The fact of the matter is that the 'real world' is to a large extent unconsciously built upon the language habits of the group. No two languages are ever sufficiently similar to be considered as representing the same social reality. The worlds in which different societies live are distinct worlds, not merely the same world with different labels attached.

On the footsteps of Herder, a German philosopher, Humboldt emphasized the connection between national language and national character, this was due to the common romanticism notion of the time. More original was Humboldt's theory of "inner" and "outer" form in language. The outer form of language was the raw material (the sounds) from which different languages were made; the inner form was the structure of grammar and meaning that was imposed upon the material form and differentiated one language from another. This "structural" conception of language was popular for a short time in the middle of the twentieth century.

Additionally, Humboldt viewed language as dynamic rather than static. It was regarded as an activity rather than a product of an activity. Therefore, a language is not a set of actual utterances produced by speakers but the underlying principles or rules that make it possible for speakers to produce such utterances and, moreover, an unlimited number of them. This idea was adopted later by the German philologist, Heymann Steinthal and physiologist and psychologist Wilhelm Wundt. This notion influenced theories on psychology of language. Its influence, like that of the distinction of inner and outer form, can also be seen in the thought of Ferdinand de Saussure, a Swiss linguist. However, its full implications were probably not perceived and made precise until the middle of the twentieth century by Noam Chomsky, who re-emphasized it and made it one of the basic notions of generative grammar.

In conclusion, Humboldt's model of language can be summarized as follows: the character and structure of a language expresses the inner life and knowledge of its speakers, and that language must differ from one another in the same way and to the same degree as those who use them. Sounds do not become words until a meaning has been put into them, and this meaning embodies the thought of a community. What Humboldt terms the inner form of a language is just that mode of denoting the relations between the parts of a sentence which reflects the manner in which a particular body of men regards the world about them. It is the task of the morphology of speech to distinguish the various ways in which languages differ from each other as regards their inner form, and to classify and arrange them accordingly.

Theory and Practice of Education

Humboldt was appointed the Prussian minister of education. A few days after taking up his duties in Berlin, Humboldt informed his wife on 4th March, 1809 of his plan to arrange 'for schools to be paid for by the nation alone' (Letters, 591); he wanted a fund to be set up to enable schools to be run and their teachers paid independently of the government and external circumstances. He took that idea further in a letter to Nicolovius (Letters, 594, Cited in UNESCO, 2000):

> Education is a matter for the nation and we are preparing (admittedly with great caution) to diminish the powers of the State and win the nation over to our own interests.

Even though he was the Prussian minister of Education, he never advocated a system of national education that was predominantly Prussian; he looked beyond Prussia and saw himself as a spokesman of the whole German people. His scientific work always had in mind the interests of all mankind. Yet it was not until after his death that Humboldt's school plans and fragments of a treatise on the "Theory of Human Education" were published. In the treatise, Humboldt (Cited in UNESCO, 2000) claims that:

> The ultimate task of our existence is to give the fullest possible content to the concept of humanity in our own person [...] through the impact of actions in our own lives.

Humboldt's concept of education stressed the fact that "self-education can only be continued [...] in the wider context of development of the world" (GS, VII, p. 33). That is to say, each person is not only entitled, but also obliged, to shape the world around him. According to him (GS, I, p. 284):

> Education, truth and virtue' must be disseminated to such an extent that the 'concept of mankind' takes on a great and dignified form in each individual.

As aforementioned this can only be achieved personally on an individual level. A person must:

> absorb the great mass of material offered to him by the world around him and by his inner existence, using all the possibilities of his receptiveness; he must then reshape that material with all the energies of his own activity and appropriate it to himself so as to create an interaction between his own personality and nature in a most general, active and harmonious form" (GS, II, p. 117).

Moreover, Humboldt's educational concepts are influenced and based on social considerations. In 1789, he wrote in his diary (GS, XIV, p. 155, Cited in UNESCO, 2000):

> The education of the individual requires his incorporation into society and involves his links with society at large.

In sum, Humboldt's approach to Allgemeine Bildung or well-rounded education was based on his own experience and lifelong learning process. Bildung was not a utilitarian enterprise to prepare students for particular ways of earning a living; rather, it was a lifelong process, distinct from vocational or professional training, and was to inform teaching at all three levels of the Prussian school system - elementary, secondary, and university. Through Bildung, each person might seek to realize the human potentialities that he possessed as a unique individual.

In his view, university education must continue and complete the general education imparted in the previous school years; university education must, however, differ from teaching in elementary and secondary schools and have a special nature of its own. Without teachers there can be no elementary education but their role is not central in university training:

> The university teacher is therefore no longer a teacher and the student no longer someone merely engaged in the learning process but a person who undertakes his own research, while the professor directs his research and supports him in it. Close contact with their teachers should enable students to undertake their own independent scientific work (UNESCO, 2000).

Humboldt's Influence on Linguistics

With the rise of historical – comparative linguistic research, Humboldt's contributions to the philosophy of language were forgotten. However, by the second half of the twentieth century, Noam Chomsky and Umberto Eco became important scholars in the philosophy of language which drew a lot from Humboldt's philosophical theories. Today, Humboldt is also recognized as the

first European linguist to identify human language as a rule governed system rather than just a collection of words and phrases. This is also the basis for Chomsky's theory of language. Chomsky quotes Humboldt's description of language as a system which makes "infinite use of finite means". However, there are also major differences between Humboldt's view of language and Chomsky's view of language. (Brosche, 1981) Recently, Humboldt has been given credit as the originator of the linguistic relativity theory, developed by Edward Sapir and Benjamin Whorf.

Even though encyclopédias often cite Humboldt as being the founder of the term "worldview", a confusion is invariably made by citing the German term "Weltanschauung", which is rightly associated with ideologies and cultural mindsets in both German and English. Humboldt's work was concerned more with what he called "Weltansicht", the linguistic worldview. This distinction was cleared up by one of the leading contemporary German Humboldt scholars, Jürgen Trabant, in his works in both German and French.

The reception of Humboldt's work remains problematic in English-speaking countries, despite the work of Langham Brown, Manchester and Underhill. Furthermore, little rigorous research in English has explored the relationship between the linguistic worldview and the transformation and maintenance of this worldview by individual speakers. One exception is the work of Underhill who explores comparative linguistic studies both in 'Creating Worldviews: Language, Ideology & Metaphor (2011)' and in 'Ethno-linguistics and Cultural Concepts: Truth, Love, Hate & War'. Probably the most well-known linguist working with a truly Humboldtian perspective writing in English today is Anna Wierzbicka who has published a wide number of comparative works on semantic universals and conceptual distinctions in language. Unfortunately, mainstream linguistics and cognitive linguistics has, as yet, proven on the whole unwilling to open up to rigorous research into both language and discourse in foreign languages.

As for the educational policy and theory, it has been neglected until this century. Eduard Spranger was the first to "recognize the true value of Humboldt's contribution to educational development at

the transition from the nineteenth to twentieth century" (Benner, 1990, 5). Recent focus on intellectual history has been replaced by focus emancipatory interpretation of Humboldt's pedagogical thinking in a series of works, most recent of these was conducted by Dietrich Benner. Benner (1990, 210) holds that

> The study of Humboldt's work [...] will help to clarify the central problems and questions of recent educational theory as matters concerning all of us, and also help to resolve issues which require further theoretical and practical analysis.

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Designing curriculum for teaching Arabic language for the purpose of understanding the Qur'an

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Abstract

This paper reports on a curriculum recently designed for teaching Arabic language for the purpose of understanding the meaning of the Qur'an in one of the universities in Brunei Darussalam. The target audience comprises of adult learners of Arabic language who have either registered for, or shown interest in learning Arabic language for the purpose of understanding the meaning of the Qur'an. The thrust of this report lies in sharing an innovative way of designing various components of a curriculum and the likely method of teaching and evaluation for learners of Arabic language in Brunei Darussalam.

General background of the study

Teaching of second language for a specific purpose rather than for general purpose began in the seventies (Benesch, 2001; Dudley-Evans & St John, 1998; Johns & Dudley-Evans, 1991). In Brunei Darussalam, in November 2012, a program was floated in one of its

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universities, for teaching Arabic language for the purpose of understanding the meaning of the Qur'an. In the beginning, there was a very large turnout among the public, and students were registered in hundreds. Unfortunately, year-in year-out, the number began to decrease drastically, and by the beginning of year 2016 when the program was opened for another intake, the applicants in all the available levels were approximately 35 people. A pilot study shows that the program was established without prior investigation into the learners' needs, and that many previous learners who have attended the program were unable to actualize their expectations from the program.

The purpose of this paper is to report the major findings which were discovered with respect to learning Arabic language for the purpose of understanding the meaning of the Qur'an. We used grounded theory methodology[3] (Holton, 2008) and Kano model Questionnaire (see for detail: Kano, et al, 1984; Sauerwein & Hinterhuber, 1996; Shen, & Xie, 2000) for revealing the need of the learners. A detail account of research methodology, method and general research design foes beyond the scope of this paper. The learners' general objectives, and preferred content and methods of teaching and evaluation are detailed in the following sections.

General objective

Under the general objective, learners expressed their views that they attended Arabic language program mainly because of their expectation that they would be able to understand the meaning of the Qur'an. They expect the program to make them closer to the Qur'an when listening

[3] Although grounded theory methodology is well celebrated by the proponents of qualitative paradigm, the authors align perfectly with views that it is rather a methodology, not a method, which accommodates the use of both inductive and deductive approaches or mixing of both. Glaser, the pioneering founder of grounded theory methodology, and Holton, a Glaser co-author made this distinction clear in some of their works (e.g: Glaser & Holton 2007; Holton, 2008). This research is a demonstration of how grounded theory methodology could be used to integrate both inductive and deductive approaches. For detail distinction between Methodology and method see: Kelly (2004).

to it in five daily prayers and when they read its verses. More importantly, they wish to be well acquainted with the Qur'an language style and understand some Arabic words as they are used in the Qur'an context. Other purposes that are also germane to knowledge of the Qur'an include development of Qur'an vocabulary, understanding some simple rules of intonation (*Tajwid*) so as to enhance proper reading of the Qur'an and to develop phonetic skills in the reading of Qur'an.

On the whole, ability to understand the Qur'an was their primary purpose. Other expectations include ability to speak Arabic language in simple conversations, especially when they go to Arab restaurants in the country or when they travel to Arabia. They also express the need to be able to read simple Arabic language passages and comprehend the meaning correctly.

