1960 BC: technology in language classes before computers

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ABSTRACT

Past shapes the future. Knowledge of the past experience has always been a good guide of understanding today and future. Related to this fact, modern Foreign Language Learning and Teaching (henceforth FLLT) and technology have been commonly identified with computer and internet technologies due to the popularity of computational technologies since 1960s. However, before 1960s, technology and FLLT were also bound together as FLLT after 1800s has always paced parallel to the technological inventions. The rapid development of approaches, techniques, and methods has been accompanied by technology, and many technologies have been adapted to FLLT. Beyond any doubt, modern FLLT today is shaped by computational technologies. Nevertheless, the issue of FLLT technology before computers is still vague and blurred. This obscurity dims the view on the relation between modern technologies and FLLT and causes many technological trial and errors today. This study embraces the invention of the computers as a turning point and scrutinizes BC and AD of technology in FLLT by focusing on the impact of technological innovations on FLLT within 1800- 1957 and establishes correlations of past and present experience for better future insights.

Introduction

Technology and FLLT have been bound together for more than a century. Due to the modern synergy between technology and computer, technology in Foreign Language Learning and Teaching (henceforth FLLT) is mostly handled around the orbit of computational and digital technologies. However, this digital mirage blackens the role of technology in FLLT before the invention of computer. That is why technology in FLLT classrooms should be handled in two periods as "BC" and "AD". Being quite metaphorical, BC refers to "Before Computer" and AD refers to "After Digital". Before 1960s, FLLT technology was not a computational one nor it was digital, instead it turned around the eclipse of its idiosyncratic technology ranging from phonographs to radios. Indubitably, 19th century; the age of science brought the winds of change to FLLT and every technological innovation served as a medium for FLLT either directly or indirectly. This permanence resulted with a continuous domino effect which evolved phonographs to tape recorders, tape recorders to CDs and DVDs and alike. This is the universal nature of human advancement; a kind of domino effect in which each novelty is viewed as a new form of the former one. In fact, the understanding of a novelty is closely related with the knowledge on its predecessors. So, the way of efficient implementation of modern technologies on FLLT lies in the related past experience. That is to say, technological challenges before computers have the same nature of modern problems of computer based FLLT. Many modern researches show that computer and internet based technologies in language classes have serious limitations. Lee et al. (2005) points out that learners are exposed to inappropriate content including any kind of unrelated data during internet based teaching. They add that group work and interactivity is at minimum level which requires activities to be individual centered. Warschauer (1996) states that interactive functions of computers are still limited and artificial intelligence of computers is not yet capable of analyzing, responding and correcting linguistic input. According to Blin (1999), computer technology to meet perfect interactive demands is not expected to exist for quite a long time. Moreover, face to face interaction is missing which makes students distracted easily and leaves internet sessions which causes learning progress to be time consuming and inefficient (İlin, 2006). Internet and computer literacy is another challenge to consider. It is a fact that these systems require internet and computer literate teachers and learners but people may have different levels of computer and internet literacy (Roblyer, 2003). In addition to these, technology use in language classrooms has a financial aspect. DiMattia and Gibs (2004) indicate that computerized learning process increases educational costs and harms the equity of education. These financial problems mostly occur in low budget schools or low income students. Furthermore, new developments in technology cause commercialization in education which feeds financial challenges (Lee et al. 2005). Beside all these challenges, unexpected technical and connection problems occurs which is quite common for any context. In fact, all these challenges are not new. Similar versions of these challenges existed in the past with different technological devices.

FLLT shapeshifts: the impact of early communication and transportation technologies on FLLT

Before 19th century, interactive and communicative routine of the individuals was limited. Native language solely was enough to carry on a conversation since international and intercultural contacts remained limited with wars and geographical mobility such as small scale migrations and explorations. So Foreign languages were learned and studied only by nobles and scholars for the sake of elegance and religious practice. However, when transportation technologies started to develop, a new life perspective emerged; people started to travel to foreign countries for various purposes. This expansion shifted the nature of interactions and common

