

Learning and Teaching Styles in Language, Science and Technology Education in Nigeria.

Abimbola A. Apantaku (Ph.D.)

*The Polytechnic University of Ado-Ekiti, Ondo State, Nigeria
apantaku2002@yahoo.com*

Oyemehi Olanrewaju (Ph.D.)

Lagos State University, Ojo, Lagos, Nigeria

Abstract

The learning style preferences of Education students in 3 faculties were identified using the Index of Learning Styles questionnaire (Felder 2002). The study also includes an observation of teaching styles. Findings reveal that whilst learning styles are varied, teaching styles are rigid and one directional. Attempts must be made to match teaching with learning styles.

Key words: Learning Styles; Teaching Styles; Instruction; Strategies; Effective teaching

Introduction and Background

Learning styles are reflections of how students take in and process information. The styles are as varied as the students that come into the universities for various courses. Teaching styles also refer to various approaches teachers' adopt in the course teaching a particular subject. Most times there is a mismatch between learning styles and teaching styles. When this happens, students are disillusioned in class, or they perform poorly in tests. This can be frustrating for both learners and teachers. Felder and Solomon Silverman (2002) came up with a description of learning styles using the Index of learning styles questionnaire. Their description was grouped into four dimensions as follows: A. Active and Reflective learners; B. Sensing and Intuitive learners; C. Visual and Verbal learners; and D. Sequential and Global learners.

Language Teaching in Nigeria

There are identified teaching situations peculiar to the teaching/learning process in Nigeria. These are listed as follows:

- a. The problem of large classes;
- b. The problem of limited facilities; and
- c. The problem of multi-grade classes.

The National Teachers Institute (NTI) manual proffered a number of strategies teaching and learning styles/approaches to effect the above challenges such as: differed topics to different groups; use of team teaching; use of substitution, split, and stations. Felder & Henriques (1995) assert the need to match teaching styles to learning styles doing this has been discovered to enhance academic achievement, student attitudes and student behaviour at the primary and secondary school level (Criggs & Dunn, 1984; Smith & Russell 1984). Oxford (1990) also assert that what must be done to achieve effective foreign language teaching is to balance instructional methods, somehow structuring class so that all learning styles are simultaneously or sequentially accommodated.

In the 70s and 80s, the basic skills were generally taught in isolation in a very rigid order, such as listening before speaking. However, it is now generally recognized that we use more than one skill at a time leading to more integration in the traditional classroom.

Speaking is considered less-academic than writing. Other styles are learning in pairs, group work and peer-learning and reading.

Science and Technology Education

Busari (2004) in her definition of science says science is constituted of processes, products and values. In the scientific knowledge, skills and values are inseparable.

Busari also defines technology as simply "the science of crafts". Busari's conceptual definition of Science and Technology Education (STE) is of education as a continuous and necessary process of teaching and training an individual to be useful to self and society. This definition is in line with the goals of Science and Technology Education as propounded in the National Policy of Education (2004). The goals are stated below:

1. The acquisition of knowledge and understanding of a range of Science concepts, principles, and laws through systematic study and experience of aspects of the body of knowledge called science;
2. The acquisition of a range of cognitive and psycho-motor skills and processes to results of direct involvement in science activities, procedures or applications in the laboratory or the field;

- 1. The utilization of scientific knowledge and processes in the pursuit of further knowledge and deeper understanding and the development of an ability to function autonomously in an area of study to solve practical problems and to communicate that experience to others;
- 2. The attainment of a perspective or way of looking at the world together with some understanding of how it complements and contrasts with other perspectives ways of organizing knowledge and inquiry; and the attainment of a basic understanding of the interaction between sciences and society and the contribution science makes to our cultural heritage.

Technology Education Goals

Definition of Technology

The goals of technology education include:

1. Understanding the principles and dynamics of technology;
2. Understanding the principles of tool construction, processes of technology and modes of dissemination;
3. Developing of intellectual processes of technology and their relations with other systems such as communication, economics, science, industry and society;
4. Acquiring skills such as introduction, production, maintenance, creativity, designing and communication;
5. Mastering a technology-oriented forms of general and specific problem-solving;
6. Producing technologies by literate people; and
7. Producing products that are employable and equify those who would proceed to higher education.

Science and Technology Education as a Pedagogical Discipline

Shen, (2004) posits that STE teachers of science and technology must be trained in science and technology in order to be competent in their practices. The essence of competence is to willingly and creatively teach and use science and technology to contribute to the lives of self and others in such a way that they would all have productive lives. Productive science and technology education involves exploring and applying knowledge to real life experiences by understanding the systems of science and technology in the context of education; Sensitizing pupils of the sources, locations, mapping processes etc of resources available in the environment; Exploring our marine, animals, forest, space, etc within the school curriculum; Dividing knowledge to avoid environmental and social problems in the immediate community; Facing personal challenges of taking learning as one's responsibility by searching and initiating ideas individually and collectively; and Encouraging teachers' participation in industrial, conservation and other resource centre.

