

THE INTERPLAY OF TECHNOLOGY, PEDAGOGY AND CONTENT KNOWLEDGE IN THE SECOND AND FOREIGN LANGUAGE CLASSROOMS: ROLES OF ENGLISH AND FRENCH TEACHERS

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Abstract

This study explores the knowledge components underlying effective teaching and learning of English and French languages, by examining the three major components of knowledge that teachers need to acquire in order to improve their instructional practices and students' academic achievements. The paper recognizes the fact that the interplay of teachers' knowledge of the content, pedagogy and technology put in to action in the classroom goes a long way in determining gains in language learning. The concepts of content Knowledge (CK), Pedagogical Knowledge (PK), Pedagogical Content Knowledge (PCK), Technological Pedagogical Content Knowledge (TPCK), their various sub-components and applicability to different learning situations are discussed. These interconnected domains of knowledge are pivotal in the transmission of language concepts, principles, structures, systems and ideas using appropriate techniques and technology enhanced devices that can meet students' learning needs. None of these domains of knowledge can be applied in isolation of the other, that is why TPCK appears to be more favoured by scholars than every other domain. It is therefore concluded that teachers of language need to be well equipped in terms content, pedagogy and technological based learning devices that can enhance students' academic achievements.

Keywords: Technology, pedagogy, content, knowledge, French, English, foreign language, Teachers.

Introduction

Many studies have been carried out on the use and effectiveness of technology in enhancing second and foreign language teaching/learning for desired behavioural change. It is increasingly becoming more difficult task to be an effective language teacher today because the demands of teaching/learning process are more complex and varied than ever before. As teaching tasks have

shifted from lesson preparation and presentation using the traditional methods, there is a serious need for a foreign language teacher (in this case ESL & FFL) to have balanced knowledge of the language contents and methods and update himself in the use of modern technologies for resourceful teaching. Our concern in this paper is to discuss the content, pedagogical and technological knowledge that teachers need to acquire and how this could contribute to effective teaching/learning, and the significant relationships of these kinds of knowledge in achieving students' competencies in English and French languages.

Generally speaking, English and French in Nigeria are regarded as foreign languages though in Nigerian setting; the basic fact is that English is not our native language though English is regarded as the Second language because of the official roles it plays as the language of instruction in our institutions of learning, administration, politics, commerce and industry, judiciary, inter-ethnic and international communications. The English language is, however, not the only second language in Nigeria; the Abacha policy of 1996 made the French language the second official language. However, Nigeria has not executed its adoption as the second official language, the teaching and learning of French has taken another dimension since this declaration in 1996 (Adegbiya, 2000). As vital as the languages are, their teaching in terms of methodology and content demands that serious attention be given because of the official roles they perform across the globe, particularly, in Nigeria. Hence, the need for teachers to be well equipped in the Content Knowledge, Pedagogy Knowledge, Pedagogical Content Knowledge and Technological knowledge as applied to the two languages.

Content Knowledge (CK)

As defined by Jacob, John & Gwany (2020), Content Knowledge is the knowledge of the subject matter without consideration about teaching of the subject matter such as English, Mathematics or Geography. It is the body of knowledge, that is, facts, theories, principles, ideas, vocabulary which the teacher must master to be effective in his teaching activities. Ozden (2008) also defines Content Knowledge as the concepts, principles, relationships, processes, and applications a teacher/student needs to know within a given academic context as it applies to and is appropriate for the organization of the knowledge. Thus, this calls for the teacher to have in-depth knowledge of the language/ subject he teaches.

Pedagogical Knowledge (PK)

This is the specialized knowledge that entails the acquisition of strategies and styles required by the teacher to present his lesson in a stimulating and resourceful way. It is the knowledge of how to make teaching/ learning activities effective by creating enabling learning environments for learners. It is a specialized knowledge of teachers which encompasses theories, processes and practices that can facilitate effective teaching and learning activities, totally independent of the subject matter. Thus, Jacob, et al (2020) opine that having Pedagogical knowledge is the way to decompress the subject matter knowledge.

Pedagogical Content Knowledge

Sewell (2023) sees Pedagogical Content Knowledge as the relationship between the teacher's understanding of content in the subject he teaches and the selection of appropriate teaching approaches and strategies to impart knowledge and support learners in their mastery of key concepts and skills in that field. In other words, it is the ability of the teacher to make a proper combination of the pedagogical and content knowledge in order to master and plan what they want to teach and how they want to teach. Pedagogical Content Knowledge is therefore a conceptual map of how to teach a subject; knowledge of instructional strategies, and representations; knowledge of students' understanding and potential misunderstanding and knowledge of curriculum and curricular materials (Villegas- Reimers, 2003). Jacob et al are of the opinion that acquisition of the Pedagogical

Content Knowledge by teachers through appropriate training and experience is key to educational improvement, in the fact that the gains in teachers' pedagogical content knowledge may lead to learning gains in students' academic achievements. In recent times, there have been growth in technological advancements in all sectors of human endeavours. Technologies are employed in facilitating processes and operations in virtually all sectors in order to enhance performance and productivity. The education sector is not left out of these technological innovations, especially, as it applies to computer-based tools and media of disseminating instructions to learners. Technological Pedagogical Content Knowledge (TPCK) is therefore an all-encompassing domain of knowledge that teachers of English and French languages need to acquire for effective teaching and eventual gains in students' achievements.