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perception towards foreign languages started to change. Howatt and Widdowson (2004) mention that the spoken language as a medium of communication and mutual interaction was sensitive to changes in transportation. In 1840s, railways provided the opportunity to travel and this novelty triggered a new age. People started to travel, widened their perspectives and contacted people of foreign countries and cultures. The advancement of railways was rapid; by 1850, Britain was covered with a steel web carrying millions of people to many destinations. (Coulls, 1999).With the invention of steam turbine by Charles Parson in 1884, railway technology advanced and international travelling capacity increased day by day. It was not only railways that changed the perspectives but also the invention of the internal combustion engine by Lenoir led to the production of first practical automobile by Karl Benz in the late 1800s. In the wake of the dramatic rise in the capability of travelling and international interaction, FLLT started to be popular and obligatory by gaining a new shape.

In addition to transportation advancements, accessing information became easier through new communication technologies. The people of the old world were in solitude and information was reachable only for scholars and aristocrats through traditional methods. Books and written sources were the main mediums of information thanks to William Caxton who laid the first brick of the information age in 1474 in Westminster. However, the lust of reaching and transmitting information was too exultant to be limited by only written documents. In 1837 Samuel Morse invented a magnificent device, the telegraph. With this new device people could transmit and receive information with tremendously less effort when compared to previous decades. Just one year later, Mors Code was invented by Morse again. And in 1876 Graham Bell introduced his telephone. Bell's telephone was easing the communication even more than Mors Code or telegraph as it could receive and transmit instant voice enabling immediate conversation. In fact, with these innovations, people met the comfort of reaching information, communicating overseas and interacting with further lands. Just like the transportation of masses, early communication technologies surely made a tremendous impact on foreign language learning. Learning a new language gained a new universal form by becoming a must rather than a luxurious activity. Following this, FLLT gained dramatic importance and pedagogical novelties started to be introduced one after another.

Brand new language learner: the rise of the modern language learners

As mentioned, the age of language learning and teaching was an unpopular act that was stuck in the hands of nobles before 1800s. Rapid developments in communication and transportation technologies surely changed the form of FLLT and created a new class learner. This new class learner did not need a foreign language for traditional purposes, thus they did not need traditional methods. The demand of this new learner was completely functional and instrumental. Having started in 1830s, some linguists observed the emergence of the new learner class and a new trend started. In this period, travelers were filling their pockets with practical language books and dictionaries which then became a universal symbol. In other words, the modern language learner was rising. Tiarks (1834) used the term "practical" in the title of his book; "A Practical Grammar of German Language". The word practical was a sign of a new mentality; more practice, easier and functional language learning. Translation was still included in his book but besides there were short exercises and reading passages unlike

older books which include too much lexical analysis and comparisons with Latin. Similarly Ollendorf (1834) claimed to teach writing, reading and speaking Italian in six 6 months with his new method. Just like Tiarks, he included lots of exercises independent from Latin comparison and put the emphasis on conversational drills. The movement continued with Bartel's Modern Linguist series in 1850 and Francis Gouin's Series Method (1890). Their books were popular among travelers especially until the emergence of Berlitz Schools in 1880s. Maximillian Berlitz, having the heritage of Gottlieb Heness and Sauveur, saw the linguistic demands of the age and established a new method: "The Direct Method" that directly aims to meet the verbal demands of the new learner class. It aimed teach the learners only functional vocabulary and grammar inductively. To provide aural and oral competence with correct pronunciation was the main objective in this method. Also translation was not allowed. In addition, the medium of instruction was in target language for the first time.

