Art Science and Foreign Language Education in Mouau for Sustainable Development.

By

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Abstract

Academic field of language reveals increased interest towards creativity. A number of studies have revealed clear relation between learning, art science and creativity. There is a convergence between science and foreign language. Foreign language learning encourages flexible thinking thereby, making it much easier to grasp and appreciate scientific principles than one who is still imprisoned in single-language rigidity. In this era of globalization and digital literacy, bilingual knowledge is an added advantage for freshers in specialized higher institution such as Michael Okpara University of Agriculture, as this enables them to understand, identify, translate and interpret some terminologies simultaneously in French and English expressions in their related courses of agriculture, science and technology. To achieve the objective of this research, systemic functional linguistic (SFL) technique which highlights the function of language process and creativity was used. The population of the study was 2500 freshers from 9 colleges, which sought for the perception of 8 French lecturers and 3 environmentalists of Michael Okpara University of Agriculture (MOUAU), Abia, south east of Nigeria. Primary and secondary data collection methods were employed. The findings of this study revealed that technologies of information and communication TIC are effective tool for improved bilingual learning process and sustainable development. Based on these findings, recommendations were made. In conclusion, Foreign Language educators should identify the most significant factors of readiness devise techniques that will stir interest and creativity for foreign language learners.

Key Words: Foreign, language, art science, sustainable development,

Introduction

One of the most important aims of education is to develop more knowledge, skill, and ability. Students of the 21st century are very different from the students of the past. This requires educators to think continuously about how to change their teaching to empower and engage modern students, which makes for educational innovation and sustainable development. Research has shown that what students learn in the arts may help them to master other subjects, such as reading, math or social studies. Kern,(2003). Students who participate in arts learning experiences often improve their achievement in other realms of learning and life. For example, an analysis of Koppa (2006)in multiple studies confirms the finding that students who take music classes in high school are more likely to score higher on standardized mathematics tests. One explanation is that musical training in rhythm emphasizes proportion, patterns, and ratios expressed as mathematical relations. The arts nurture a motivation to learn by emphasizing active engagement, disciplined and sustained attention, by persistence, and risk taking, among other competencies.

The arts are a great learning tool for students to increase their motivation according to their interests and abilities. As cited by Awosika(2021)'don't seek science without humanities .In humanities, diverse opportunities for communication are expressed. Mbigi in his collective fingers theory highlights this mantra –Ubuntu which translated in Swahili means 'I am because we are'(Mbigi1997)

Artscience involves understanding the human experie-ence(experiment plus experience) of nature through the synthesis of artistic and scientific modes of exploration and expression. Artscience melds subjective,sensory,emotional and personal understanding with objective, analytical, rational,with focus on humanity.

> *Science knows no country because knowledge belongs to humanity which is the torch light which illuminates the world-Louis Pasteur*

Science is designed to be objective and guided by data; art is subjective and deeply influenced by feelings and opinions. While the outcomes of science and art are quite different, the processes involved have undeniable similarities

Scientific illustration is art in the service of science. These artist draw or render images of scientific subjects in an accurate way to inform and communicate.

One of the challenges when seeking to reconcile the relationship between art and science is the ambiguous definition of" Art". The term is used as a blanket term for craft design, as a reference to the process of learning to create art, as a definition for representational pieces created to elicit more motion, and for the pieces in the oeuvre of a mature artist.

Additionally, much of what is currently considered art is actually the artifact of culture. Perhaps it was art when it was created, and it is now honored as art even though the question is resolved. Can I convey that thundering herd to memorize that great hunt? Can I manipulate this clay so I can remember my lover's face? Can we construct an imposing building that will evoke the power of the god-housed within? Can I manipulate marble in such a way that it resembles wet fabric on a woman's belly? Can I lay a swatch of pink near a swatch of green to communicate the luminosity of that late season leaf? Can I challenge the understanding of the visual in a media-saturated world?