The Content

Content in a curriculum can be automatically determined once the general objectives have been discovered. However, the learners also mentioned some topics and skills which they expected to be included in the curriculum. The topics can be classified into two categories: the first category comprises of topics and skills that are related to Qur'anic knowledge while the second category comprises of topics and skills that are related to general Arabic language learning. In the category of Qur'anic knowledge, they mentioned topics such understanding the meaning of the short Qur'an *surahs* (chapters) especially form Surah Adh-Duha to Surah An-Nas. They also showed interest in studying the stories of Qur'an especially the stories of prophet Yusuf, *Ashabul Khaf* (the people of the cave), and *Ashabul feel* (the people of the elephant). They also expect to learn some Qur'anic themes such as greatness of Allah, His majestic power, His oneness and the judgment day. They expected to study Qur'anic verses in a thematic way whereby verses of Quran related to each of these topics are studied under each theme.

In the category of general Arabic language learning skills they expressed their need for learning Arabic grammatical rules which would enable them decode Qur'anic verses. Even though this need is tied to Qur'anic language learning they see it as a perquisite that would enable them understand Arabic passages, construct short sentences on their own and understand why sentences containing same number of words are interpreted differently.

The preferred method of teaching

Learners expressed their preference with respect to the roles of teacher and learner in the teaching-learning process. As against the popular problem based learning method, they all prefer traditional method of teaching where teacher would assume the primary role of knowledge dissemination. They referred to this as *talqqy* approach (direct intake from teacher). When asked about this preference, they viewed *talaqqy* method as a blessed way to learn the meaning of the Qur'an which and safeguard against being misguided about Islam.

They also expressed their interest in the use of technological tools as audio-visual aids which should only take a secondary role. They all regarded online learning a last resort which they would only choose when direct interaction with teacher is not possible.

They also expressed the need for learners to interact with each other in the classroom for the purpose of enhancing their communicative skills. In other words, they prefer cooperative learning method.

As against the popular call for direct method in second language teaching, learners express the need for the use of a supportive language when extremely needed. They believe gesticulations and pictures as proposed by monolingual approach would waste more of their especially when explaining abstract meanings contained in Qur'an. While acknowledging that the use of mother tongue or first language could ease the process of language understanding they

frowned at excessive use of mother tongue or first language by the teacher. They also showed their preference for slowly communicated language which they believe should continue until they reach the advance stage where their proficiency would have developed well.

Since the majority of the target learners are Malay language speakers they also expressed the need to instrument the loan words that are contained in the Malay language to enhance their understanding of Arabic language. They see this method as a way that would reduce phobia for Arabic language and motivate them to learn more.

Furthermore, learners prefer individualized progress whereby each learner progresses according to his or her cognitive ability and time availability. This calls for adoption of an individualized instruction method. This would also necessitate that the curriculum and consequently the textbook that would be designed should be a unit based.

Method of Evaluation

With regards to method of evaluation, the learners prefer a formative evaluation rather than summative one. In formative evaluation, learner would be evaluated after each unit and by class works not by terminal exams. The achieved score in each unit would later be accumulated to determine learner's progress. They expressed their phobia for memorization and that it scares and discourages them to continue the programs.

Learners also frowned at excessive home works and take home assignments. They see it as disturbing due to their busy work schedule and the need to attend to many other important things during their out of work time. They prefer doing all the assignments right inside the classroom and under the guidance of the teacher and colleagues.

As mentioned earlier, learners prefer individualized progress whereby each learner progresses according to his or her cognitive

ability and time availability. Consequently, evaluation would be criterion based and as well formative.

While suggesting some of their preferred techniques of evaluation, the learners cherished classroom quizzes. They also mentioned outdoor language exhibition whereby learners would go to an Arabic speaking environment such as markets and restaurants and demonstrate their level of language proficiency. Such outdoor trips would be audio taped or video recorded and then played in the classroom for analysis and then scored accordingly.

Conclusion

This study reveals the learners' needs with respect to learning Arabic language for the purpose of understanding the meaning of the Qur'an. Although the result reported here is just a section of a whole study it provides some deep insights into the needs of Malay language learners of Arabic language, especially in Brunei Darussalam.

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Change in Educational System: Exigency and Prospective

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Abstract

Education is inseparable from life. The educational system, which a people evolve, is one of the most important and the most characteristic institutions of its corporate life. Education is not a mater of stuffing the child with certain basic minimum knowledge; the mere acquisition of knowledge cannot give that broad basis of understanding which is essential for leading a successful life as citizen of a free nation. Education in Islam has from the very beginning been religious in character and ethical in aim. Today the Islamic world is faced with several challenges and problems. One of them being education, which is most vital for the well being of all nations. There is a general unrest among the Muslim youth today. Their minds are unhinged on account of the impact of western ideas, scientific progress and political ideologies. The Muslims all over the globe are faced with grave national problems and with economic, social and political turmoil, which does not, needed to be pointed out as we all are witnessing these changes every day. This means that the representative educationists of the world must put their heads together and evolve a plan by which modern education, side by side with the spirituality of Islam might reform the Muslim brotherhood afresh, and propel the energies, which are today acting in every

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country and in almost every faith, to convert mankind into a single brotherhood. Present era is the epoch of economic development and progress through science and technologies, which unfortunately we are lacking behind. The curricula should be formulated in the manner that it gives the creative discipline in the mind of the student in order to attain success through discoveries and inventions so that they can compete the modern days challenges.

Key words: Education, Islam, Curricula, Muslim youth, challenges

INTRODUCTION

Education is the sole enterprise on which destiny of a nation depends. The foundation on which Muslim Ummah can stand, flourish and progress is, "The Knowledge" (*Al-Ilm*) and "The Wisdom" (Al Hikma) revealed by Allah to human beings so that they can fulfill the purpose of their creation i.e. to be the sincere servants of Allah and to follow the path of life set by Allah for the humanity.

Of all the religions, Islam comes much nearer to the ideal as it is a natural and scientific religion, and appeals to the intellectual strata of Europe and America equally.

The need for the change in society always developed and gradual adjustments are always implemented throughout the history of Islam." Citing the verse106 of Surah 2 of Qur'an which says that: *None of Our revelations do We abrogate or cause to be forgotten but We substitute something better or similar; knowest thou not that Allah hath power over all things?* Likewise there are several similitude in the Qur'an e.g. injunctions on the prohibition of wine and interest were changed gradually even the Qibla was also changed. That means if Allah Almighty had continued the process of changing the injunctions for the guidance of the humanity according to the need and requirements of the time through divine revelations then if Muslims in their circumstances and environment for the progress and development of their educational system would take a step to reform and re-juvenate the curricula then there is no harm as it would be according to the Islamic teachings.

It is through education that the cultural heritage, knowledge, and values of a social group are preserved and the continuity of its collective life ensured. In short, education imparts meaning to the existence of a culture and helps it sustain its world-view. As such, it cannot be equated with a mere inventory of the paraphernalia and instruments of instruction, including even institutions and external structures. On the contrary, in every meaningful and constructive way education is inextricably linked with the general intellectualism of a culture, the principal task of which is to provide a forum for self-analysis, criticism, and search for authenticity. Educational philosophy, therefore, not only shapes the destiny and identity of any historical community in its functions as the guardian.

EXIGENCY & PROSPECTIVE

Our present system of education needs changes and the great emphasis should be laid on to incorporate the modern system of education in curricula to ensure the full development of personality and preservation of life in evolving a higher state of society. The supreme need of education today is for a unifying purpose and idea. It has become necessary to re-orientate our educational policy according to our present needs.

Our academic institutions are not equipped with the knowledge to compete the modern day challenges, so it is imperative to review the curricula of these institutes and include the necessary matter and information which can be required by the present day generation, these can be included in such a way that it can not be an extra burden on the students e.g. through refresher courses or seminars this information can be imparted.

Present era is the epoch of economic development and progress through science and technologies, which unfortunately we are lacking behind. The curricula should be formulated in the manner that it gives the creative discipline in the mind of the student in order to attain success through discoveries and inventions so that they can compete the modern days challenges.

The supreme need of education today is for a unifying purpose and idea. It has become necessary to re-orientate our educational policy according to our present needs. It is not enough to study Islam in its theoretical aspect alone, we must also consider its actual influence on life of its adherents, and this can be satisfactorily done only when we make a complete survey of Islamic culture and history in its entire sphere. As Muslim history is usually Mediaeval in spirit, failing to throw light on the problems of modern times, the youth turn from it to a study of Western Civilization. Only when there are studies as profound as Dr. George Sarton's "Introduction to the History of Science" can the youth be expected to solve the problem of blending ancient culture with the demands of modern thought. The best way to interest the youth in Islamic education is to confront them with the present-day problems of their own countries, so that they will be obliged to seek a clear understanding by studying themselves. Unfortunately, our literature is weak in the following ways:

a) it is too often an appeal to the emotion and vanity, rather than to accurate research and balance of judgment.

b) Even the textbooks have this failing to it is superficial, listing great names instead of trying to determine in an exact and detailed manner specific cultural contributions.

c) it emphasizes on dynastic history, outstanding caliphs, generals and theologians d) the subject matter is composed into a bare outline of dates, events and names. e) any new interpretation to adjust Islam to modern conditions is heretical, and the door of "ijtehad" or independent investigation is closed.

Freedom of thought, expression and distribution, without danger of injury are necessary, if Islamic education is to be made to appeal to the youth. Independence of judgment as practiced by the early scholars and doctors of Islam should not be no more considered taboo.

In my opinion the great and most essential need as far as Muslims are concerned is to have Islamic Education on modern lines combined with Western Education as understood today. The two must be made complementary to each other if really beneficial results are to be obtained. Islamic education on the old lines is no longer compatible with the needs of the present world, nor can Western

Education alone be of much help to Muslims other than on the material plane. The former can only end in stagnation and decay; the latter can but lead to spiritual barrenness and apathy. If only the Islamic world develops a common educational outlook, it may foster a mind such as may be a force for true democracy and a force for an abiding peace.

Islamic education in the true sense is greatly lacking in Muslim countries. Every Muslim reads the Qur'an but very rarely any of them understands anything of it. The book of Allah only regarded as providing charms and amulets and is read only for its mysterious virtues. Anyone trying to improve the situation is hindered or discouraged by the "alims" and sometimes branded as an innovator, desiring to lead the common people astray from Islam and orthodoxy. Serious Muslim thinkers everywhere today do realize the great need for reform, rejuvenation and re-adjustment in Islam, going back to first principles where necessary and starting over all anew. They are convinced that this can be done for Islam if only Muslim scholars of today adopt the same freedom of judgment and of investigation as did the Muslim scholars of the first five or six centuries of Islam. This can only be achieved if Muslims are given both liberal Western education of the present day.

Muslims all over the world firmly believe that the Qur'an is perfect in all essentials, which they have in it and in the record of the Prophet's sayings and doings, the gems of teaching, capable to be developed or adapted to meet any new situation that arises facing Islam. This can only be realized by having Islamic and Western education going hand in hand.

