Lecture 2: C-New Directions in Teaching

Introduction

Technology-based Learning (TBL) has provided teachers and learners with new opportunities and techniques to learn foreign languages. Also, the need to promote learners' critical thinking and problem-solving skills has led to the emergence of new teaching ways. The following are the most common innovative approaches to teaching:

1. Blended Learning and the Flipped Classroom (Bergmann & Sams, 2007)

Blended Learning mixes online (synchronous) or digital (asynchronous) learning with traditional/Face-to-face Learning or what Anderson labelled as *campus-based learning* (2008). It uses both Face-to-face Learning and ICT-supported learning (Information and Communication Technology). Blended Learning is also called *Distributed Learning* and *Hybrid Learning*. Hybrid courses are a mixture of classroom learning and independent online learning (Blake, 2008, p. 107). Graham (2006) explained that "blended learning systems combine face-to-face instruction with computer-mediated instruction" (p. 5). Furthermore, Smith defined blended learning "as a method of educating at a distance that uses technology (high-tech, such as television and the Internet or low-tech, such as voice mail or conference calls) combined with traditional (or, stand-up) education or training" (2001, p. 1). Similarly, Stein and Graham defined Blended Learning as "a combination of onsite (face-to face) and online experiences" (2014, p. 12). They further explained that Blended Learning makes use of both physical and online activities through using connected mobile tools such as smartphones, tablets, and laptops (2014, p. 9).

A type of Blended Learning that has gained more popularity in recent years is the Flipped Classroom. This approach has been implemented for the first time in 2007 by two secondary school chemistry teachers from Colorado (USA). They recorded videos of their lectures and shared them with students before class time. Flipping/inversing the classroom is defined by Mohan (2018) as:

> [A] pedagogy in which, in its earliest iteration, lectures were removed from their traditional in-class space and delivered via narrated PowerPoint recordings to be viewed by students prior to class meetings, thus freeing up in-class time for higher order cognitive tasks. (p. 1).

In order to apply the flipped classroom model it is not necessary to be a professional video producer, it is possible to use any source that explains the subject (e.g. PDFs, recorded sounds…). The main objective of this methodology is to optimize time in class by dedicating it, for example, to meet the special needs of each individual student or work on specific tasks.

2. CALL, Distance/Remote Learning, E-Learning, Online Learning, M-Learning, VLEs/LMS

2.1. Computer-Assisted Language Learning (CALL)

It dominated classrooms since the 1960s. Three stages of CALL are identified. Firstly, structural CALL (1970s-1980s) that adapted the behaviourist view of language learning through the use of the computer. Secondly, communicative CALL (1980s-1990s) which entails the development of students‘ communicative competence through computer interaction. Thirdly, integrative CALL that dominates the 21st century and encouraged Content-Based Instruction (CBI) through Internet use (Ken & Warschauer, 2000).

2.2. Distance/Remote Learning, E-Learning, and Online Learning

The two concepts *Distance Learning* and *Remote Learning* are used interchangeably. Other terms that also refer to Distance Learning include: *Tele-learning*, *E-learning*, *Virtual Learning* and *Open and Distance Learning* (ODL). Technology paved the way for Distance Learning which is defined as “a technology-supported learning environment in which the learner and the instructor are physically separated by distance, time or both” (Tomei, 2010, p. 331). Distance Learning is a comprehensive term that encompasses language learning through _teleconference, hybrid, blended and _virtual environments (Blake, 2008, p. 105). Peters (1994) described Distance Learning as “a rationalized method” that enables learners to be involved in learning despite of their far location. In this respect, Distance learning could be either synchronous (online) or asynchronous (not online).

Online Learning is also called *Internet Learning*. It is defined by Ally (2005) as providing sources through the Internet in a situation where learners could communicate with each other. Thus,

Online Learning is not an equivalent of E-learning because the latter could be either synchronous (online) or asynchronous (not online), which is the same case for Virtual Learning and Tele-learning.

2.3. Virtual Learning Environments (VLEs)

They are also called Language Management Systems (LMSs) such as Moodle (Modular Object-Oriented Dynamic Learning Environment) which is considered as a flexible environment (Godwin-Jones, 2011, p. 5). Teleconferencing through video or audio-conferencing may also be used in teaching to provide discussions between students and their tutors (Criscito, 2002, p. 8).