Science' however, is an almost sacrosanct term, used daily to refer to the testable output that is the result of systematic adherence to discipline-specific methodologies. If science were subject to same as combining the arts and standard curricula; together they can create a richer and more lasting learning experience for students who believe that learning science is boring in classes. It is suggested that study of the arts should be accepted as an essential part of achieving success in work. To this end, the most important action will be coordinating efforts of scholars from various areas to allow arts education for science students to become an evidence-based field. It is our contention that while the sciences seek to find answers to the most fundamental questions about our physical world, we need to find a place for the arts within the curriculum and within the process of scientific investigation. The arts should be applied in science education in a manner that considers the culture of each community. Those who are actively engaged in arts should be able to better manage their scientific projects and be able to better communicate and think. The main goal of arts in science education is to give students the opportunity to express their thoughts and feelings in the context of

their different cultures and also to understand science through the lens of their creative activity in arts.

Conceptual Review
Language of Babel-Need of Foreign Language educators

Genesis 11:1-9

Now the whole world had one language and a common speech. 2 As people moved eastward,[a] they found a plain in Shinar[b] and settled there.

- *3 They said to each other, "Come, let's make bricks and bake them thoroughly." They used brick instead of stone, and tar for mortar. 4 Then they said, "Come, let us build ourselves a city, with a tower that reaches to the heavens, so that we may make a name for ourselves; otherwise we will be scattered over the face of the whole earth."*
- *5 But the LORD came down to see the city and the tower the people were building. 6 The LORD said, "If as one people speaking the same language they have begun to do this, then nothing they plan to do will be impossible for them. 7 Come, let us go down and confuse their language so they will not understand each other."*
- *8 So the LORD scattered them from there over all the earth, and they stopped building the city. 9 That is why it was called Babel[c]—because there*
- *the LORD confused the language of the whole world. From there the LORD scattered them over the face of the whole earth.*

The Tower of Babel is an origin myth and parable in the Book of Genesis meant to explain why the world's peoples speak different languages.

In this scriptural text above, it is very clear that there is need to overcome challenges which include language barriers, need of translators, Interpreters, Communication as well seamless collaboration.

Relationship between Art and Science

Science and art are both query-driven processes. The scientist and the artist observe a phenomena., ask a question, and use discipline-specific methods to generate knowledge for comprehension and-ideally-wisdom. The query-driven process-the question, and the communication of that resolution link science and art.

At the most basic level, the fact that both art and science are human endeavors links these seemingly disparate undertakings. Both are concerned with knowledge, truth or untruth, accuracy or inaccuracy, universality, systematic methodologies and seek to communicate. They differ primarily in the fact that science is reliant on testable scientific methods. The application of testable scientific methods forces practitioners to step out of the known as understood by the self and into the known as able to be proved by others. When practice does not adhere to this fundamental aspect of science, it is known as "bad science". Art, on the other hand, is testable only when measures against time. When time reveals patterns or changes in the elemental aspects of art, we can learn about the human condition as it was interpreted at that time. Mean, Median, and outliers intrigue art historians in the same way that these intrigue the scientist.

- Science is designed to be objective and guided by data; art is subjective and deeply influenced by feelings and opinions. While the outcomes of science and art are quite different, the processes involved have undeniable similarities.
- Both are concerned with knowledge.
- Both are concerned with truth(s) or untruth.
- Both are concerned with accuracy or inaccuracy.
- Both are concerned with universality.
- Both rely on systematic methodologies.

Foreign Language education and its importance

Exposure to diverse languages and cultures is a critical component of a quality education, and the benefits of language study are well documented in many essential areas: The study of language brings students into contact with people and cultures that are very different from their own, and in a way that encourages

respect for diversity as seen by Lier, (2004). This exposure lowers the barriers that are often at the root of fear and distrust of others.

Language education involves the structured teaching and learning of a language, encompassing its grammar, vocabulary, pronunciation and cultural context. Kazakov (2021).

Thus, the knowledge gained from language study contributes to empathy and tolerance towards diverse peoples and reduces prejudice both at home and abroad. Thus, the study foreign language not only broadens students' perspectives of the world, but also imparts a more profound understanding of their own cultures. Exposure to cultures with long histories builds a greater sense of the past within one's own culture as well.