The education system should aim to produce individuals who can survive in and relate to a society of diverse faiths without feeling a need to compromise their own faith.
In Islam the purpose of education is to impart beneficial forms of knowledge in a manner that will help the individual attain success in this life and the next. In more contemporary terminology, such an observation might suggest that in Islam there is a requirement for both temporal and spiritual knowledge. Education should aim at the balanced growth of the total personality of the man through the

training of man's spirit, intellect, the rational self, feelings, and bodily senses. Education should therefore cater for the growth of man in all aspects: spiritual, intellectual, imaginative, physical, scientific, linguistic, both individually and collectively and motivate all these aspects towards goodness and the attainment of perfection. The ultimate aim of Muslim education lies in the realization of complete submission to Allah on the level of the individual, the community and humanity at large." (Recommendations of the first world conference on Muslim Education in Makkah 1997)

It is quite clear that the present curriculum is based largely upon temporal knowledge therefore a spiritual learning as a counter balance should be incorporated in several key subjects. For example in science, we are teaching our students to look at the universe from the viewpoint of a person who does not know God. "And how many Signs in the heavens and the earth do they pass by? Yet they turn their faces away from them." [Yusuf, 12:105]. A proper study of science would make one appreciate the Power, Majesty, and Grandeur of Allah's creations and the humbleness and limitations of human knowledge and abilities. Today our science education, in its best form, gives exactly the opposite message. It also fails to enable students to separate scientist's opinions from their facts. Let's ask: In the wide Muslim world is there any, Islamic school teaching science whose graduates can challenge Darwin's Theory of Evolution on scientific grounds? As we teach science, are we teaching our children to put science in its proper place, to know its limitations? Can they competently question the "technological imperative"? Modern educational theory also tends to regard the perfection of the individual as the proper end of educational effort.

There is a general unrest among the Muslim youth over the globe. Their minds are unhinged on account of the impact of western ideas, scientific progress and political ideologies. On the other hand, Iran, Syria, Egypt, Afghanistan, Iraq, Morocco and several other countries are undergoing a crisis. So then they have also to adjust themselves to their environments and to think in broader terms. Hence the Muslims in other parts of the world are also faced with grave national problems and with economics, social and political

turmoil as they are witnessing these changes themselves every day. This means that the representative educationalists of the world must put their heads together and evolve a plan by which modern education, side by side with spirituality of Islam might reform the Muslim brotherhood afresh, and propel the energies, which are today acting in every country and in almost every faith, to convert mankind into a single brotherhood. There is no need to lay stress on this idea for; if only the Islamic world develops a common educational outlook, it may foster a mind such as may be a force for true democracy and a force for an abiding peace.

Today, the Muslims are acquiring good ideas, thoughts, knowledge, and skills, from every corners of the world. The concern is agitated very fast, and in this industrialize world, it is the duty of the teachers to give quality ethical designated education to the Islamic students worldwide, because children are invaluable assets of forthcoming generations. The Prophet Muhammad (SAW) encouraged every Muslims to acquire knowledge and share it. He said:

'Acquire knowledge, for he who acquires it in the way of God performs an act of piety; he who speaks of it, praises the Lord; he who seeks it, adores Allah; he who dispenses instruction in it, bestows alms; and he who imparts it to others, performs an act of devotion to Allah. (Bukhari, Muslim).

The main objectives and the purpose of the education is laid down by revealed religion and hence have an objective quality, there is no divergent according to individual opinion or experience. It applied that the curriculum should be designed in accordance with the Islamic thoughts and teachings of nature of knowledge and the human nature specifically with their spiritual nature. Such an approach also has an pedagogical consequences.

Al-Attas writes that 'there exist such profound and absolute differences between Islam and western culture that they cannot be reconciled' (quoted in Wan Daud, 1998, p. 72).

On the other hand Badawi (1979) has shown that conventional Muslim education had a number of distinctiveness that may seem progressive even today.

For Nasr, Islamization does not mean reproducing the social sciences anew but 'to reorient the outlook on ... the social sciences' (Nasr, 1991).

CONCLUSION

Education in the broadest sense should aim at harmonizing of interest and effort and should ensure the full development of personality and preservation of life in evolving a higher state of society. If education really means the gradual adjustment of the individual to the spiritual possessions of the race, then the problem arises; how far our institutions in the Middle East, Near East, Far East, and South East Asia and in other countries are conforming to these standards. If the older nations look back to their spiritual and cultural heritage and neglect the modern scientific progress, I am afraid they are falling short of the modern demand of society and the intellectual development of the human race, which is the prime object of education. Om the contrary, if they plunge into the abyss of materialism and become creatures of the machine age, the soul of those nations will become dead and cannot respond to the higher instincts of reason and morality. Therefore a balance has to be struck where in there is a healthy growth of the mind and the body, and harmony between reason and intuition, between abstract philosophical dogmas and practical necessities of life. This should be our aim in life.

A curriculum should present our own identity, our own history, our own religion. It's not for others to come and try to change it. Qualitative aspects such as spirituality and independence of thought are as important as qualitative aspects such as key education and examination grades in setting a vision for education.

Much of the literature on education in the Muslim world focuses on educational provision in individual states or between states, rather than literature which specifically links to religious

aspects of that provision. While there is a growing literature on aspects of research which might relate more specifically to aspects of Islam (e.g. curriculum content, types of service providers etc.), this is often less prevalent. What is available here should be seen as a starting point for debate; and hopefully as research interest in education in the Muslim world develops, more evidence-based resources will become available.

To retrieve Muslims from the Centuries old monarchy, colonialism and the oppressive rule of their own people of this degeneration, it is about time that the Muslim Ummah restructures its educational priorities along Islamic lines so as to combat the moral and spiritual degeneration of Muslims throughout the world.

In the end it must be said that only by rooting their education policy firmly in the matrix of Islamic concepts can Muslim countries generate the type of intellectual energy and productivity needed not only to meet the problems of the contemporary Ummah, but also to rejuvenate and re-establish Islam. A Muslim needs to penetrate beyond the external form of the Modern Age to understand and grasp its transcendental nature and reality. We firmly believe that a dynamic and pulsating faith is not possible to attain unless our knowledge-edifice is firmly based on the spiritual foundations of the Qur'an and Hadith.

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Teaching Curriculum and Instruction to the Undergraduate Students at Umaru Musa Yar'adua University Katsina State Nigeria

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Abstract

Curriculum, whether defined as a plan for achieving a goal or a field of study, has crucially affected the life of both teachers and students in school premises. Based on this notion, a course titled 'curriculum and instruction' is introduced for the second year Education students (200 level students) at Umaru Musa Yar'adua University to equip them with two basic ideas regarding the field. First, to introduce them to the various definitions of curriculum, its domains, foundations, principles and most likely current and evolving issues to be considered in curriculum planning and development. Second, the course aims at bringing into the cognizance of the learners about the distinction between teaching and instruction; and how the two help teachers in delivering curriculum content. The course immensely helps to the extent that at the end of second year, majority of the Education students are able to define basic concepts in the field of curriculum; explain different methods of teaching and how they have paramount influence in terms of delivering curriculum content.

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Keywords: Curriculum, Instruction, teaching, methods of teaching, pedagogy

INTRODUCTION

For long period, scholars have been exerting tremendous efforts to conceptualize the term 'curriculum' and likewise, to elucidate its salient and unique features in meeting school's goals. Thus, some define it as all learning experience that students gain under the guidance of a school; and the main purpose is to shape the student's understanding, worldview and make them become useful to the larger society. For others, it is defined as a field of study, with its domains, principles, foundations and issues; in spite that it is 'confusing' 'indefinable' and 'fragmentary' in nature. They expatiate that the field's horizon includes elements of philosophy, psychology, sociology and history. This makes it to look so vague and irritating for students at both tertiary and undergraduate level. However, this uniqueness of curriculum indicates its richness and all-inclusive that it tends to be. Digesting the concept of curriculum broadly, reveal explicitly the type of people involved and the materials involved (Ornstein & Hunkins, 2009). Sequel to this, a course titled 'Curriculum and Instruction' is introduced for second year undergraduate students at Umaru Musa Ya'radua University, Katsina State, Nigeria in order to equip them with the skills and appropriate knowledge in the area of curriculum, which primarily concern about knowing the rudiments ideas about the field.

More so, one of the intrinsic elements in both curriculum development and planning is the expertise's caliber to understand the nature and differences between aims, goals and objectives. These terms are being used interchangeably by some scholars and the usage becomes so crucial in achieving instructional objectives (Ornstein & Pajak, 2007). Generally, goals are perceived as long-term aims to be achieved, whereas, objectives are categorized as specific learning outcomes that result from current instruction. Hence, this course aims

to enable second year undergraduate students of education department to demarcate between these terms.

Contextually, there are various methods of teaching and each is often designed to suit a unique classroom instruction (Taylor & Francis, 2009). Teaching methods are described as techniques and means through which teachers deliver the curriculum content. These include lecture method, demonstration method, discussion method, problem-solving method excursion method, project method and play-way method (Joyce, Weil & Calhoun, 2008 p.558). Consequently, this course (curriculum and Instruction) is as well designed to trained students about these techniques and their applicability in appropriate and unique context.

Furthermore, curriculum components such as objectives, content, learning experience, instructional materials and evaluation are of paramount importance in the area of curriculum planning (Henson, 2001 p.411). Hence, this course (Curriculum and Instruction) part of its aims, intends to equip the students with the knowledge about the importance of the mentioned components. Therefore, subsequent paragraphs provide details on the nature, aims, scope and content, methods of assessments and relevant textbooks for the course.

BRIEF DESCRIPTION ON THE NATURE OF NIGERIAN UNIVERSITIES PROGRAMS

Nigeria as one of the developing nations in Africa has its unique if not different policies of education when compared with other developed countries. In Nigeria, the duration for undergraduate programs is normally four years with the exception of some courses like Medicine, Veterinary Medicine, law and others. In this respect, it is a culture in the country to refer year one as 100 level, year two as 200 level, year three as 300 level and year four as 400 level. In addition, for any program at either undergraduate or postgraduate level there are courses prescribed as core, which every student must offer and pass before

graduating from the University. In line with this, the course 'curriculum and instruction' is a compulsory course for every second year education student.