Learning styles and strategies

Fielder and Soloman (2005) categorize learning styles and their strategies into eight as follows:

- Active and Reflective learners
- Sensing and Intuitive learners
- Visual and verbal learners
- Sequential and Global learners

3. The utilization of scientific knowledge and processes in the pursuit of further knowledge and deeper understanding and the development of an ability to function autonomously in an area of study to solve practical problems and to communicate that expertise to others;
4. The attainment of a perspective or way of looking at the world, together with some understanding of how it complements and contrasts with other perspectives ways of organizing knowledge and inquiry, and the attainment of a basic understanding of the interaction between science and society and the contribution science makes to our cultural heritage.

Technology Education Goals

Definition of Technology

The goals of technology education include:

1. Understanding the principles and dynamics of technology;
2. Understanding the principles of tool construction, processes of technology and modes of dissemination;
3. Developing of intellectual processes of technology and their relations with other systems such as communication, economics, science, industry and society;
4. Acquiring skills such as instrumentation, production, maintenance, creativity, designing and communication;
5. Mastering of technology-oriented forms of general and specific problem-solving;
6. Producing technologically literate people; and
7. Producing products that are employable and equally those who would proceed to higher education.

Science and Technology Education as a Pedagogical Discipline

Burner (2004) posits that STE teachers of science and technology must be trained in science and technology in order to be competent in their practice. The essence of competence is to willingly and creatively teach and use science and technology to contribute to the lives of self and others in such a way that they would all have productive lives. Productive science and technology education involves acquiring and applying knowledge to real life experiences by Understanding the systems of science and technology in the context of education; Sensitizing youths of the richness, locations, tapping processes, etc. of resources available in the environment; Exploring our marine, coastal, forest, space, etc. within the school curriculum; Directing knowledge to actual environmental and social problems in the immediate community; Fostering personal challenges of taking learning as one's responsibility by searching and initiating ideas individually and collectively; and Encouraging teachers' participation in industrial, conservation and other resource centres.

Learning styles and strategies

Felder and Soloman (2005) categorize learning styles and their strategies into eight as follows:

- Active and Reflective learners
- Sensing and Intuitive learners
- Visual and verbal learners
- Sequential and Global learners

Active and Reflective Learners

According to them, active learners tend to retain and understand best by doing something active with it- discussing it or explaining it to others. Reflective learners prefer to think about it quietly first.

Active learners tend to like group work more than reflective learners who prefer working alone. Sitting through lectures without getting to do anything physical but take notes is hard for both learning types, but particularly hard for active learners.

Sensing and Intuitive Learners

- ✓ Sensing learners tend to like learning facts; intuitive learners often prefer discussing possibilities and relationships.
- ✓ Sensors often like solving problems by well-established methods and dislike complications and surprises; like conventional and stable routines. Sensors are more likely than intuitive learners to resent being tested on materials that have not been explicitly covered in class.
- ✓ Sensors tend to be patient with details and good at memorizing facts and doing hands-on (laboratory) work; intuitive learners are often better at grasping new concepts and are more comfortable than sensors with abstractions and conceptual simplifications.
- ✓ Sensors tend to be more practical and careful than intuitive learners; intuitive learners tend to work better as well be more innovative than sensors.

Visual and Verbal Learners

Visual learners remember best what they see- pictures, diagrams, flow charts, time lines, films, and demonstrations. Verbal learners get more out of words- written and spoken explanations. Everyone learns more when information is presented both visually and verbally.

Sequential and Global Learners

- ❖ Sequential learners tend to gain understanding in linear steps, with each step following logically from the previous one. Global learners tend to learn in large jumps, absorbing material almost randomly without seeing connections, and then suddenly "getting it".
- ❖ Sequential learners tend to follow logical, stepwise paths in finding solutions; global learners may be able to solve complex problems quickly or put things together in novel ways once they have grasped the big picture, but they may have difficulty explaining how they did it.

Teaching Styles

Since teaching styles are the methods and approaches teachers feel most comfortable with, it might be difficult to completely change to a different approach from what they are used to. Teachers, who however are amenable to addressing a wide variety of learning style needs, do not need to make drastic changes in their teaching strategies. The way teachers teach can be in such a way as to address at least five of the specific learning style categories. It is suggested that regular use of at least some of the instructional techniques identified by Felder & Riechers (1993), can serve as improvement strategies for teaching English at basic education level. Lawal & Ayojobi (2008) in a study carried out to assess the learning style preferences of teachers of English as a Second Language in Ilorin Faculty of Education, revealed the need for a

more dynamic mix of instructional strategies to match the diverse learning styles preferences of the learners.