Foreign language study increases students' skills in the use of English. Often it is in the foreign language classroom that students gain the greatest understanding of grammar and expand on their vocabulary. Kramsch, (2009). Learning the linguistic roots of language further deepens these abilities.The study of foreign languages enhances listening skills and memory, increases analytical abilities, and builds aptitude in problem solving and working with abstract concepts. It has been shown to enhance the study of other subjects. Abilities in math and English increase, and creativity growsThe study of foreign language is a distinct advantage in the professional world. Job candidates who are proficient in more than one language are extremely valuable and have a competitive edge in the U.S. economy, where a large proportion of jobs involve work with immigrants and/or are the result of trade with foreign countries. Students who have studied foreign language have more job opportunities available to them both at home and abroad, in an increasingly global society.

Scientists and creative arts

In earlier times, in the absence of technology, "nature" was the laboratory of scientists like Plato, Aristotle, Michelangelo, and da Vinci. The study and observation of the world around them, often referred to as "nature", or "the natural world," was their source of inspiration, truth, and wisdom. Using this laboratory, Plato and Aristotle laid the foundations for much of modern physics

and mathematics, as well as more "artistic fields," such as aesthetics, ethics, and political science. da Vinci was a painter and sculptor, but was also an engineer, inventor, and anatomist. Michelangelo was also a painter and sculptor, as well as a poet, but also an engineer, anatomist, and architect Bruner (1991).

Appreciate the relationship between the arts and other disciplines e.g. Science technology, Engineering, Mathematics, Medicine e.t.c. Below are French citizens who made remarkable impact in science, technology and agriculture which is still resonating from one generation to another, without the collaborative role of translators and interpreters, these inventions and discovery will remain sealed and personalized to these inventors, hence language barrier will pose as a limiting factor to spreading solutions to humanity globally. Below are some of the French citizens and their contributions towards science, technology and agriculture

Antoine parmentier discovered the consumption of potatoes while Marie Curie discovered Radio Activity others include as follows;

Charles Laveran discovered plasmodium Rene Laennec-Stethoscope Anderem Ampere-electromagnetism Modern Pencil-Nicolas Jacques Conte Blaise Paschal-digital calculator

Braille louis-raised dots for the Blind (okeke et al) 2018

Art science and scientific translation must be:

- Accurate
- Truthful
- Consistent information.
- Engaging
- Focus in the affective domain of learning
- Attitude
- Emotion
- Creativity
- Cross cultural communication

Justification of Research

Foreign language education

Oftentimes, developing critical literacies has been considered to be outside of the purview of foreign language education (for a review of this discussion, see Comber and Simpson, 2001; Wallace, 2003). Some argue that any critical analysis of texts needs to wait until the learners have well-developed linguistic knowledge (e.g., Bernhardt, 1991), while others argue that the process of acquiring linguistic knowledge and developing critical language awareness is an interdependent process (Hammond and Macken-Horarik, 1999; Luke, 1995; Wooldridge, 2001). Kubota et al. (2003) argue that the educational goal in any field, including foreign language instruction, is to encourage students to think critically in order to transform society by making it more equitable. In a foreign language classroom, students' proficiency, the curriculum goal, and each instructor's beliefs may influence how critical literacy practices can be brought into the curriculum. Nevertheless, the critical outlook should be incorporated at all levels of instruction.

Undoubtedly, critical engagement with texts is a challenging task for foreign language readers, since they read texts written for an audience and community to which they most likely do not belong (Kramsch, 1993; Wallace, 2003). They need to interpret the text from both the writer's and the target reader's viewpoints, as well as from their own and their familiar communities' perspectives. While engaging in critical literacies in foreign language may be a challenge, foreign language learners have an advantage over those who are monolingual speakers/readers. Equipped with multiple language and cultural repertoires, such learners can bring to their literacy practices their rich knowledge and perspectives from different societies, cultures, and languages. Such resources are invaluable assets, allowing learners to compare multiple perspectives, to notice discrepancies or blind spots, and to recognize that what is considered “normal” in one linguistic/cultural practice is not necessarily universally so.