AIMS OF THE COURSE

The Course aims are to

- Enable the students understand the origin and concept of curriculum and its relevance to education.
- Enable the students to know about the types/definitions of curriculum
- Enable the students to understand approaches in defining curriculum.
- Help the students to know about the components and sources of curriculum design
- Enable the students to understand the difference between aims, goals and objectives in curriculum development
- Enable the students to understand the foundation, principles and issues in curriculum planning
- Enable the students to differentiate about teaching and instruction and their relationships to curriculum
- Understand the nature and relevance of different methods of teaching in delivering the curriculum content
- Enable the students to understands the curriculum domains and steps in curriculum planning
- Enable the students to understand the roles of curriculum worker

SCOPE AND CONTENT OF THE COURSE

- ✓ Definition of Curriculum
- ✓ Curriculum Approaches
- ✓ Foundations, principles and Issues and Trends of curriculum
- ✓ Curriculum Domains
- ✓ Types of curriculum

- ✓ Curriculum Development and its Models
- ✓ Curriculum Design
- ✓ Components and sources of curriculum Design
- ✓ Design Dimension considerations
- ✓ Steps in curriculum planning
- ✓ Theory and Practice in curriculum Planning
- ✓ The roles of the curriculum worker
- ✓ Goals, aims and Objectives in curriculum Development
- ✓ Definitions of Instruction, Teaching and their relationship
- ✓ Teaching methods as a Means of deliberating curriculum
- ✓

HOW I TEACH THE COURSE

The course is prescribed as core, for which every second year (200 level) student of Education must offer at first semester and pass before graduating from the university. As a lecturer who teaches the course, I normally prepare my lecture two weeks before the commencement of the semester; because the Education Department provides us with the course distribution attached with its content. Hence, I prepare comprehensive lecture note mainly for the students to read during exams; and I prepare my power point slides for at least three classes. The former enables the students to be carried along during the lecture, promote critical thinking and makes them read much before the next class. While the later, saves me from some extraneous variables that may come across and distort my attention. So at least I always prepare ahead of time.

During the lecture, I present the topic to the students in form of layman's questions towards the meaning, importance and types of curriculum. This is because it is the first time the students are coming across the course; thus, they need to have a clear view of it so that they would appreciate it. I ask them questions such as 'who dictates the courses to be taught in both primary and secondary schools and even in our institutions?' 'Why do we sometimes prefer having more Science students to Arts students?' 'Why do teachers use different ways to teach

different subjects - some concentrate on narrating stories, some want the students to commit some texts to memory and others want the students to do things by themselves?'With questions like these thrown at the class and their individual responses coming, I understand how much the students know about the relevance of curriculum to educational system. I know some of their answers may be out of observation and others out of mere guess, this paves way for me to formally introduce the concept of curriculum and its relevance to education.

I begin by giving them simple definitions of the course, its aims and digesting the meanings in every definition so that they may not just memorize the meanings, but also see through. As the lecture progresses, I throw questions in relation to what I have just explained. Some questions need more explanation or more examples besides the ones I have given.

I use the overhead projector to project diagrams, picture, models or tables that may facilitate understanding. I seldom read from the note but explain in detail using simple language and with copious examples of incidences. I always want them to see the course as something that happens in our life, the mistakes or shortcomings of previous curricular, which necessitated the need for improvement or innovation. Likewise, when it comes to teaching methods, we cite examples with other subject related to specific teaching method e.g. Maths for problem solving.

To make the lesson interactive, I point out some apparent discrepancies among writers' theories or approaches to a topic. This does not only highlight the differences but also improve in their understanding of the practical aspects of the approaches. In addition, to assess my students, I give them assignments that they later present before the whole class and answer questions from the audience and me as well. I award them marks based on the content quality of their work and ability to present well before the class.

I design the lecture notes in such a way they will be treated weekly and finally what they will study on their own to face the examination.

The presentation will cover 30% of their marks while attendance attracts 10% and the examination goes with 60%.

ASSESSMENT METHODS AND DURATION OF THE COURSE

Education students offer the course at second year in first semester; and it is two (2) credit unit. In addition, the methods of assessment for the course include both formative and summative assessments. The former involves classroom presentations, mini-projects, assignments and test. The later involves semester examination.

SUGGESTED MAJOR BOOKS FOR THE COURSE

1. Curriculum foundations, principles, and Issues By Allan C. Ornstein and Francis P. Hunkins
2. The Curriculum Studies Reader By David J. Flinders and Stephen J. Thornton.
3. Contemporary Issues in curriculum By Allan C. Ornstein, Edward F. Pajak and Stacey B. Ornstein
4. Fundamentals of curriculum: Passion and professionalism By Decker F. Walker

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Balancing The Nature-Nurture Conflicts On Child Intelligence Through Islamic Paradigm

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Abstract

Few topics in the social sciences came up with more controversies than the influence of nature-nurture conflicts on child intelligence. There has been an old debate among Psychologists, is intelligence a product of nature (heredity) or nurture (environment). Psychologists stalemate, Scholars like Descartes are the proponents of nature, whereas people like Locke advocates nurture. Notwithstanding, Islam believes that, "the horns of a dilemma are usually on the same bull." Therefore, this paper discusses the concept of intelligence is-à-is the nature-nurture conflict reflecting the evidences propose by each of the belligerent parties. Then it finally explores the Islamic worldview which reconciles between the conflicting views that Allah is the ultimate being that controls both the biological and environmental factors on the child's intelligence.

Keywords: Intelligence, nature-nurture, conflicts

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INTRODUCTION

The meaning of 'intelligence' has been hotly contested for many years. Francis Galton (1822-1911), the first person to a theory of intelligence believes that, intelligence is the real faculty with a biological basis that could be studied by measuring reactions to certain cognitive tasks. In today's psychological landscape, intelligence can be defined as the capacity to learn from experiences and apply it to practice Boundless (2015). The nature versus nurture debate is one of the most enduring in the field of psychology. How far is the child's intelligence, Innate and how far is it all learned? A child gets his blue eyes from his mother, and red pigment from his father, but where does he get the talent for reading, writing and sharpness of articulation? Did a child learn these from his parents or was it predetermined by genes? These issues are at the centre of the ongoing nature versus nurture controversy.

It is very much clear that physical features are hereditary, the genetic waters get a bit murkier when it comes to a child's intelligence. Most of the scholars that are involved in the conflict stalemate. Psychologists do not yet know how much of what children are is determined by DNA and how much by life experience Mangal (2012). Ultimately, the old-aged debate leaves behind the psychologists at each other's throats as there is neither a victory nor vanquish. As intelligence is very difficult to define and having no unanimous accepted meaning, due to the fact that what may be regarded as intelligence to one society may not necessarily be the case to another. This is what makes the nature-nurture crisis more prone to 'ding dong' affairs among the scholars for almost a century. Hence, it is tougher to discuss the issue of N-N controversy more especially in relation to human intelligence.

THE BASIC HISTORY OF THE DEBATE

As the history, literature proven, this long life debate has been the centre of psychology for over two thousand years. Besides, it has a very early start with regard to the huge and most persistent issue Myers (2013). In the field of psychology, the ancient Greek philosophers were not exempted from the conflict. Plato the giant Greek philosopher who lived between (428-348 B.C.E.), was of the

opinion that morality and capability of human intelligence was something that has to do with innate tendency. Thereafter, another Greek star in the field of philosophy who preceded him, in the name of Aristotle lived between (384-322 B.C.E.) argued that anything that man possess is not inherited, but comes through an overt encounter Myers (2013).

This debate persistently became the focal point the conflicts in Europe in 1600's and onward, particularly in the 17th century the French philosopher Rene Descartes set out views which held that we all, as individual human beings possess certain inborn ideas that underpin our approach to the world. The British philosopher John Locke on the other hand, emphasized the role of experience as fully contributing to the behavioural development. In 1891 Charles Darwin, the father of evolution took part in the debate, where he opinionated that natural selection permitted the continuance of traits that ensured the survival of species. In this theory, Darwin believes that heredity influences the behaviour of an individual for his survival. That is how the debate continues generation after generation up till today.

THE CONCEPT OF INTELLIGENCE

Intelligence, the term usually referring to a general mental capability to reason, solve problems, think abstractly, learn and understand new material, and profit from past experience. Most people have an intuitive notion of what intelligence is. Yet no universally accepted definition of intelligence exists, and people continue to debate what exactly, it is. In 1921 an academic journal asked 14 prominent Psychologists and researchers in education to define intelligence. The journal received 14 different definitions. In 1986 same scenario was repeated in which 25 Psychologists were assigned, and they came up with 25 various definitions such as general adaptability to new problems in life; ability to engage in abstract thinking; capacity to acquire capacity; ability to judge, to understand, to reason, and to think; general cognitive ability, etc. The fundamental questions remain; is intelligence a product of nature or nurture? This led to the nature- nurture debate.

The nature versus nurture debate is one of the oldest issues in psychology. Plato and Aristotle were not exempted in the debate; Plato was in favour of nature, while Aristotle was a supporter of nurture. The debate centres on the relative contribution of genetic inheritance and environmental factors on human intelligence. Some philosophers such as Plato and Descartes suggested that certain things are inborn, or that they simply occur naturally regardless of environmental influences. According to Mangal (2012b) people who take the position that all or most behaviours and characteristics are the result of inheritance are known as nativists. Other well-known thinkers such as John Locke believed in what is known as Tabula rasa, which suggests that the mind begins as a blank slate. According to this notion, everything we are and all our intelligence is determined by our experience. People who take the position that all or most behaviours and characteristics are the result of learning are known as empiricists. Whether one's intelligence is largely dependent upon heredity-genetic materials and codes inherited from one's parents or is chiefly designed by one's life experience or environmental factors has been a controversial issue. While those in support of nature in this debate attach all importance to heredity, the people that in favour of nurture give all credit to the environment. Thus, in support of their viewpoints both of the proponents of heredity as what determines our intelligence and the supporters of environment as what controls we intelligently put forward various experimental evidences (Mangal, 2012b)

IS INTELLIGENCE NATURE OR NURTURE?

Arguments in favour of nature and nurture, showing the relative importance of one or the other have given birth to contentious controversy on one end are the advocates of nature on its role in intelligence; they are also known as hereditarians who claim that heredity is all in all and decides and sets everything about the intelligence of an individual. No amount of education, training or experience can change the intellectual capacity of an individual from what he is or has been in his ancestral being. It is in this sense that Douglas and Holland (1947) assert that one's heredity consists of all structures, physical characteristics, functions or capacities derived from parents, other ancestry or species. Education to them is futile.

The function of education to environment in the making of intelligence, according to them, can be compared to the polishing or painting of wooden furniture. No polish or paint can change the basic qualities of the wood used in the furniture. It only improves its appearance and might increase its life a little.

The supporters of nurture on the other end who are also known as environmentalists, are of the opinion that heredity does not, in any way affect the intellectual development of a child. Man is a product of his environment. He is what the environment has made him. According to Woodworth and Marquis (1948) in an attempt to show the role of environment on intelligence over that of heredity posit that, environment covers all outside factors that have acted on the individual since he began life. There is nothing like definite heredity characteristics or inherited qualities to them. What a man does another man can also do if gets favourable opportunities. Watson one of the prominent environmentalists declares that, "give me any child; I will make him what you desire". Thus, according to the environmentalists, the environment is all in all. The growth and development of an individual's intelligence are the net result of his environment.