Technological Pedagogical Content Knowledge (TPCK)

Technological Pedagogical and Content Knowledge is a domain of knowledge which describes the kind of knowledge required by teachers for the successful integration of technology in teaching. It is the intersection of technology, pedagogy and content, and how these areas interact and influence one another in unique and specific contexts, which teachers of foreign languages have to know in order to impart not only the content but also pedagogy. According to the ISI (international Scientific Indexing) database, research on TPCK in the English domain was not as robust as in the fields of mathematics and science (Wu, 2013). However, with Computer Assisted Language Learning (CALL) and Technology-Enhanced Language Learning (TELL) there has been increased interest: research on TPCK in the foreign language domain (e.g. Hughes & Scharber, 2008, Schmidt & Gurbo, 2008) have been conducted to help prepare effective English teachers. Despite this increased awareness, most of the related research investigated TPCK in native language English (e.g. George, 2011, Parr, Bellis & Bulfin 2013, Robin, 2008). Studies on TCK in teaching English or French as a second language or as a foreign language appear to be scarce.

As English and French teachers also need to incorporate CALL and TELL in their classroom lesson presentations, there has been an increasing need for language educators to understand ESL and FFL teachers' TPCK. Considering the few TPCK studies in the foreign language domain, Van Olphen (2008) examined TPCK in teaching English as a world language with the view that cultural and linguistic aspects need to be considered. Also, Mishra and Kocoglu (2013) carried out their research on how TPCK was developed among Turkish teachers. Van Olphen (2008) provided a conceptual guide and Kurt, Mishra and Kocoglu (2013) indicated that EFL teachers showed progress on TPCK scores in a measurement after completing a reflective project. However, it was discovered later that none of the studies described the nature of TPCK in foreign language teaching such as English and French.

Mishra and Koechler advocated for instructor reflection at the levels of Pedagogical Content Knowledge (PCK) and Technological Content Knowledge (TCK). What teaching methods might work best with this particular content? What technologies might best enable language learners to project content mastery? What materials might work best for this teaching content? Mishra & Koechler (2006) offer TPCK as a model that is greater than the sum of its parts.

Thus, our model of technology integration in teaching and learning argues that developing good content requires a thoughtful synthesizing of all three key sources of knowledge: technology, pedagogy and content. The core of our argument is that there is no single technological solution that applies for every teacher, every course, or every view of teaching. Quality teaching requires developing a nuanced understanding of the complex relationships between technology, content, and pedagogy, and using this understanding to develop appropriate content specific strategies and representations (p. 1029).

TPCK has spread like wildfire among teacher education circles but has done less to impact other fields in higher education (Angeli, Valanides & Chritodoulou, 2016). Teaching with new media

resulted from a question of pedagogical knowledge, content knowledge, technology knowledge, or an interplay of the multiple, enables this work to explore the roles technological pedagogical content knowledge plays in the teaching and learning of foreign languages.

Foreign Language Teachers' Knowledge of Technology Enhanced Language Learning Devices

Language teaching has witnessed a lot of transformations occasioned by the introduction of new technologies and diverse innovations in recent times. Due to the influence of highly technological and digitalized world today, teachers of English as a Second Language and French as a Foreign Language, even the native teachers of the two languages have stepped up their teaching methodologies and resources, through technological and internet driven innovations (Atolagbe& Umaru,2017).For example, there are various types of technology-based devices that could be employed by teachers in teaching, thus, ICT literacy and its application to teaching/learning process is of paramount importance in this era of information technology. Such computer-based tools are: Computer Assisted Language Learning (CALL) which is characterized by the use of multimedia, hypermedia and interactive technologies to promote integration of skills such as slide projector, film-strip projectors, film projectors; internet applications such as E-mail, chat and World Wide Web(www).CD-ROM and DVDs are still superior in the presentation of listen/respond/ playback activities, although such activities on the web are continually improving. Teleconferencing is another device in CALL that can be used in the teaching and learning of foreign languages. It is a live audio or audiovisual meeting with two or more participants or a group of participants, which is usually used if learners/participants are geographically dispersed. This could be through a conference call over the video or through using video chat software. In a learning environment, a student is able to interact with co-students just as there is access to the teacher. When in use, a teacher can send both audio and video contents to students. CALL is an interactive method of instruction that helps learners achieve their goals of learning at their own pace and ability.