Through critical literacy practices in foreign language, learners begin to recognize that what is written in a text is not indisputable fact, but rather the author's views or interpretations of an event as shaped by a particular ideology. Being mindful and extremely cautious toward such textual politics is especially crucial for foreign

language students because they tend to have "an overly deferential stance" (Wallace, 2003) toward authentic foreign language texts, due to their subjectivity as "learners" of that language. Recognizing the choices that textual authors make so as to accomplish their purposes via particular linguistic/semiotic devices is an important step for learners; such students can then become active agents in their own worlds, choosing specific words for their desired purposes. By drawing upon and negotiating diverse linguistic resources, learners can also play a mediating role between languages and cultures—a role that is not possible for monolingual individuals (Iwasaki and Kumagai, 2020; Kumagai and Iwasaki, 2015).

Aim

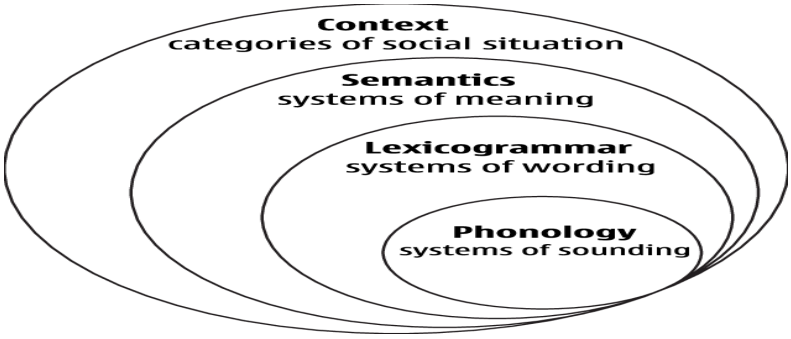
The aim is bridging the gap and identifying the interconnectedness of Art and science for sustainable development.

Objectives

1. To assess the impact of Foreign language among freshers in Michael Okpara University of Agriculture.
2. To reveal the role of Foreign language educators in Art science What is role of

METHODOLOGY

SYSTEMIC FUNCTIONAL LINGUISTICS



SOURCE: Torenhtpps: The-Four-Strata-of-the-Systemic-Functional Model_fig1_334836556

In this paper, systemic functional linguistics as a model was used combined with elicitation method of identifying the generic words in every day communication which gave male folks primacy over female counterparts. Systemic functional model (figure 1 below) was chosen because it is a model that views language as a network of systems. When the wrong language is employed in communication, it generates wrong experience and understanding of the world, one's reasoning and behaviour, consequently, are organized based on this experience. Secondary data were also used through textbooks and the internet which were appropriately acknowledged.

S/N	ITEMS	SA	A	D	SD	$\bar{X}$	STD	Remark
1.	**Lack of Practice opportunities**	65	35	7	-	3.01	0.51	Accept
1.	**Fear of Speech communication**	58	25	15	9	3.05	0.53	Accept
1.	**Loss of motivation**	85	20	2	-	3.07	0.56	Accept
1.	**Non seriousness of student towards French language**	83	18	5	1	2.56	0.42	Accept
	GRAND TOTAL					**2.86**		**Accept**

Mean rating of the respondents on the performance of students in Foreign Language (French) large class (**n = 107**)

DISCUSSIONS

The study identifies the challenges affecting new students in learning French in Michael Okpara University of Agriculture (MOUAU).From the analysis of this study it was discovered that:

Lack of interest

- Inadequate classroom/materials
- Statutory bodies (CCMAS etc)
- Negative/Nonchalant attitude of students towards Foreign Language (French language) and

Conclusion

The main goal of arts in science education is to give students the opportunity to express their thoughts and feelings in the context of their different cultures and also to understand science through the lens of their creative activity in arts.

By integrating art into science, students understand the inter-relatedness of everything they learn. This method of teaching and learning also promotes creativity and collaboration. And all of this leads to scientific literacy.