EVIDENCE IN SUPPORT OF NATURE

The scholars that support nature as the major influence of human intelligence, did not fold up their arms after making promulgating their arguments. They fully prove their claims by some experimental presentations. According to Mangal (2012a) Freeman made a research which is based on experiment analysed through the calculation of coefficients of correlation and their comparison of the identical twins, fraternal twins, siblings and cousins as follows:

Identical twins	=.90
Fraternal twins	=.60
Sibling	=.50
Cousins	=.25

The study shows the increase similarity in intelligence test-scores with the increase in the amount of blood relationship. Mathematically, it includes that blood relation. It is directly

proportional to the similarity in intelligence. According to hereditarians, this experiment gives sufficient evidence in favour of the fact that heredity controls the intelligence of an individual.

Galton Francis prepared a list of 977 genius and well to do people and investigated about their relatives. They were found to have 536 eminent relatives. For comparison he prepared another list of 977 average men and similarly investigated about their relatives. These 977 average men had but four relatives who were eminent. By this data, he concluded that intelligence and all other likewise personality characteristics are transmitted through blood. Teasdale and Owen (1984) arrived at the similar conclusion through their comparative study of intelligence scores of full siblings, half-siblings and individuals who are unrelated but reared together and apart. The study demonstrates a very high correlation in the IQ scores of full siblings, whether they were raised together or apart in comparison to half-siblings and unrelated individuals who demonstrated comparatively less correlation and no correlation respectively.

More evidence of this study of blood relationship and family resemblance was seen in the theories reported by Jencks (1972) and Munsinger (1978). These studies demonstrate a positive correlation ranging from .40 to .50 between adopted children and their real parents, in contrast to a very small correlation of +. 10 to +. 20 between the adopted children and adopted parent, leading to the conclusion that people closer to each other from the point of heredity potential have comparable IQ. Genetically twins are said to be more closely related than normal siblings and among twins also, monozygotic or identical twins (with the same genes) are said to be even closer in terms of heredity potential than fraternal twins (with a different set of genes). Many studies involving the separation of twins at birth and their rearing in different environments have been conducted Mangal (2012).

Bouchard (1987) located a number of identical twins (who were separated from their parents only a few days after their birth and reared in different homes) and subjected them to intelligence tests. This study demonstrated a very high correlation in the IQ scores of identical twins reared apart to almost the same degree as found in the

case of identical twins reared together. Furthermore, twins reared apart are found to resemble each other in other aspects of human personality – physical appearance, interests, aptitudes, habits, and mannerism etc.

EVIDENCE IN SUPPORT OF NURTURE

Environmentalists equally engaged themselves in psychological studies in support of their viewpoints on the role of environment in the intellectual development of an individual. Here are some of their experiments. This is a study that puts emphasis on the importance of environment, Kodak studied foster children, and the true mothers of these children were tested for certain mental test. The average IQ of this group of 80 mothers was 87.7. The majority of the mothers fell "below average", 53.8% had an IQ below 90, 16.3% were borderline and 1.8 were feeble minded. Yet the average IQs of their children was 116. If heredity determines the future course, then these foster children could not have gained much in terms of IQ. This study clearly shows the influence of environment on the growth and development of personality character which is intelligence.

Many studies have indicated that the individuals (having family relationship) have a more comparable IQ if they happen to be reared in the same environments. Evidence suggests that environmental factors have an effect on individual's I.Q. Result from two study, study 1: carried by Loehlin, Lindsay and Spuhler (1975) and study 2: Bouchard and Mc Gue (1981) revealed that identical twins (reared together) 0.88 and 0.85 identical twins (reared apart) 0.75 and 0.67 siblings (reared together) 0.49 and 0.45 siblings (reared apart) 0.46 and 0.24. Mangal (2012) summarized the two studies conducted by the researchers as follows:

Mode of Relationship and Rearing	**Coefficient of Correlation**	
	Study 1	**Study 2**
Identical twins (reared together)	0.88	0.85
Identical twins (reared apart)	0.75	0.67
Siblings (reared together)	0.49	0.45
Siblings (reared apart)	0.46	0.24

The adverse effects of environmental deprivation and positive, favourable effects of environmental enrichment upon the children's intellectual development have been demonstrated in many studies. In one of his studies Gottfried (1984) concluded that if the children are subjected to certain forms of environmental stimulation early in life, their intellectual development gets adversely affected. Similar conclusions were drawn in another study conducted by Sherman and Key (1932) in an unprivileged remote hilly area of the U.S.A. to the effect that lack of language training and school experience accounted for the very poor scores of the children in the standardized intelligence tests.

However, when the children were provided with favourable environmental situations in the form of appropriate adoptive homes, better schooling and learning facilities etc.. The results were quite encouraging in terms of intellectual development. A well known adoption study Schiff et al, (1978) conducted in France in which the researchers compared the IQ scores of children who had been adopted by parents belonging to a higher socioeconomic class with those of their siblings who have not been adopted. The average score of the adopted children was 111 in comparison to the average score of 95 of their siblings raised by their biological parents.

The privileged environment may thus be said to be responsible for raising the average IQ score by 16 points. The controversial arguments regarding the relative influences of heredity and environment on people intelligent are quite a subject for discussion. The question whether heredity affects intelligent more than environment or vice versa is same like asking whether seed or soil is more important for the proper development of a plant. In this connection McIver and Page (1949) have said succinctly that, every phenomena of life are a product of both heredity and environment, each is as necessary to the result of the other. Neither can ever be eliminated and neither ever be isolated.

That is how the psychologists have been debating over the influence of heredity and environment on one's intelligence, although there are a few biologists who think that both factors control the

intellectual behaviour of an individual, but until today this battle is still being fought among the psychologists.

THE ISLAMIC PERSPECTIVE ON NATURE-NURTURE DEBATE

The origin of western psychology is based on a secular thought that confronts traditional and religious values while giving human being the sublime power to decide his moral code. Islam believes in the two factors that is heredity and environment as being the determinants of one's intelligence. According to Noor (2012), Islam holds a balancing view in relation to the root cause of the prolong conflict of nature nurture this-à-is human intelligence. Furthermore, Islam forms the integrated and comprehensive way in dealing with human intelligence, especially by means of the interactions of nature, nurture, and the spiritual factor in the development of human personality Fatima (2013). Therefore, Islam gives equal emphasis to the overt factors (that can be seen) and covert agents (that cannot be seen). The Qur'an mentions in blanket terms that all things are created biologically in pairs.

"And that He (Allah) creates the pairs, male and female, from Nutfah (drops of semen male and female discharges) when it is emitted." 53; 45-46.
"And of everything We have created pairs that you may remember." 51; 49.
"And made him in two sexes, male and female." 57; 39.

Based on the aforementioned verses, some Muslim scholars opine that characteristic manifestation in children can be biological through genetic transmission and can influence the psycho-personality traits of an individual Achoi (1998). According to this view intelligence and other cognitive behaviours such as curiosity, hyperactivity and the inquisition are influenced by genetic transmission Carson and Butcher (1992). To consolidate these opinions, the prophet (PBUH) is reported to have said, with regard to the crucial factor of lineage in choosing a spouse. "A woman is married for four reasons; her wealth, her lineage, her beauty and her religion…." Bukhari (Vol. 7). This tradition palpably demonstrates the nobility of lineage as one of the

salient elements for the selection of a spouse, since a refined character and intelligent mother can transmit cerebral capacity of her children.

Islam also emphasises the influence of environmental factors on a child's behaviour especially his intelligence. This is supported by the famous by the famous hadith on **fire** where the prophet said, "Every child is born with a true faith (fitrah). It is his parents who converted him to Judaism, Christianity or Paganism…." Bukhari (vol. 2). Besides, the blessed tradition mentioned, prophet Muhammad (PBUH) speaks clearly about how strong influencing environment is, in addition to the hereditary predisposition, meaning to say how the domestic environment can distort the children's intellectual endowment in a way that can shape their attitudes, their faith and the way they comprehend their very being.

Islam accepts both nature and nurture play major roles in shaping and moulding the intelligence of a child. It is believed that, "The horns of the dilemma are always on the same bull." Both nature and nurture are the creation of Allah to whom everything belongs and to whom everything shall be returned.

CONCLUSION

Scholars in the field of psychology stalemate over the old-aged and prolong debate of nature-nurture as which of the two has an influence on the intelligence of a child. The conflict was compounded as the term intelligence in the eyes of psychologists is very difficult to define per se, because until today there is no consensus on the definition of intelligence among scholars, this makes the issue to remain unresolved. But Islam perceives that there is a balanced interaction between the heredity and environment in shaping the intelligence of a child. Islam requires Muslims to believe that Allah is the ultimate factor that controls the biological and experiences factors. According to Alias (2012) this requires an Islamic psychological perspective to include soul that professes Iman or faith and accept divine guidance as an important element because it is the soul that believes in the supremacy of Allah. Thus, the spiritual

nature plays a role despite the biological and environmental factors influencing human intelligence.

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Impact of Laboratory-Based Teaching Strategy on Students' Attitudes and Mastery of Chemistry: An Experimental Study

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Abstract

The study sought to determine the impact of laboratory- based teaching strategy on students' attitude and mastery of chemistry concepts. Two schools were randomly selected and served as experimental and control schools; one hundred and sixty (160) SS II chemistry students were also randomly selected from the population. The same students (160) were divided into two. The first 80 was assigned control group. And the second 80 was assigned experimental group. Pre-test was administered to ascertain the level of compatibility. The experimental group was taught using laboratory approach while control group was taught using lecture method. After the treatment, Chemistry Concept Achievement Test (CCAT) was administered, also Student Attitude Questionnaire (SAQ) was administered to both experimental and control groups to ascertain the change of attitude if any. Four research questions and four hypotheses were raised for the study; the research questions were answered using the data collected and analyzed through the use of SPSS (Statistics Package for Social Sciences). T-tests were used to test the four hypotheses; the tests were designed to determine the impact of laboratory-based teaching strategy on students' performance. The finding of the study revealed that students taught using laboratory teaching strategy performed better and showed positive attitudes more than the students taught using lecture method. Similarly, there was no significant difference in the mastery of chemistry concept among the male and female students in the experimental

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group. The finding further revealed that female students within the experimental group demonstrated higher interest than their male counterparts. It was also found that laboratory teaching method was more effective and therefore science teachers should teach students the skills for investigation rather than telling them facts in chemistry.

Introduction

Emovon (1999) reflects that chemistry emerged to be recognized as the axial on which development and progress for many individuals and nations of the world depend. He endorses that chemistry has an important role to play in Nigeria's national development. For example, in the sphere of industrial development, chemistry plays a significant role in the processes of isolating, extracting, analyzing and synthesizing natural resources for the purpose of transforming matter into useful products for human consumption and utility (Thomas, 1996; Emovon, 1999; Yusuf, 2003). Yusuf (2003) expatiates further that chemistry constitutes one of the science disciplines with well-developed technology that can be applied to explore and exploit natural resources such as petroleum, natural gas and a variety of solid minerals for the benefit of human-kind; similarly, he stresses that the study of chemistry aids students in acquiring manipulative skills while developing a variety of utility skills which are designed to enhance academic learning (Joseph, 2001; Usman, 2003; Yusuf, 2003).