Using technology tools such as, film, television, YOUTUBE, etc. to view foreign channels such as BBC, CNN, Al-Jazeera that connect to foreign lands and display how others live, allows Nigerian language learners of French and English to see and experience language in a whole new way. Not all students are the same; each one has different strengths, and needs the setools that give teachers additional resources to reach all learners.

Ojelade (2010) however observes that the effect a teacher is able to achieve with an instructional medium will depend on the teacher's ability to identify, select and integrate the materials to the teaching plan of a lesson. In his own study, Olaifa (1986) cited by Ojelade (2010), opines that these materials make teaching and learning process easy for both the teacher and the learner through any or all of the man's senses of seeing, hearing, feeling, taste and smelling. They are technological devices meant to assist learners in assimilating ideas, linguistic concepts, ideas and information passed to them. In fact, they are considered as learners' aids and teaching tools. There is hardly any English or French lesson to be taught at any school level that does not demand the use of technological tools. When one considers the ages of learners (6-12 years for Basic level) and (12-18 years) for secondary schools, even adult learners, the use of technology as a medium of imparting knowledge will go a long way in facilitating the learning process.

Thus, three main types of technology that usually feature in foreign language teaching and learning are:

1. **Audio technology:** This produces audible sounds e.g. cassettes, CD (Compact Disc), players, radio broadcast.
2. **Visual technology:** This can be perceived through our visual sense organs e.g. charts, maps, graphs, photographs, slides, graffiti, tracts, silent motion, pictures and illustrations.
3. **Audio visual:** This contains the attributes of audio media and visual media e.g. video cassette and video CD, recorder and players, TV Set, sound film projector, computer, projector, internet, etc.

Information and Communication Technologies (ICTs)) provide plethora avenues for interactions between teachers and learners of foreign languages, give room for comprehensible input and output, help learners to develop critical thinking skills as regards the language they are learning, make language learning and teaching become more of student-centered, promote learners' autonomy and help them feel more confident, and increase learners' motivation to effectively communicate with the language.

Teachers' Content Knowledge on the English and French Languages

In a study by Romas (2021), it is reported that teacher's content knowledge on English is crucial in the development of learners' academic performance. This is because the strong knowledge of the subject taught is a core component of teacher's competence. Thus, it is important for teachers to clearly understand a set of ideas in the language, its contents, as well as its deep and surface structures in order to teach the language well because it is from the relationships between that piece of content and other ideas within the same content as well as ideas in related domains that greatly result in positive academic performance. Teachers also need to possess the linguistic systems, that is, the basic components of the English and French languages such as phonology, morphology, syntax, semantics, pragmatics and other aspects of language description. It is imperative for teachers of foreign languages or of any language at all to have good knowledge of these components of language in order to impart desirable knowledge to learners because you can only give what you have. Under this domain of knowledge, there are sub-components of the content knowledge designed by Andrews & Svalberg (2016), Svalberg (2015), Farrell and Lim (2005), Baker (2014), Lee (2010) cited by Dadvand & Behzadpor (2020), such as English grammar, Grammatical terminology, English Vocabulary, English morphology, English idiomatic expressions, English pronunciation, English intonation pattern, Dialect/accent varieties in English, Reading comprehension Reading strategies, English writing, Writing techniques, English speaking, Speaking strategies, Listening comprehension, Listening comprehension strategies, students' first language, and second language similarities/differences. These sub-components of content knowledge are also applicable to the French language.

Teachers of foreign languages such as French and English have roles to play in any teaching/learning situation, as instructors and facilitators, with a set of instructional objectives and evaluative tasks to measure the attainment of the objectives. In terms of selection of technology materials, teachers need to select appropriate materials which will facilitate their teaching tasks and those of the learners. We may wish to examine some examples of such lessons.

1. Se saluer/Greetings as a speech act

The teacher of a foreign language in realizing the objectives of teaching this speech act selects photo, clips, or illustrations of people of different nations exchanging greetings in the language he/she wants to teach, embracing each other shaking hands, bowing, waving hands, kissing, crouching, etc. Such illustrations/photographs can be projected through film slides or video clips showing different forms of greetings.

2. Inviter quelqu'un/Inviting someone as a speech act

Invitation cards to ceremonies with expressions made in French/English as the case may be will be useful here. Such a card could be displayed electronically through the projector or computer. Some can come in the form of post cards and letters inviting people to an event.