Aparna & Lawal (2010) also assessed the ICT competencies of ESL teachers in the secondary schools. The study revealed low-level competencies of the teachers in ICT knowledge and usage. Part of the problem also have to do with lack of technology infrastructure and facilities in most schools in the country.

Method

A survey research

Population: Two Faculties of Education students in Languages, Science and Technology

Sample size: 200 students in two Faculties of Education.

Instruments:

- ✓ Index of Learning Styles Questionnaire (Felder 2002)
- ✓ Checklist of teaching styles

Findings

Fig 1: UNDERSTAND SOMETHING BETTER AFTER

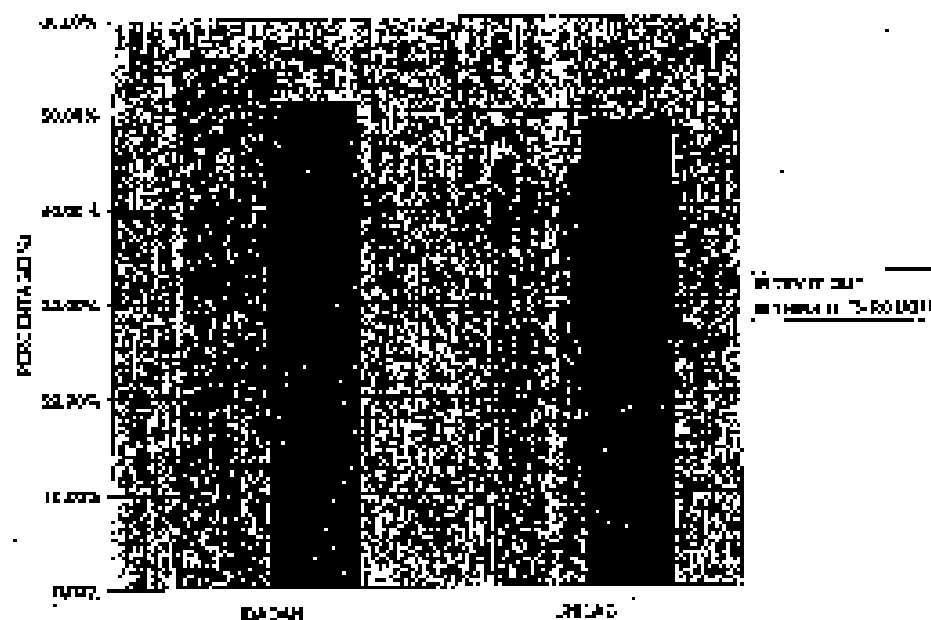


Fig 2: IT WOULD RATHER BE CONSIDERED

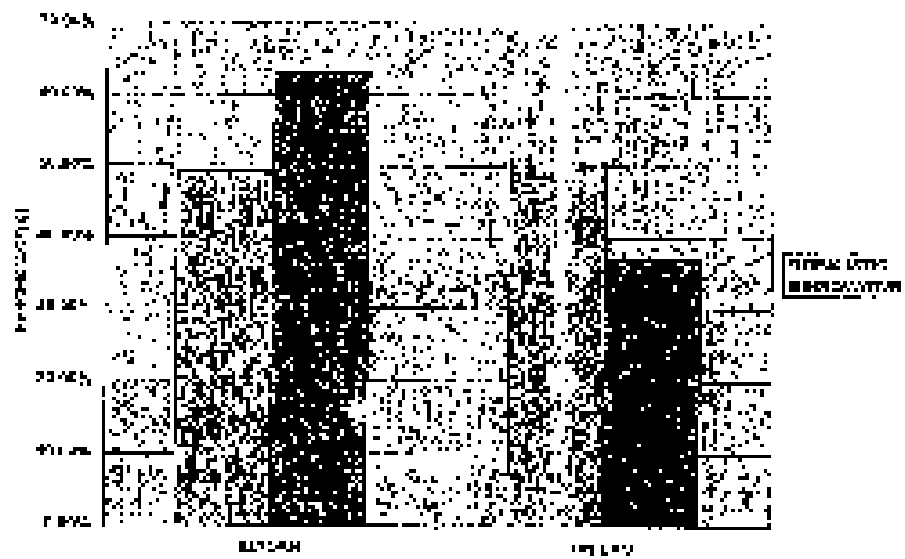


Fig 3: WHEN I THINK ABOUT WHAT I DID YESTERDAY, I AM MOST LIKELY TO GET

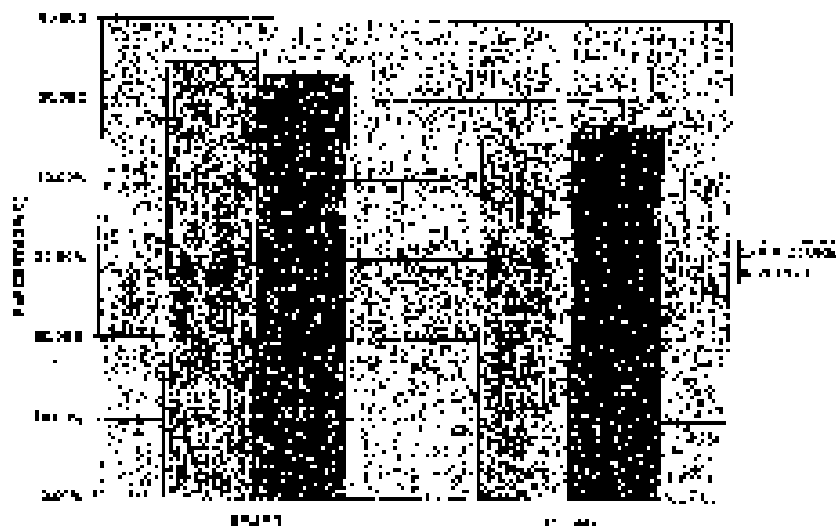


Fig 4: WHEN I AM LEARNING SOMETHING NEW, IT HELPS ME TO



Discussion

Lecturers in the Faculties were observed using "Direct Instruction" strategy only, with the adoption of the "Lecture" method mainly. Also used was "Explicit Teaching." The use of "Innovative Instruction" was limited to assigning of "Group work" to the students. Whilst students have different learning style preferences, teaching styles are not as varied and in most cases only one teaching style exist that is lecture method was observed in use by most of the lecturers.

Summary and Conclusion

A description of the learning style preferences of education students is a necessary guide for teachers in their adoption of teaching styles. An adoption of the use of different teaching styles and instructional strategies is necessary in order to match teaching with learning styles.

Recommendations

- Motivate learners with the teachings of new materials and the use of experiential teaching.
- Balance concrete and conceptual information with comparisons and contrast and use of the learners' prior knowledge.
- Make liberal use of visuals like photographs, cartoon, drawings and charts to illustrate and reinforce teaching; also show films, video tapes and live dramatizations.
