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## **LANGUAGE AND INTERDISCIPLINARY RESEARCH**

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### **Introduction**

This paper fundamentally seeks to provide a fresh perspective on the contemporary challenges that disciplines face in trying to work together. It addresses specifically the issue of language and interdisciplinarity. With this background to the topic at hand, we will like to begin with an exposition of the key terms in the paper, namely, language, research and interdisciplinarity.

The discussion in this work is in six subsections. In the introductory section, we provide the background to the topic and define the key terms. This is followed by a brief discussion of some of the barriers that beset interdisciplinary studies. In sections 3 and 4, we present issues of language and interdisciplinary studies, with a case study of the ABUILD Project. The paper closes with some recommendations and a conclusion.

Language is a means of communication using spoken or written form. It is a vehicle for transmission of the culture, the way of life, the literature, and other aspects of a people. Language is an extremely important aspect of a community, as well as an important index of identity; and it is used for all communicative functions that a community requires. It also serves as a repository of a people's culture, history, exploits, etc. In fact, it is language that differentiates the homo sapiens from other animals. It is so important to man that every community should address linguistic issues with the same vigor that infrastructures are developed. Every language has a right to exist no matter the size of the population of its speakers. We need linguistic information to sometimes find out something about the history of a people and the lives of the speakers of a particular language. Besides, every discipline uses language. This explains, in part, why the study of language has assumed such importance in recent years, as several projects have been executed involving language and other disciplines.

Research is the gathering of information to answer a question that solves a problem. It is a collaboration between writers and readers to find the best solution to shared problems. It is a network involving the researcher, those whose researches are consulted and those beyond them, the readers, those who will use the research, those who might benefit from the research, those who may suffer from the research, etc. It is a most esteemed human conversation involving several disciplines, where conversation is viewed as a social activity involving linguists,



philosophers, engineers, biologists, social scientists, investment managers, theologians, etc.

Interdisciplinarity is a collaboration between disciplines marked by increased interdependence between individuals from different disciplines working together on a shared problem. They communicate throughout a particular project, yet each remains with his/her expertise. According to Gunn (1992:252), interdisciplinarity is 'the pragmatist's response to the dilemma of disciplinary essentialism'. It is driven by a number of factors like educational, social and economic forces.

Interdisciplinarity has attracted a lot of debate in recent times. Two schools of thought dominate the debate. The Generalists who view it as dialogue or interaction between two or more disciplines reflect the role of integration in such collaborations that characterize its operations (Moran 2010). On the other hand, the Integrationists are of the view that integration should be the main goal of interdisciplinarity, especially as it deals with several challenges and complexities of life (Vess & Linkon 20002).

Our view of interdisciplinarity is a mix of both schools, as research and interaction between two/more disciplines with special attention to language, integration and methodologies, characterised by a lot of activity at the boundary where the disciplines meet. The boundaries of this discipline involve activities relating to crossings, overlaps, divisions, dissolutions, displacements and alterations; all of which are geared towards addressing the complexities and issues of life. The world itself is interdisciplinary. Besides, learning and research should be relevant to the learners as well as integrate experience, formal education and research. This makes interdisciplinarity between several disciplines the way to go. We thus have marriages, as it were, between language studies, education, business, computer science, sociology, anthropology, communications, political science, philosophy, literature, etc.

### **Barriers to Interdisciplinarity**

There are several barriers that arise as a result of interactions between disciplines. Such barriers include: communication barriers, academic barriers, attitudinal barriers, etc. Communication barriers arise when disciplines come together. Different disciplines have different registers. Sometimes, collaborators may not understand the register of the discipline they are interacting with, especially as the same terms may mean different things in different disciplines. Disciplines sometimes 'rediscover' things that have been discovered because different names were used in the description. Some researchers in particular disciplines may feel superior to those from another. Again, team members may

have difficulty in evaluating each other because they may not be familiar with the criteria for the research.