One of the most prominent impacts of transportation and especially of communication technologies on FLLT in the late 19th century was the power of sound. The invention of telephone by Graham Bell in 1876 just before the Reform Era was not an accident. After the invention of telegraph in 1837 and Mors Code in 1838, telephone enlarged the global range of verbal interaction. Different from telegraph or Morse Code which had a written form only, telephone enabled human voice transmission and distant verbal interaction in which mutual intelligibility gained utmost importance. In other words, telephone led to a tremendous evolution in interaction by easily integrating sound to any distant interaction. That is why Reform Movement in this period solely puts the emphasis on sounds of languages. In 1877, Henry Sweet came up with his book "Handbook of Phonetics including Popular Expositions of the Principles of Spelling". Sweet was stepping into the core of the new age and was about to lead a reform.1880s was the Reform Era that was born to provide solutions for the new language learner class and led by Sweet, Vietor, Franke and Jespersen. The Reform Age was the remediation of the previous primitive linguistic age that suffered enough from Latin and Greek effect. This new movement put the emphasis on oral competency and functional language use rather than overloaded courses filled with unpractical linguistic and grammatical input. This significance of sounds of language was institutionalized with the foundation of IPA (International Phonetics Association) and designation of International Phonetic Alphabet in 1880s. Since the sound and recording technologies were in their infancy, oral instruction was implemented by phonetic transcriptions with the help of International Phonetic Alphabet (Howatt&Widdowson, 2004). The first foreign language laboratory was founded by Klinghardt in this period in Germany (1887). In this period, new technologies inspired and motivated methodologists but due to the technological freshness and infancy, language classrooms could not adopt technology.

Audio-visual FLLT: power of sound and vision

Even if the Reform Movement could not adopt new technologies due to technological infancy, it was surely pregnant to long term novelties in FLLT. Direct method by Berlitz enlightened the way to the upcoming approaches and techniques. Phonograph, the prophet of FLLT and the first device to record and reproduce sound, was invented by Thomas Edison in 1878 and then developed by Emile Berliner in 1887 (Ohlman, 1990) However it was not easy to adapt this revolutionary device to FLLT quickly. Jespersen (1904) stressed the potential contribution of phonographs to FLLT in terms of

pronunciation but he also mentioned phonograph was not perfect yet. After a few decades; in 1915, phonographs were used in open-public language classes in USA. These free classes were held in largest supermarkets once in a week and were limited with 30 learners for each class. English, French, German, Spanish and Italian languages were taught with phonographs focusing on communicative purposes (Popular Mechanics, 1917). Undoubtedly the primary aim of these classes was totally commercial; to sell brand new phonographs and records but it definitely served well to FLLT purposes.

In 1920s, Harold Palmer established the "Oral Method", putting more importance to oral competency. Oral Method Classrooms' primary materials were phonographs (Delattre, 1947). Palmer was right to put emphasis on this novelty as phonographs enhanced the effectiveness of phonetics and aided oral classroom pedagogy. This new material discredited the phonetic transcriptions as course materials which were found too complex by new learners anyway. It filled the absence of native speakers in classroom context with a variety of popular topics from shopping to travelling. Kunze (1929) mentions that with phonographs, students could master the pronunciation and orally translated the text and engaged in many topics like shopping, travelling, opera, and health. With recording ability, materials presented could be presented again easily, thus instructor was not overloaded with intense course hours. Ginsberg (1940) emphasizes the benefits of phonographs in terms of recording radio broadcastings and their use in the classroom. He notes that instructors and school administrators may follow the recorded materials from *Gramophone's record supplement, English Speech recordings, Linguaphone, Decca, musicraft,* and purchase various kinds of records. These catalogues and resources include recorded materials ranging from dramas, poetry, fiction to folk songs and course recordings. In other words, the recording ability of phonographs was the first step of FLLT industry and commerce. In other words, these records triggered commercial education.

After 1940s, phonograph technology was upgraded to tape recorders and microphones which imbued further FLLT methodology. Pfleumer developed plastic magnetic tape and in 1934 first magnetic tape was manufactured by BASF in Germany. With the stereophonic sound system which was developed 3 years earlier, tape recorders started to be popular audio devices (McNeill, 1990). As supplementary devices for tape recorders, headphones and microphones were developed by David Hughes and Nathaniel Baldwin respectively in 20th century. Gaudin (1952) points out that tape recorders with or without earphones are the basic devices of a language laboratory. Similarly, Dearing (1952) states that tape recorder is an extremely flexible device; easy to operate and maintain. He adds that it promotes listening comprehension, a better alternative to instructor's sound. Tape recorders were mainly used in listening and reading courses.