One of the basic requirements of teaching and learning chemistry seriously bears on the provision and use of well-equipped laboratory. In the study of chemistry, students must necessarily be exposed to equipments and facilities during teaching-learning operations; this frame of thought is of paramount importance. It is widely held that students that are subjected to variegated exposures in varied equipments and facilities in laboratory practices possess advanced intellectual development and hence perform better in chemistry examinations (Marceno, 2000; Usman, 2003; Okebeuko, 2006; Njoku, 2007; Sabiru, 2011).

Muhammed (2000) reminds us that in secondary schools, students learn as they operate and manipulate with objects and ideas; in such circumstances, they handle and manipulate the environment in the constant exploitation of it. Yusuf (2003) reveals that learning involves change in behaviour and this development is observed when it is practicalized. He expatiates that it is not how much the teacher teaches that matters but how the learner has been able to learn. He advances that in the field of chemistry learning materials including laboratory equipments should be made available

since a number of themes and practical activities may not be understood very clearly without the use of these resources. He discloses further that the use of laboratory equipments and resources enables students to put into practicing their learnings thereby gaining understanding about the concepts being taught in chemistry; this frame of thought makes for better and enhanced performance in Senior Secondary Certificate Examinations in the subject.

Nwadibia (2003) advances that the use of laboratory equipments and resources aid in providing experience to students on how to improve and be more creative in scientific knowledge. He reflects that laboratory work is considered as an instructional facility that a chemistry teacher should utilize in helping students learn what chemistry is and how scientists investigate the world around us. Chemistry educators strongly endorse that the laboratory is an important means of instruction in the subject since late 19th century (Joseph, 2001; Yusuf, 2003; Nwadibia, 2003). Joseph (2001) endorses a number of groups of objectives that could be achieved through the employment of laboratory method and activities in chemistry classes as follows:

(a) skills mastery including manipulative, organizational and communicative skills; (b) concepts learning and acquisition including the ability that is rooted in formulating hypotheses, building theoretical models and frameworks and constructing categories of phenomena; (c) cognitive development and enhancement which bear on cultivating abilities that impinge on critical thinking, problem-solving, application, analysis and synthesis; (d) provoking the understanding of the nature of chemistry including a contemplation of the following structures in the subject area, namely: (i) the scientific enterprise; (ii) scientists and how they work; (iii) the existence of a multiplicity of scientific methods; (iv) interrelationships between chemistry and technology; and (v) interrelationships prevailing amongst students the various disciplines and sub-disciplines of chemistry; (e) provoking a variety of attitude development amongst students that are rooted in the following: curiosity, interest, risk-taking, objectivity, skepticism, precision, confidence, perseverance, satisfaction, responsibility, consensus and collaboration.

In spite of the important role that chemistry plays in national development, particularly in petrochemical, agricultural and textile manufacturing industries, a number of studies (Akale, 1986; Ajewole, 1991; Ivozou, 1991; Adeyegbe, 1993; Musa, 2000; Joseph, 2001; Njoku, 2005) proved that students' performance in the subject have been persistently poor. Classroom work in chemistry implies different and varied methods of teaching (Yusuf, 2003). Yusuf (2003) further reflects that "to learn chemistry

is to do chemistry and doing chemistry by students entails more of providing opportunities for them to interact with the environment, not necessarily exposing these learners to lecture and demonstration methods". Ali (2000), Akpan (1999) and Musa (2000) revealed that some teaching methods are more effective for learning chemistry than others; they confirmed that the laboratory method is far more superior to teaching chemistry than the use of the traditional methods such as lecture and demonstration methods.

On the relevance and appropriateness of the laboratory method in teaching chemistry, Musa (2000) conceptualizes the laboratory as a place designed, organized and managed to help students learn what chemistry is and how scientists carry out investigations. Njoku (2007) reflects that the laboratory method is an essential teaching approach which makes the teaching of chemistry meaningful; it is constituted into a method of instruction in which the teacher presents concepts (chemistry concepts) as well as the procedural instructions for their verification; usually printed laboratory manuals are presented to students with the list of all the laboratory equipment necessary for verifying the chemistry concepts involved. Thus students are helped to acquire first-hand experience regarding the subject-matter usually obtained from investigation and or experiments. Yusuf (2003) discloses that two procedures or approaches characterize laboratory methods as follows:

(a) Laboratory exercises which consist of activities designed to provide students with practice sessions in designing and operating experiments; and
(b) Experiments which are constituted into procedures designed for the purpose of testing and analyzing chemistry concepts, confirming the known and discovering the unknown.

Yusuf (2003) classifies most laboratory approaches to teaching into five distinct groups, namely: (a) verification and deductive; (b) inductive; (c) scientific oriented processes; (d) technical skills-oriented processes; and (e) exploratory oriented skills. The verification-deduction approach endorses laboratory sessions where students are presented with chemistry concepts and or conceptual frameworks as well as the procedural instructions which are designed to enable them verify the concepts involved. In inductive learning sessions, students are required to examine, group and label specific bits of information to find patterns; by means of these, they are enjoined to develop a set of working hypotheses regarding prospective chemistry concepts they are bound to encounter; this procedure often requires the collection of evidence to verify or refine any hypothesis raised. The scientific oriented processes are constituted into actions which people undertake when doing chemistry; these processes are classified into basic processes and integrated

processes (Marceno, 2000; Yusuf, 2003). The basic processes are reflected thus: observing, classifying, communicating, measuring, predicting and inferring; the integrated processes are re-counted as follows: identifying and controlling variables, formulating and testing hypotheses, interpreting data, defining operationally, experimenting, and constructing models.

Zakari (2016) illustrates that a process-oriented guided inquiry learning in chemistry laboratory contains a number of students working in small groups on specially designed materials. These materials supply students with data or information followed by leading questions (from the instructor) that are designed to guide them towards formulation of their own valid conclusions essentially a recapitulation of the scientific method. The instructor serves as a facilitator, observing and periodically addressing individual and classroom-wide needs. A process-oriented guided-inquiry learning constitutes a research-based learning environment where students are actively engaged in mastering course content and in developing essential technical skills by working in self-managed teams based on guided inquiry activities; it is both a classroom and laboratory technique that seeks to simultaneously teach content and key-process skills such as the ability to think analytically and work effectively as part of a collaborative team. Exploratory oriented skills are considered not only in terms of the goal of the general process of education but also in terms of the goal orientation of students when they are engaged in school work.

The exploratory laboratory approach depends on the learning outcomes which the chemistry teacher wants students to acquire; the approach demands a number of steps which this teacher needs to adhere to in order to maximize learning; these steps include: (a) pre-laboratory discussion; (b) teacher's directives; and (c) post-laboratory discussion. The pre-laboratory discussion prepares students for laboratory activities; in this circumstance, the chemistry teacher discusses issues and points concerning the laboratory activities to be executed. The chemistry teacher's directives for laboratory exercises must be explicit; they could be given orally or in written forms or discussed during the pre-laboratory discussions. During post-laboratory discussions, students are expected to present and analyze their data. The confirmation and analysis of data are related to the objectives of a particular unit of lesson. The post-laboratory discussion constitutes an excellent time to broaden students understanding of the curriculum content and processes of chemistry.

Statement of Problem

Students' attitudes towards the learning of chemistry as a school subject, through laboratory activities, constitute a factor of great magnitude which has attracted the attention of researchers in the subject (Akpan, 1999; Emovon, 1999). Bala (2003) revealed that there prevails a general consensus amongst chemistry theorists and practitioners on the importance of students' attitudes towards laboratory practical lessons in chemistry in schools. Emovon (1999) and Akpan (1999) noted that affective variables are as important as cognitive variables in influencing students' learning outcomes, career choices, and the use of leisure time in chemistry in schools. Thus, the development of students' positive attitudes towards the mastery of chemistry including effective laboratory exposures at schools have become vital if enhanced performance has to be registered in the subject (Bala, 2003; Muhammed, 2000; Musa, 2000; Njoku, 2007; Dahiru, 2013; Kwabena, 2013).

Over the years, results of studies conducted by different scholars and researchers demonstrated students' poor performance in chemistry at Senior Secondary School Certificate Examination (SSSCE) (Ajawole, 1991; Ivozou, 1991; WAEC Report, 1998; Musa, 2000). Njoku (2007) opined that students are not getting sufficient scientific ideas in their learning patterns and approaches to solving problems in chemistry. He adduced a number of reasons to explain the situation as follows: (a) non-availability of instructional materials and resources including requisite textbooks; (b) parents' apathy towards education of their children, particular in science-oriented courses and programmes; (c) over-loaded chemistry curriculum that relegates laboratory pedagogy to the background; (d) lack of clearly defined philosophical framework in chemistry that bear relevance to industrial strategies for national growth; (e) poor classroom management on the part of teachers; and (f) lack of adequate scientific equipments in secondary school laboratories. Adeyegbe (1993), Shuaibu (1993) and Joseph (2001) in their separate findings showed that the most adopted teaching method in many chemistry classrooms in secondary schools is the lecture method.

This method, according to these researchers, does not allow for active students' participation in chemistry lessons but rather engenders students' memorization and re-gurgitation of facts and concepts, without enabling them to acquire a mastery and understanding of chemistry concepts. These researchers also noted that, very frequently, these students do not possess the understanding and perspectives of the scientific basis for the relevance of chemistry concepts which are needed for achieving mastery of the knowledge of the curriculum content of the subject.

It has become an established truism that a sufficient mastery of the laboratory approach in chemistry during classroom pedagogy could bring about the improvement of students' performance in the subject (Akpan, 1999; Emovon, 1999; Musa, 2000; Njoku, 2007; Dahiru, 2013; Kwabena, 2013). This study is geared towards establishing the extent to which students are sufficiently committed to achieving mastery in the knowledge of the laboratory approach in classroom work in chemistry in the task of improving their academic performance in the subject at the level of senior secondary school certificate level in Katsina metropolis. This frame of thought has necessitated finding out the impact of the laboratory teaching approach not only on students' mastery in chemistry but also to determine the extent they developed positive attitudes towards knowledge acquisition in the subjects.

Research Objectives

In reference to the theoretical basis advanced for this study, the following objectives are raised:

(a) To determine the impact of laboratory-based teaching strategy on students' mastery of chemistry concepts as against the use of lecture method in achieving the same objective.
(b) To determine the impact of gender on students' mastery of chemistry through pedagogical exposures to the laboratory-based teaching strategy.
(c) To determine the impact of laboratory-teaching strategy and lecture approach on students' attitudes towards a mastery of chemistry.
(d) To determine the impact of gender difference on students' interests in the mastery of chemistry through pedagogical exposures to laboratory-based teaching strategy.