There are also barriers that arise as a result of academic traditions and structures. Departments are structured in a particular way and the institution may not support collaboration indirectly by not allowing crossings. Related to this is the fact that most professional organisations are discipline-specific and there are not many outlets for interdisciplinary researches. Furthermore, some departments are structured in a particular way and the institution may not support collaboration indirectly by not allowing crossings.

Researches that bridge disciplines are believed to lack depth. There is also the erroneous impression that such researches are less challenging and they have high risk. Sometimes, it can be considered that participants in such collaborations may be lost in team and lack professional identity.

These barriers can hamper interdisciplinarity, but the increase in interdisciplinary studies attests to the fact that it is making steady progress.

### **Language and Interdisciplinary Studies**

Many new fields have been created from collaboration between disciplines. Linguistics has combined with several disciplines to birth many new ones. A few of these include: Stylistics, which combines Linguistics and Literature, Metaphysics, which combines Linguistics and Philosophy, Speech Synthesis, which combines Linguistics and Computer Science. Let us illustrate with Speech Synthesis.

Speech Synthesis refers to the artificial production of human speech. This is done through computer generated simulation of human speech as computer technology is used to 'construct' human speech from electronic circuits to replace pre-recorded human speech. Speech Synthesis projects involve a team of linguists, phoneticians, computer scientists and mathematicians working together to develop large portions of artificial speech in a particular language. This area of interdisciplinarity has made quite some giant strides in the past ten years and its uses have been expanded to include, but not limited to:

1. assistance in language teaching and learning as its repetitive capacity provides a good aid to language learning exercises, reading exercises, presentations and creation of sounds that can not be produced by humans in a particular language;
2. assistance in research;
3. assistance in the simulation of responses in different virtual environments for the handicap, grassroots mobilization, recreation of an extinct language revitalization projects;

4. telephone answering service and automated attendant systems and voice response.

A number of speech synthesis projects have yielded several fruits across the world. In the University of Uyo, one of such collaborations has contributed to a good success story of interdisciplinarity, and it has produced a chain of research projects, which are still multiplying as shown in the next section.

### **The ABUILD Project**

This is the Abidjan Bielefeld Uyo Introduction to Language Documentation (ABUILD) project. This project was sponsored by the University of Uyo (UNIUYO) and the Deutscher Akademischer Austauschdienst (DAAD).<sup>1</sup> It was a tripartite collaboration between the three Departments of Linguistics at Uyo, Bielefeld, Abidjan; and the Department of Computer Science at the University of Uyo.

The ABUILD Project was a brainchild of Professor Gibbon. It was an international tripartite cooperation which involved the University de Cocody in Abidjan, Cote d'Ivoire, the Universitaet Bielefeld in Bielefeld, Germany, and the University of Uyo, Nigeria. The three institutions jointly funded the project in various ways. Linguists, computer scientists, speech technologists, were pulled from these institutions in the collaboration, which involved the documentation of the languages of the area, development of manpower and materials for documentation, teaching and practical use. The project commenced with an M.A. programme in Computational Language Documentation as a pilot project. It had an initial four-year duration (2003-2006). The main objectives were:

- a. the training of local multipliers of linguists, computer scientists, archivists, and other manpower in the area of language documentation;
- b. the raising of awareness and training of local community on basic principles of language studies like transcription, lexicography, etc.
- c. ensuring relevance of linguistic studies to the practical life of the people in education, agriculture, markets, professions, etc.
- d. recording and registering of the status of documentation for the languages and dialects of the communities;
- e. attraction of local funding for linguistic work; etc.

The program had an initial four-year travel and programme development funding from the DAAD, being a collaborative programme with the Universitaet

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<sup>1</sup> See Udoh & Udoinyang 2009.