Motion picture films and projectors are the first developed animated visual materials of language classroom which provided unique visual input in early 20th century. It was first developed by Lumiere Brothers in 1895 as cinematograph and advanced every decade. In 1916 Thomas Edison stated that motion pictures would supplant textbooks, but later he modified his statement and used word "supplement" instead of "supplant". In fact Edison emphasized the importance of motion pictures for all kinds of education. Stadtlander (1939) states that motion picture films develop an insight for learners and promote creativity as they present the portrayal of man's habitat, the knowledge of relations between human. She emphasizes long term retention

provided by films by stating that the units learned from films are not easily forgotten. Likewise Stoops (1935) emphasizes the use of motion picture films in oral language training. He states that during the movies students are motivated as they give attention to speech of popular actors and they become open to discussions and criticisms. Also implicit grammar teaching was also enabled with the visual contribution of projectors and motion films. However, these devices were quite expensive in those days and could not be afforded for every school. It was bought with state or private financial support (Popular Mechanics, 1913).

Structural linguistics emerged in 20th century owed so much to these technological advancements and benefited so much from early visual and aural technologies. For instance, Charles Fries' book "The Structure of English (1952)" was heavily depending on the telephone conversation recordings of the participants (Hudson, 2000). So the fundamental role of aural- audio and recording technologies used in Audiolingual Method (henceforth ALM) was not a surprise. Agard et al. (1945) emphasizes the use of supplementary materials such as phonographs, motion pictures, projectors, tape recorders, radios and telephones in ALM classes and mentions about them as essential materials. In these classes the basis of contrastive analysis was established and developed with the aid of phonographs and tape recorders to minimize the adverse effect of L1 on L2. Recording and reproducing technologies such as tape recorders and phonographs with plastic magnetic tapes and records enabled the way to error analysis and contributed a lot to the perfection of oral competence in a foreign language.

World as a language classroom: radios and TVs in FLLT

Radios were the first devices to bring language to the masses. It was first introduced by Guillermo Marconi in 1895 but entered language classrooms as a unique device after 1930s. Cook and Cohen(1950) mention that radio in language classrooms provides genuine, realistic, simple, native like and motivating language materials for pupils. They also add that efficient language learning can be promoted by a wide variety of radio programs ranging from dramas, stories to discussions, commentaries and news. The shortwave radio offers a great deal of attractive topics from far and exotic lands with lots of different accents (Felt, 1953). Wipf (1984) lists the role of radio in foreign language teaching: (1) Radio expands pupils' imaginative power, (2)enables contextualized grammar teaching, (3)creates familiarity with the target language native accent, (4)motivates and shows how language varies in the world. In addition, Lumley (1934) conducted a research about the relationship between radio aided language courses and pronunciation development. He performed his research in a French course comparing learners aided with radio and learners who were not. He concluded that radio was a beneficial aid in teaching pronunciation. Besides, radio was not a very complex system to establish for language classrooms. Felt (1953) elucidates the necessary equipment for adapting radio for a language class: A short wave receiver, tape recorders, aerials, earphones and microphones to obtain maximum efficiency.

The scope of radio was not limited with classrooms. Due to its wireless transferring ability, radios were global devices of spreading linguistic input. That is why global popularity of FLLT was boosted with radio and entire world was turned to a language class. BBC, which started its first broadcast in 1922 rapidly spread all over the world. Regular BBC broadcasts in Kenya was launched in 1928, in Sierra Leone in 1934 then in Gold Coast in 1935. All Africa welcomed English Language and of course English by Radio courses (Wilkinson, 1922). BBC Arabic service including English language teaching programs

was launched in 1938. Especially Arabic youth welcomed language education programs such as "English by Radio" and "Don't Forget Your English"(Ayish, 1991). BBC's popular language program "English by Radio" was teaching English to the World supplementing the broadcastings with textbooks. On the other hand, Voice of America's broadcastings of foreign language was reaching thousands of audiences all over the world, even in Soviet Russia. In other words, distant education was first triggered with radios.