Fundamentally, both art and science are about encounters with the real world — the one we live in and experience as colours, textures, shapes and sounds. Every artistic creation and every scientific study is a record of experimentation.

Art and science are often thought of as completely separate fields. However, a rich overlap exists between the two, and they share many connections that are begging for exploration.

Education, creativity, and empathy strengthen any community and that there is no border between science and arts, but we also believe that local culture should be considered. Scientists that lived many years ago were not only accomplished in their scientific field but also in arts. Arts in science education offers a new model for 21st century teaching to help the shift from human labour to mechanical labour based on human imagination and novelties so it should be considered that:science and arts can impact to each other; as well problems cannot be solved alone just by science,arts can help to find the solution too. Graduates often cite language courses

as among the most valuable in helping them to increase their communication skills overall in college, allowing them to obtain desirable employment in a wide range of areas. Language study opens doors in countless fields, including business, marketing, government, medicine, technology, law, and the military.

The study of foreign languages and cultures leads students to become more responsible and committed global citizens. It reduces the barriers to travel and, therefore, encourages continued exposure to other cultures and allows individuals to interact more fully with others.

The study of diverse languages and cultures is a gateway to greater understanding and appreciation for a wide range of other subjects, including art, music, cuisine, film, science, and philosophy. It educates and broadens the mind in limitless ways and is the true core of a liberal education.

Finally," A thumb although it is strong cannot kill aphids on its own; it would require the collective cooperation of the other fingers"

Recommendation

- Collaboration
- Cross cultural combination
- Problem solving
- Overcoming challenges with results

References

AwosikaIbukun - https://ccyiglobal.blogspot.com/2018/07/13th-of-convocation-of-covenant.html

Bakhtin, M.M. (1982). *The dialogic imagination: Four essays*. Austin, TX: University of Texas Press.

Besemeres, M. (2002). *Translating one's self: Language and selfhood in cross-cultural autobiography*. New York: Peter Lang.

Britannica - https://www.britannica.com/biography/Louis-Pasteur

Bruner, J. (1991). The narrative construction of reality. *Critical Inquiry, 18*, 1-21.

Joseph NicéphoreNiépce– https://www.ohlalafrenchcourse.com/blog/article/10-french-technological-and-scientific-advances-the-passive-voice#:~:text=Photography%20%3A,in%201826%2C%20here%20it%20is.

Iwasaki and Kumagai, 2015). *Reading between the lines: Perspectives on foreign language literacy* (pp. 40-59). New Haven, CT: Yale University Press.

Kazakov -https://worldclassbaltic.eu/andrei-kazakov-2021/

Kern, R.G. (2003). Literacy as a new organizing principle for foreign language education. In P.T. Patrikis (Ed.). *Reading between the lines: Perspectives on foreign language literacy* (pp. 40-59). New Haven, CT: Yale University Press.

Koppa - koppa.jyu.fi/avoimet/hum/menetelmapolkuja/en/methodmap/philosophy-of-science/psychoanalytic-theory

Kramsch, C. (2009). *The multilingual subject*. New York: Oxford University Press.

Mbigi: The Collective Fingers Theory Inkanyiso, Jnl Hum &SocSci 2021.

Norton, B. (2000). *Identity and language learning: Gender, ethnicity and educational change*. Harlow, England: Longman/Pearson Education.

Okeke O., Okoro R. – French Language at a glance, Fasmen Publishers Okigwe 2018.

Pavlenko, A. & Lantolf, J. (2000). Second language learning as participation and the (re)construction of selves. In J. Lantolf (Ed.). *Sociocultural theory of second language learning* (pp. 155-177). New York: Oxford University Press.

Research Gate - https://www.researchgate.net/figure/Five-Pillars-of-Sustainability-fig1 265478814.

The-Four-Strata-of-the-Systemic-Functional-Model_fig1_334836556

Van Lier, L. (2004). *The ecology and semiotics of language learning*. Norwell, MA: Kluwer Academic Publishers.

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes*. Harvard, MA: Harvard University Press.