Bielefeld, Germany, and Universite de Cocody, Cote d'Ivoire. Lecturers from the partner universities presented seminars and lectures on the program during their annual exchange visits, which included students as well. The travel and accommodation costs of the exchange trips for both staff and students were borne by the DAAD, and partly by the University of Uyo for the period of the pilot project. The Bielefeld team was led by Professor Daffyd Gibbon, while the University of Uyo team was led by Professor Eno-Abasi Urua. There were several exchange visits between Uyo and Bielefeld and vice versa involving both staff and students. Out of these visits developed many fruits in different areas of language documentation, description, applied text linguistics, grammar, heritage conservation, etc. Some of the fruits of the ABUILD Project include:

**i. The Linkage Project**

A linkage project was developed. This project was a tripartite international collaboration with the University of Bielefeld, Germany, and the University of Cocody-Abidjan, Ivory Coast, and the University of Uyo, as has been stated, on the Computational Documentation of Nigerian Languages. It began in 2003.

**ii. The MA in Computational Language Documentation Programme**

This program was designed with the following objectives:

1. to provide manpower training in current electronic language documentation, linguistic theories, practices and techniques;
2. to apply these theories and principles to the analyses of language problems in an interest area;
3. to utilize local languages and materials in the development of orthography development, instructional materials, development of text technology information systems, publications in indigenous languages and government developmental programs;
4. this was expected to have a multiplier effect in other disciplines, especially in the Faculties of Arts and Education, Computer Science Department, Electrical/Electronic Engineering and other language related disciplines, especially in the University.

It actually took off and through it, many students were trained in language documentation and some of them were employed in the Department to help train others.

**iii. The Ph.D programme in Language Documentation**

Following the apparent success recorded on the DAAD funded M.A. programme on Language Documentation between 2002 and 2006 in the 2 south-

south universities, viz., University of Uyo, Uyo, Nigeria (Anglophone) and the University of Cocody in Abidjan, Cote d'Ivoire (Francophone) and the interest on the programme, a Ph.D in Computational Language Technology, was to further strengthen the goals stated in the MA programme, namely, that of manpower development and capacity building in this area with the ultimate goal of protecting and safeguarding our endangered and oral languages. Moreover, a Ph.D program in CLT was to provide a training ground for other people, given the fact that Uyo is the only University in Nigeria and in sub-Saharan Africa that offers a postgraduate program in Computational Language Technology for now. Our first Ph.D candidate, Dr. Moses Ekpenyong, with B.A; M.A. Computer Science, graduated as the first home-grown Speech Synthesis Technologist in Nigeria in January, 2013.

#### **iv. Lower Cross Languages Project**

The LCL-Project provides a systematic documentation of the languages and varieties of the *Lower Cross* subgroup spoken in Akwa Ibom State. It also provides descriptions of the said varieties as well as grammars, dictionaries, orthographies, meta-language by way of empowering these languages to be effectively used in all spheres of life of Akwa Ibom State. From these, the speakers and others interested in these languages can draw from to produce primers, literary materials, etc. With the support of the Akwa Ibom State Government's funding, this project is still on-going.

#### **v. The Ibibio Speech Synthesis Project**

This was one of the fruits of the collaboration between the Department of Linguistics and Nigerian Languages and the Department of Computer Science, both of the University of Uyo, and the Department of Linguistics and Literature of the University of Bielefeld, Germany. It was aimed at creating a machine-readable text from a human readable one, in a Text-To-Speech (TTS) conversion (Gibbon/Ekpenyong/Urua 2004, Ekpenyong/Urua/Gibbon 2004). This project had a lot of potential for grassroots development programmes, particularly in information dissemination with regard to health (HIV/AIDS), agriculture, adult literacy, challenged persons (deaf, blind and dumb), difficult and challenging environments in conjunction with GIS. The project was funded by the LLSTI Project by Outside Echo UK. This project was coordinated by Roger Tucker and Ksenia Shalnova of Outside Echo UK, under the llsti project (see [www.llsti.org](http://www.llsti.org)). This Project motivated Dr. Moses Ekpenyong's interest in Speech Synthesis, an interest which culminated in his Ph.D.