In addition to radio, television which was developed by Vladimir Zworykin in 1923, undertook a similar mission like radio. Especially in the USA, television channels were teaching foreign languages to people in their houses. FLTV, the first television channel to broadcast foreign language courses started its media life in 1947, just a decade before Sputnik. Its first program was "One World- Invitation to Spanish" that began in 1947. This program had 33 teleclasses in French, Spanish and German by 1950. Number of teleclasses rapidly increased to 254 in 1953. In 1954 FLTV had nearly 30 TV stations and held the 5 percent of educational programs in the USA. The course time varied from 15 to 30 minutes. There were two kinds of teleclasses. In the first model, a student was taught skills in a studio classroom and audience watched and repeated it. The second model was much like a distant class including an instructor lecturing in a realistic classroom with blackboard and classroom materials. The audience number in USA reached nearly to 250000 and this was quite a high number for 1950s (Raymond, 1955). Except FLTV; WHBM-TV, WBEN- TV, WOI- TV were other TV channels that broadcasted foreign language teleclasses in 1950s. Some foreign language programs of 1950s are "Spanish is fun", "WFIL- TV", and Philedelphia (Raymond, 1954). However teleclasses could not be supplemented by text books or recorded due to the financial limitations.

Beside their advantages, Radios and TVs in FLLT had challenges. First of all, advertisements through the broadcastings were out of the desired linguistic input. Learners were exposed to inappropriate information. Furthermore, when learners' motivation declined, they simply left the course. In addition, as mutual interaction was impossible with TVs and radios; groupwork or pairwork activities were not included. And finally, while radios were common in many regions of the World, TVs became popular only after 1970s in many countries due to their prices. Despite limitations, televisions and radios changed the spooky perception on foreign language learning. People started to believe that learning a foreign language was not that challenging; it was even enjoyable. Contextual learning came to life with these devices; meaningful learning was enabled in a free learning environment which encouraged people to learn a new language. In other words, televisions and radios opened the way to further cognitive and humanistic approaches.

Conclusion

In conclusion, the advancements in technology from the early 19th century to mid 20th century including developments in transportation and audio- visual domains changed the perspective of FLLT. Each advancement led to the next one, and this domino effect brought about new movements, approaches, methods and visions in FLLT. In addition, FLLT became a global phenomenon with the aid of wireless technologies and gained popularity all over the world. Besides, the horizon of FLLT in classroom expanded and enriched with audio visual aids and recording technologies with the use of motion pictures, phonographs, radios and tape recorders. Due to the ancestors of digital technologies, FLLT gained a digital and industrial

identity today in which learners are able to interact with the linguistic input freely. It is a crystal clear fact that modern mobile applications and Internet technologies were born in simple mechanisms of phonographs and radios. Surely, it was distant language education which was hiding behind the buzzing sound of BBC English. Depending on this, technology in language classrooms has deeper roots that cover past 2 centuries. So the historical engagement of technology and FLLT should not be limited by computational technologies, but previous technological experience should also be dealt with for a clear sight. The issue here is not to put an exact milestone but to scrutinize the relationship with a broader scope by travelling back to the depths of time to elaborate past experience. Elaboration of this experience gives solutions on up to date and future problems of technology in FLLT classes. Limitations of TVs and radios in FLLT in the past correspond with limitations of computers and e-learning procedures of modern FLLT. Likewise, while phonograph records were being used for commercial purposes in the past, interactive CDs and DVDs have been used recently. Challenges are similar and will be similar. Past and present should be dealt with in harmony as a whole to avoid future limitations. This holistic view is the only way to predict one step further to catch up with the rapid advancements of modern technology. Undoubtedly, popular FLLT technology such as related mobile and Internet based applications will be superseded by other future applications in near future. It should not be forgotten that no one thought tape recorders would be supplanted by DVDs in 1990s. Today CALL and some other FLLT technologies are open to debate as they could not be implemented immediately and properly in previous years. In near future, FLLT will have interactive computers or robotic devices with high levels of artificial intelligence. To avoid accumulating challenges, financial and pedagogical substructures should be established in learning contexts, a new instructor class should be trained as FLLT techno- wizards, new generation practical support materials should be theorized and FLLT think-tank organizations should be founded. FLLT has always implemented technology when it knocked the door so far. This time waiting is useless, past experience shows that thinking and getting ready before it comes is the solution. Technology marches without stopping, get ready before morning.

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