Research Questions

The foregoing objectives prompted the raising of four research questions which the study sought to provide answers for, namely:

(a) Is there any difference in the mastery of chemistry between students taught using the laboratory-based teaching strategy and those taught through the lecture method?
(b) Does the mastery of chemistry amongst male and female students differ when taught using laboratory-based teaching strategy?
(c) What impact has the employment of laboratory-based teaching strategy and lecture approach exerted on Students' attitudes in the mastery of chemistry?
(d) Is there any differential interest in the mastery of chemistry amongst male and female students exposed to the laboratory-based teaching strategy

during classroom pedagogy in the study of the subjects?

Research Hypotheses

Based on the above research questions, four hypotheses were formulated, namely:

H1: There is no significant difference in the mastery of chemistry amongst students taught using the laboratory-teaching strategy and those taught through lecture method.

H2: There is no significant difference in mastery of chemistry with reference to the mean scores of male and female students taught through the employment of laboratory-based teaching strategy.

H3: There is no significant difference in the attitudes of students exposed to laboratory-based teaching strategy and those taught through lecture method in reference to a mastery of chemistry.

H4: There is no significant difference in the interests of male and female students taught through laboratory-based teaching strategy with reference to demonstrating mastery in chemistry.

Research Design

The research design was geared at determining whether the use of laboratory-based teaching strategy exerted more positive impact on students' mastery of chemistry in comparison with the employment of lecture method in achieving the same goal. It was a quasi-experimental and control research design as well as a survey. In the context of experimental research, the pre-test and post-test including the experimental and control group structures were used in the study. At the commencement of the study, a pre-test was administered to determine the entry academic behaviours of the students; subsequently, the experimental group was exposed to the treatment; this group was taught using the laboratory-based teaching strategy. As a survey research, this study was geared at analyzing the existing conditions regarding the extent at which senior secondary schools were sufficiently exposed to the laboratory-teaching strategy with the purpose of improving their mastery of the curriculum content enshrined in chemistry at the level of Senior Secondary School Certificate. The survey approach design was employed to enable the researchers have an in-depth and comprehensive information about the problem of the study and, therefore, whether students' attitudes to studying

chemistry were affected. The laboratory-based teaching strategy, as employed in this study, is similar to the inquiry method because both of them are activity oriented. In this context, the laboratory method is defined as an approach in which the teacher guided students to discover knowledge by themselves; the practical manuals for this study were adopted from Musa (2000).

The illustration of the experimental-control research design, as adopted in this study, is rendered in this formula thus:

E1 ⟶ O1 ⟶ X1 ⟶ O2

C2 ⟶ O1 ⟶ X2 ⟶ O2

Where E1= Experimental group

C2= Control group

X1= Laboratory teaching strategy

X2= Lecture teaching strategy

O1= Pre-test

O2= Post-test

The assets of the experimental-control research design derives from the following considerations:

(a) The average gain registered in the experimental and control groups can be compared and subjected to a test of significance of the differences between the mean scores for the two groups; also the assumption in this design is that uncontrollable events act equally on both groups, so that any gain recorded is expected to be as a result of the treatment applied.
(b) This design assists in demonstrating whether a particular treatment and teaching strategy is superior to the other.
(c) This design can be used to give an indication of gain in understanding of the selected chemistry concepts due to the application of the treatment (Musa, 2000).

Research Population

The population consists of all SSII chemistry students in all government-owned schools in Katsina Local Government Area of Katsina State, Nigeria. Nine (9) schools featured in the study; two (2) schools were exclusively meant for boys (male) and girls (female) respectively; seven (7) secondary schools were co-educational institutions. The study had a population of one

thousand five hundred and ninety-two (1592) SSII chemistry students as displayed on Table 1,

Table 1. Distribution of population according to the secondary schools that featured in the study

SCHOOL	MALE	FEMALE	TOTAL
Government College (DW), Katsina	129	124	253
Government Day S.S., K/Yandaka	75	75	150
Government Day S.S., K/Sauri	73	10	83
Government Day S.S., K/Kaura	115	106	221
Government (P) College, Katsina	100	-	100
Government Girls Col. S.S, Katsina	-	242	242
Government Day S.S., Kambarawa	93	26	119
Katsina College, Katsina	87	89	196
SUNCAIS, Katsina	152	96	248
TOTAL	824	768	1592

Sample and Sampling Procedure

The experimental nature of the study informed the selection of two secondary schools through balloting in order to constitute the experimental and control schools respectively for pilot work. The selection of the study subjects was obtained through random selection from these two schools which were constituted as follows:

(a) Government College Katsina, which represented the CONTROL SCHOOL and

(b) Government Day School, Kofar Yandaka, which formed the Experimental School.

From the remaining seven schools, one hundred and sixty (160) students were randomly selected for the study. This selection was in conformity with the recommendations of Bala (2003). From each of the pilot study schools, eighty (80) students were randomly selected, consisting of forty (40) males and forty

(40) females; this selection was carried out through the use of class registers of the affected SSII students; the selection was also executed through random sampling.

Selection of the Lesson Topic for Teaching

The chemistry topic for this study was: Acid-Based Reaction (neutralization). This topic was considered because it is fundamental to the study and understanding of chemistry as a subject. The justification for the selection of this topic include the following:

a) It forms part of the national chemistry curriculum for SSII students.
b) There was the need to maintain continuity and sequence in the normal scheme of work in the sampled schools.
c) The concept (acid-base reaction) can be taught using laboratory-based teaching strategy and the lecture method.

Instrumentation

The instrument used for this study was the Chemistry Concepts Achievement Test (CCAT). The instrument comprised of forty (40) multiple choice items. The items were obtained from a collection of West African Examination Council (WAEC), Senior Secondary School Certificate (SSCE) assessment items available in the Science Secondary Schools of Katsina State and from experienced chemistry teachers in the Senior Secondary Schools. These assessment items were used because they possessed the following characteristics:

a) their use for research was recommended by the panel of assessment judges of the West African Examinations Council (WAEC);
b) the items generally possessed a facility indices ranging between 0.30 to 0.70; the selected items also constitute a reflection of the four (4) cognitive levels of Bloom's Taxonomy for the cognitive domain (Bloom, 1960), as rendered by Musa (2000) thus;

i. Level A: comprises of functional information, which demands mainly the ability to recall information.
ii. Level B: creates for a demonstration of "understanding", which calls for a demonstration of the ability to use knowledge in a familiar situation.
iii. Level C: creates forums for "knowledge application", which involves the ability to select appropriate knowledge and apply it to a problem situation.

iv. Level D: creates forums for higher processes of learning which call for a display of ability that requires "analysis" and "evaluation".

Table 2. Demonstrates a distribution of the forty (40) test items, as classified by Bloom (1986) thus:

Cognitive Levels	A	B	C	D	
Test Items	15	10	10	5	Total = 40

The adaptation of the items of the instrument was made by the researchers after consultations with chemistry lecturers in the Chemistry Department of Umaru Musa Yar'adua University, Katsina; the chemistry teachers of the secondary schools that featured in the research were also consulted because of their vast experience for effective handling of chemistry lessons in these institutions. Five lesson plans whose topics were derived from variations of the acid-base reaction concept (neutralization) were put in-place for teaching the SSII students that featured in the research. The experiment group was taught using the laboratory-based teaching strategy while the control group was taught using the lecture method (See Appendix).

Also, thirty (30) items questionnaire instrument titled "Students' Attitude Questionnaire in Chemistry" was also administrated to both the experimental and control groups after the treatment. This instrument was adapted from Osborne's et al (2003) "Attitudes toward science: A review of the literature and its implications"

Pilot Study Report

A pilot study was conducted at Katsina College, Katsina to determine the following:

i. facility index of the text items of the research instrument;
ii. validity and reliability of the two instruments used in the study ("Chemistry Concepts Achievement Test" and "Students' Attitude Questionnaire in Chemistry").

The pilot study revealed that four items of the test instrument were found to be difficult: three of the items were found to be quite simple. These

items were replaced with more suitable items, which finally constituted the test instrument with facility indices ranging between 0.30 to 0.70 (See appendix).

The forty items "Chemistry Concept Achievement Test" were given to four experienced chemistry teachers of senior secondary schools to examine the suitability of the items that featured in the test instrument. The items were, however, revised based on the experts' recommendation in terms of clarity and cognitive demands. The 30-items questionnaire instrument on "Students' Attitudes to Chemistry" were also given to experts for validation. Their recommendations, suggestions and observations were noted and reflected in the questionnaire.

The forty (40) students that featured in the Pilot study were tested and re-tested to determine the reliability and dependability of the designed "Chemistry Concept Achievement Test" which consisted of 40 items as well as the 30 item questionnaire on "Chemistry Students' Attitudes". The tests were carried out within an interval of two weeks; the first instrument (Chemistry Concept Achievement Test) yielded a reliability coefficient of 0.693 while the second instrument (Chemistry Attitude Questionnaire) yielded a reliability coefficient of 0.997. These coefficients are demonstrated on Table 3 and 4.

Table 3: Test-Re-test Chemistry Concept Achievement Test (CCAT)

Test Type	N	Mean	SD	Pearson Correlation
Test	40	70.9	3.55	**0.693**
Re-test	40	64.3	3.57	

Table 4: Test-Re-test Attitude Questionnaire

Test Type	N	Mean	SD	Pearson Correlation
Test	40	59.2	13.03	
Re-test	40	69.9	13.08	**0.997**

A Pearson product correlation was run to determine the relationship between test values and re-test values derived from the test administered to students in respect of their performance in chemistry test: the scores were analyzed using Statistical Package for Social Science (SPSS). The data showed no violation of normality and the result revealed a positive correlation between the test and re-test scores obtained. Similarly, a Pearson Product Correlation was employed to determine the relationship between the two administered test (test and re-test) given to students on their attitudes towards the laboratory-based teaching strategy in classroom pedagogy in chemistry. The data revealed a strong positive correlation (Table 4) between the two administered questionnaire instruments, which was statistically significant (r=0.997).

Treatment Procedure

The researchers conducted the teaching and laboratory activities to both the experimental and control groups with strict adherence to the lesson plan prepared by the researchers (See appendix). The contact sessions for both the experimental and control groups lasted for eight (8) weeks. The first week was used for orientation, where the researchers and the students got themselves familiarized. There were six weeks of teaching in both the experimental and control groups. The laboratory mode of instruction was adopted for the experimental control while lecture method featured in teaching the control group: the same selected concepts were employed in teaching the two groups of students.