**vi. Generic TTS for African Tone Languages**

This was a STEP-B Text-To-Speech Project sponsored by the World Bank. It was a collaboration with the Department of Computer Science, University of Uyo. This project began as an initial collaboration between the Department of Linguistics and Nigerian Languages and the Department of Computer Science, both of the University of Uyo, and the Department of Linguistics and Literature of the University of Bielefeld, Germany as mentioned above. It began with the creation of a machine-readable text from a human readable one, in a Text-To-Speech (TTS) conversion. At the expiration of that initial funding, there was need to further refine the synthesizer and upgrade it to a generic synthesis system that will be useful for research and development. This led to the approval of the proposal with funding from the World Bank and the Nigerian STEP-B office. In this project, a basic speech synthesis prototype for Ibibio, a Lower Cross subgroup of the (New) Benue-Congo language widely spoken in the south-eastern region of Nigeria, West Africa has been achieved. In the long run, impact on the local communities will be felt as information dissemination systems and other applications that will inform the people more in a language they are familiar with will evolve.

**vii. Prime Minister Initiative 2 Project for Curriculum Review**

The PMI2-Connect 2010, is a tripartite collaboration designed to strengthen an earlier one, the Abidjan-Bielefeld-Uyo Introduction to Language Documentation (ABUILD), which gave birth to the UNIUYO MA program in Computational Language Documentation and the Ph.D in Computational Language Technology. The objective of the PMI2 program was to review the teaching of Language Documentation in SOAS, UNIUYO and AAUA, and to further develop Language Documentation as a framework and field of research. The project was sponsored by the British Council under the PMI2 Connect and Collaborative Programme Delivery Funding– 2010, and the collaborating institutions: School of Oriental and African studies, University of Uyo and Adekunle Ajasin University, Akungbo, Ondo State. The project lasted from September, 2010 – September 2011. At its completion, the two M.A. programmes in the Department were harmonised in a revision which took effect from the 2012/2013 session.

**Some Recommendations**

There are several barriers besetting interdisciplinary researches yet, it has been established that interdisciplinarity is the way to go, for through it, many

complexities of life are addressed. Some recommendations regarding the way forward and how to sustain it include the following:

1. we should deliberately strategise and develop interdisciplinary projects even as individuals and specialists in our different areas of specialization;
2. we should look around us and see what problems we can solve as we collaborate and pull our resources and expertise together;
3. interdisciplinary studies should be incorporated in the PG research course, just like entrepreneurial studies have been recently introduced into the GST;
4. interdisciplinary research should be encouraged to solve specific research problems, not for its own sake;
5. interactions between researchers should be encouraged by the provision of shared facilities;
6. universities should develop, maintain and evolve interdisciplinary institutes, centres and programmes to address specific problems;
7. language is very important in any project, especially in interdisciplinary projects, therefore, special time must be allocated to the development of shared vocabularies.

## **Conclusion**

The aim of research in the humanities is to investigate different aspects of man. Interdisciplinary research should be encouraged both for its own sake and also to investigate and attempt to solve some research problems. Language is so important to man that every human endeavour is related to and connects with it. It is not surprising therefore that in dealing with human complexities through interdisciplinarity, several new disciplines have to integrate to deal with issues that arise from such collaborations. Although language falls squarely within the humanities, its operations reach out far beyond it. That is why it can comfortably deal with the sciences as well in any new hybrid enterprise. Speech Synthesis is a case in point, and we have explored the University of Uyo case, which has been a very welcome and fruitful development.

Interdisciplinarity creates opportunities that hold no bounds. From one collaboration, another can be derived, and it can go on and on, as we have seen in the ABUILD case explored here. It helps to uncover preconceptions and explain misconceptions. It increases motivation for research, advances critical thinking as well as promote significant learning and research.

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