- Include music, repetitions and drills but not too much.
- Provide intervals to think about what they have been taught.
- Give students the option of completing or some home work and assignment.

Reference

- Apapoo, S.O. and Lawal, O.O. (2009). ICT competence of ESL teachers in Nigeria's Secondary School. Paper presented at the ISTB annual NECC conference, June 2009, Washington DC, USA.
- Busan, O.O. (2004) Towards Rethink of Science and Technology Education in Nigeria. In Aliny Ejiogu (Eds) *Nigerian Education and Challenges of the 21st Century* in Honour of Professor Emeritus C.O. Taiwo. Pp 347-352. Mduagamu & Sonnet Ltd.
- Federal Ministry of Education (FMB/NEMUS) (2007). Quality of basic education: know the challenges, facts and figures, key issues. Policy implications (FMB/NEMUS) Abnab: Federal Ministry of Education, policy, planning, Management and Research Department.
- Felder, R. M. and Henriques, E.R. (1995). Learning and Teaching styles in foreign and second language education. *Foreign Language Annals* Vol. 28, No.1, Pp21-31.
- Felder, R. (2002) Index of learning styles questionnaire.....
- Felder, R. M. and Solomon, V.A. (2007). Learning styles and strategies. www.infocampus.org/2007
- Giga, S.A. and Dunn, R.S. (1984). "Selected case studies of the learning styles preferences of gifted students". *Gifted Child Quarterly* 28, 3: 115-119
- Lawal, O.O. and Apapoo, D.S. (2009). Instructional dynamics in the teaching of English as a second language (ESL) in Nigeria's teacher education programme. Paper presented at the 6th International Language Teacher Education Conference, Washington, DC, USA
- Coxford, J.C. (1996). Missing link: evidence from research on language learning styles and strategies. In *Georgetown University round table on language and linguistics* Washington, DC. Georgetown University press.
- Smith, L.H. and Rawolli, J.S. (1989). "Learning styles preferences: A practical approach for classroom teachers". *Theory into practice* 28: 44-56.