In regard to the employment of the laboratory-teaching strategy in this research, students were arranged in groups of four and were provided with a laboratory manual, equipment as well as test questions. The students carried out the practical activities under the guidance of a teacher. At the end of the practical sessions, the performances of students were assessed and corrections were also effected.

In reference to the employment of the lecture method, the researchers conducted lessons of forty minutes per period for six (6) weeks using a variety of teaching aids. For example, teaching aids such as acid, base, salt and water were extensively used. At the end of each lesson, students were allowed to ask questions: they were also subjected to test questions at the end of each lesson, and these were evaluated.

Procedure for Data Collection

After the treatment, the researchers administered post-test Chemistry Concept Achievement Test (CCAT) to both experimental and control groups. The data collected were analyzed accordingly, after the administration of the CCAT. The Students Attitude Questionnaire (SAQ) was also administered to both experimental and control groups to ascertain students' level of attitudinal change.

In this study, the written laboratory reports by students were adequately used to evaluate their laboratory work. For example, the following key aspects of the reports were put in-place namely: (a) correct reporting of practical procedures: (b) steps taken for precision and accuracy of recording data: and (c) recording of possible conclusion drawn from the results obtained. These were considered as main points to which marks were awarded during the grading process. The results of the treatment were withheld from the control group which received the same chemistry instruction as the experimental group using the lecture method. The teachings in both experimental and control groups were conducted by the researchers.

A post-test was administered at the end of the treatment. A pre-test was, however, given before the commencement of the contact sessions to the two groups. The results of the pre-tests of the group are demonstrated in the appendix. The pre-test comprised of the Chemistry Concept Achievement Test (CCAT) which was also used as the post-test at the end of the treatment.

Procedure for Data Analysis

Students' responses to the CCAT were considered using the marking scheme shown in Appendix B. However, each correct response to any of the items of the instrument was scored 2.5 marks: the total scores for all the items of the instrument was 100 marks. The probability level p-0.05 was used for retaining or rejecting the stated hypotheses. The scores obtained from CCAT provided the data for testing hypotheses 1 and 2. The data obtained from students' attitude questionnaire (SAQ) provided the data for testing hypotheses 3 and 4. The means and standard deviations derived from students' post-test scores were used in answering the research questions.

Presentation of Results, Data Analysis and Discussion

This research was designed to find out the impact of laboratory-based instructional strategy on students mastery and attitudes in chemistry. The analysis carried out involved statistical testing of the hypotheses using SPSS package. The level of significance adopted is $p>0.05$. This level of significance formed the basis for retaining or rejecting each of the null hypothesis stated.

Hypothesis 1: There is no significant difference in the mastery of chemistry concepts between students taught using laboratory-based teaching strategy and those taught using lecture method. The data raised for this hypothesis is presented on Table 5

Table 5

Group		$\overline{X}$	**SD**	**DF**	**t-value**	**P**
Remarks						
Experimental	80	67.73	7.67			
				158	**14.36**	**0.000**
significant						
Control	80	50.65	7.37			

In Table 5 t-test was conducted for independent samples to compare differences in students' mastery of chemistry concepts, between students taught using laboratory-based teaching strategy and those taught through the use of lecture method. The Table revealed that when students we taught through the laboratory-based teaching strategy, they demonstrated significant mastery of chemistry concepts more than those taught through lecture method; this was confirmed by the post-test results. This revealed that there was significant difference; the null hypothesis was, therefore, rejected. This result confirms the investigations of Musa (2011) on the efficacy of laboratory-teaching strategy in enhancing students academic performance in chemistry.

Research Question One states: Is there any difference in the mastery of chemistry concepts between students taught through laboratory-teaching strategy and those taught through the lecture method?

Table 5 reveals that there is statistical difference between the mean score and standard deviation of the experimental and control groups. The experimental group registered a mean score of 67.73 and a standard deviation

of 7.67 while the control group has a mean score of 50.65 and a standard deviation of 7.37.

Hypothesis Two: There is no significant difference between the mean scores of male and female students taught chemistry through the use of laboratory-based teaching strategy.

Table 6: Displays the analysis of male and female students taught through the use of laboratory-based teaching strategy

Group		$\overline{X}$	**SD**	**DF**	**t-value**	**P**
Remarks						
Male	40	69.33	7.67	**78**	**0.897**	**0.62**
Not significant						
Female	40	69.23	7.95			

In Table 6, t-test for independent samples was conducted to compare difference in students' mastery of chemistry concepts amongst male or female students taught using laboratory-based teaching strategy. In the Table, p-value is 0.62, suggesting that gender difference does not have effect on students' mastery of chemistry. The Table reveals that laboratory-teaching strategy approach is gender-friendly; therefore, the foregoing hypothesis is rejected. This result supports the findings of Stark and Gray (1999) on the influence of laboratory approach in teaching chemistry amongst students in schools. The findings showed that the initial gap between male and female subjects was bridged using laboratory-teaching strategy in classroom work.

Research Question 2 states: Does the mastery of chemistry concepts between male and female students differ significantly when they are taught through the use of laboratory-teaching strategy.

In regard to the above research question, Table 6 indicates that the means and standard deviations of both male and female students taught through the use of the laboratory-teaching strategy are comparatively the same; their means are 69.33 and 69.23 respectively, while their standard deviations are 7.96 and 7.95 respectively.

Hypothesis three: There is no significant difference in the attitudes of students in respect of those that were exposed to the laboratory-teaching

strategy and those taught through the use of lecture method in the course of mastering chemistry concepts.

Table7: Displays of students' attitudes to mastering chemistry concepts among the experimental and control groups.

Group		$\bar{X}$	SD	DF	t-value	P	Remarks
Experimental	80	129.31	9.94				
				158	**42.63**		
0.000	**significant**						
Control	80	62.31	9.94				

In Table 7, t-test for independent samples was conducted to compare the difference in students' attitudes towards mastering chemistry through the use of laboratory-teaching strategy and lecture method respectively. The Table reveals that there is statistical difference between students exposed to the laboratory-based teaching strategy and those taught through the use of the lecture method. The results indicate that the use of laboratory-teaching strategy exerts influence on students attitudes towards a mastery of chemistry concepts; the use of the laboratory-teaching methods exerts positive impact on students' mastery of chemistry concepts when compared to the use of lecture method. The third null hypothesis is therefore rejected. This finding is in consonance with the research revelation of Johnston (1999) who endorsed that laboratory teaching method motivates and arouses students' interests towards a mastery of concepts.

Research Question three states: To what extent has any of the teaching strategies (lecture method and laboratory-based strategy) exerted more positive attitudes on students' mastery of chemistry concepts?

Table 7 discloses that the experimental group demonstrates a mean score of 129.31 while the control group records 62.31: this result demonstrates that the use of laboratory-teaching strategy exerts more positively on students' attitudes towards a mastery of chemistry concepts when compared to the use of lecture method.

Hypothesis Four: There is no significant difference in the attitudes of male and female students towards a mastery of chemistry concepts through the use of laboratory-based teaching strategy.

Table 8: Displays an analysis of male and female students attitudes towards a mastery of chemistry concepts by way of exposures to the use of laboratory teachin $\bar{X}$ gy.

Group	N		SD	DF	t-value	P	Remarks
Male	40	125.48	10.81	**78**	**3.7**	**0.000**	**Not significant**
Female	40	133.15	11.40				

In Table 8, t-test for independent samples was executed to determine the difference amongst male and female students' attitudes towards the use of laboratory-teaching strategy in the mastery of chemistry concepts. The result reveals a significant difference amongst the two groups: it indicates that the female students who were taught through laboratory-teaching strategy showed more positive attitude and interest towards learning chemistry concepts than the male students who were taught through the use of the same method. The fourth hypothesis is rejected. This results is in consonance with the findings of Stark and Gray (1999) that the use of the process-based instructional strategy tends to have stimulated more gains in the female subjects than their male counterparts.

Research Question Four states: To what extent does there exist a difference amongst male and female students in their interest regarding their exposures to laboratory-teaching strategy in the mastery of chemistry concepts.

Table 8, discloses that the females' interests are more than that of their male counterparts: the females registered a mean of 133.15 while the males recorded 125.48.

Discussion of Results

The purpose of this research was to determine the impact of the employment of laboratory-based teaching strategy on students' mastery of chemistry concepts when compared with the use of lecture method in achieving the same design during classroom pedagogy. The data for the study was derived from students' scores registered in the Chemistry Concept Achievement Test (CCAT) and the 30-items questionnaire instrument titled "Students' Attitude

Questionnaire". The data that emanated from these scores formed the basis for analyzing the hypotheses and the research questions raised in the study.

The analysis of the results that featured in the study revealed that the experimental group registered a mean score of 67.7 and therefore performed significantly better than the control group with a mean score of 50.7. The findings of this study suggests that the laboratory-teaching strategy is more effective than the lecture method in the mastery of chemistry concepts: this finding confirmed the revelation of Harry and Al-felah (1983) in Yusuf (2003). The finding further revealed that a comparison of the academic achievements of students taught through the laboratory-teaching strategy and those of their counterparts taught through the lecture method indicated that students exposed to the laboratory-based method demonstrated higher chemistry achievement. This findings also affirms the assertion of Zitoon and Al-zambi (1980) in Kwabena (2013) that the laboratory-based method is more effective than the traditional method in the task of developing the skill of scientific thinking amongst students.

The findings also revealed that there was no significant difference at $p=0.05$ in the performance of male and female students when taught using the laboratory-teaching strategy; the method is found to be effective for both female and male students. This finding is in consonance with that of Tobin (1989) in Musa (2000) who observed that there was no significant difference in the participation of males and females in science of which chemistry is one of them.

In the analysis of the scores registered by the subjects regarding their attitudes towards a mastery of chemistry concepts, the experimental group registered a higher mean score of 129.3 when compared with that of the control group with just 62.3; the experimental group that was exposed to the laboratory-based teaching strategy developed more interests and exhibited more positive attitude towards a mastery of chemistry concepts than the control group that was taught using lecture method. This confirms the revelation of Bala (2003) who disclosed that effective use of the laboratory approach encourages a development of positive attitudes amongst students for effective learning of chemistry

Conclusion

The study revealed that the use of laboratory-based teaching strategy is more effective than the use of lecture method in teaching chemistry. The use of the laboratory-teaching strategy creates and enhances students' motivation, interests and achievement; this development creates forums for effective

teaching-learning in chemistry. This revelation is in conformity with the findings of Odubumi and Balogun (1991) in Kwabena (2013) that asserted that low achievement students, using the laboratory method performed better than their counterparts who were exposed to lecture method during classroom pedagogy. The use of the laboratory teaching method is designed to engage students actively in the learning process; it promotes collaborative learning and encourages students to acquire scientific skills and promoted positive attitudes towards a mastery of chemistry concepts amongst students.

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