For the foreign language teacher to have adequate preparation on how to carry out his/her teaching tasks, it is expected of such a teacher to note that some teaching tasks demand the application of "Jeu de rôle" i.e. "role play". This method allows the foreign language learner to exploit the newly learnt words and phrases that will definitely improve their linguistic competence, thereby affording them the luxury of using an array of linguistic devices in their day to day activities.

Halliwell (1995) affirming this, states that:

Il (Le jeu de rôle) permet à l'apprenant de se rapprocher d'un modèle. Les participants vont avoir à assumer le rôle d'individu agissant dans le système social particulier qui est simulé. Le dialogue, l'interaction entre les participants dépend de leurs qualités personnelles et de leurs aptitudes à convaincre, ce qui favorise la liberté d'expression.

[It allows the learner to follow the model ... participants have to assume the role of individual behaving to types expected within a particular social system. Dialogue and interaction amongst the participants depend on personal qualities and their aptitude to convince others thereby favouring liberty of expression]
(Translation)

Foreign Teachers 'Pedagogical Knowledge

The pedagogical knowledge of foreign language teachers includes all the required cognitive knowledge for creating effective teaching and learning environments. The general pedagogical knowledge is categorized into two main components comprising various models as identified by Voss, Kunter& Baumert in Guerriero's OECD Report, namely: pedagogical components and psychological components.

Pedagogical Components	Psychological Components
Knowledge of classroom management: maximizing the quality of instructional time, handling classroom events, teaching at a steady pace, maintaining clear direction in lesson.	Knowledge of learning processes: supporting and fostering individual learning process by having knowledge of various cognitive and motivational learning processes (e.g. learning strategies, impact of prior knowledge, effects and quality of characteristics of praise, etc.)
Knowledge of teaching methods: having a command of various teaching methods, knowing when and how to apply each method.	Knowing of individual student's characteristics: having knowledge of the sources of student cognitive, motivational, and emotional heterogeneity.
Knowledge of classroom assessment: knowledge of different forms and purposes of formative and summative assessments, knowledge of how different frames of reference (social, individual, criterion-based) impact students' motivation.	
Structure: structuring of learning objectives and the lesson process, lesson planning and evaluation.	
Adaptability: dealing with heterogeneous learning groups in the classroom.	

Voss, Kunter and Baumert (2011) and König et al (2011) in Guerriero's OECD Report

Effective application of this array of pedagogical knowledge in the teaching/ learning process is paramount to learners' academic performance in English. Teachers' skills in managing the classroom, adequate planning of the lesson with well-structured instructional objectives and excellent delivery of instructions using appropriate methods, high quality evaluative motivational strategies, and high level of sensitivity to students' psychological and emotional needs are indices for excellent academic performance of students. The more skillful and knowledgeable the teacher is, the better the performance of learners.

The teacher's technological, pedagogical and content knowledge and skills are essential elements in transmitting concepts, systems and categories, forms, etc. of the foreign language to students. Foreign language teachers must be knowledgeable to know when and how the various methods could be adopted in combination with appropriate technologies in order to achieve his/her teaching objectives. This is because the availability of TPCK does not automatically guarantee successful attainment of the teacher's instructional if not properly utilized. The relevance of the TPCK and good knowledge of how and when to use them are key to resourceful teaching and learning, and ultimately production of quality learners who are truly proficient in using English and French languages for academic and other communicative purposes.

Recommendations

For all round knowledge of technologies, contents and pedagogies in the teaching of foreign languages, the following recommendation are made:

- Teachers of foreign languages such as English and French must have considerable degree of knowledge in the contents of the languages, particularly, visible language areas like grammar, vocabulary, language communication skills, phonetics and phonology, etc.
- Teachers should ensure that they participate from time to time in -service trainings in order to be continuously updated in the new trends in language theories, teaching methodologies and current instructional texts and related resources.
- Teachers must be computer literate to be able to utilize the teaching/ learning assisted technological devices in this era. Various technologies to be adopted must be well positioned and tested to see that they are in good condition for use, hence, the need for battery, UPS, generating plant, inverter as alternatives for power supply.
- ICT facilities should be made available to students, in other words, they must not be under 'lock and key.'
- Learning environments should be conducive in terms of acoustic, visual and aesthetic conditions.
- Knowledge of technology, pedagogy and content must be displayed by teachers at any given opportunity of language teaching as this will enhance students' learning outcomes.

Conclusion

Technological Pedagogical Content Knowledge (TPCK) plays a vital role in classroom instructions as it enhances the transmission of the concepts of the English and French languages to learners and meets learners' learning needs through authentic and natural integration of technology into language content and pedagogy. Thus, teachers should be knowledgeable in the content and pedagogy of the language they are to teach and be versed in the use of relevant computer assisted language devices to produce high quality classroom delivery that can enhance students' learning and ultimately guarantee students' competencies in the two languages.

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