2.4. M-learning/Mobile Learning (mLearning)

The concept of M-Learning emerged in the 1970s due to prominent advancements of technology which re-shaped the pedagogical context of learning through the invention of many technological devices such as: mobile phones, microcomputers, video cassette recorders, and floppy discs (Crompton, 2014). It is a form of E-learning where learners use portable/mobile devices (Personal Digital Assistants: PDAs) such as mobile phones, laptops, smartphones, and tablets to learn anywhere and anytime (not at a fixed, predetermined location). M-Learning is defined as "a form of instruction and learning that is delivered and conducted via mobile devices" (Evans, 2009, p. 227). It "refers to the use of mobile or wireless devices for the purpose of learning" (Park, 2014, p. 28).

2.5. Massive Open Online Courses (MOOCs)

It was coined by Dave Cormier and Bryan Alexander (2008) as a description of a course entitled *connectivism and connective knowledge* presented by Downes and Simens at the University of Manitoba (as cited in Fasimpaur, 2013). The aim behind MOOCs was to provide learners with interactive large-scale online courses.

3. Project-based Learning (PjBL).

Project-based Learning (PjBL) or the project method originated from the foundation of the Accademia di San Lucca in Rome (Italy) in 1577 to train learners in the field of architecture, in mathematics, and geometry by learning through doing. After more than 150 years, in 1763, the

Académie Royale d'Architecture in Paris provided students with design problems (now known as "projets") to assess their ability to apply what they have learned. William B. Rogers, the founder of the Massachusetts Institute of Technology (MIT), discovered the "project" at Germany and, in 1865, he was the first to adopt it as a new method of instruction in the USA. In 1876, his successor as president of the MIT, John D. Runkle introduced manual training and participated in the dissemination of the project method from the college to the schools and kindergartens (Knoll, 2014, pp. 665-666).

Legutke et al. (1991) defined project work as a learner and task-centered mode of teaching and learning which results from a joint process of discussion between all participants. Moss and Van Duzer defined the project as "an instructional approach that contextualizes learning by presenting learners with problems to solve or products to develop" (1998). Hedge defined it as an extended task which usually integrates language skills through a number of activities (2003). Stoller (2006) defined Project-Based Instruction (PBI) as: 1) having a process and product; 2) giving students (partial) ownership of the project; 3) extending over a period of time (several days, weeks, or months); 4) integrating skills; 5) developing students' understanding of a topic through the integration of language and content; 6) collaborating with other students and working on their own; 7) holding students responsible for their own learning through the gathering, processing, and reporting of information from target language resources; 8) assigning new roles and responsibilities to students and teacher; 9) providing a tangible final product; and 10) reflecting on both the process and the product.

Thomas and Mergendoller adopted five criteria to define PBL: 1) "Projects are central, not peripheral to the curriculum"; 2) "projects are focused on questions or problems that 'drive' students to encounter (and struggle with) the central concepts and principals of the discipline"; 3) "projects involve students in a constructive investigation"; 4) "projects are student-driven to some significant degree"; and 5) "projects are realistic, not school-like" (2000).

Project-based learning is a very effective approach that allows the students to throw out opinions about the topics covering fields of interest, to ask questions…to use different tools, to use

the skills acquired in the context of a real and meaningful life and allows learner to solve problems and answer questions in a creative way in the classroom and outside (Katz & Chard, 2000).

4. Problem-based Learning (PBL)

Problem-based Learning (PBL) was originally implemented in the 1950s in response to medical students' unsatisfactory clinical performances due to rote memorisation. The format and processes of PBL seen today were first developed in the medical school at McMaster University in the 1960s. Since then, PBL has become a prominent instructional method in health science education.

Problem-solving is a branch of applied cognitive psychology. It studies "how humans solve complex tasks for which they do not have any immediate solutions" (Heine, 2010, p. 27). Problem-Based Learning (PBL) was defined by Prince (2004, p. 223) as "an instructional method where relevant problems are introduced at the beginning of the instruction cycle and used to provide the context and motivation for the learning that follows". Prince added that PBL "is always active and usually (but not necessarily) collaborative or cooperative" (2004, p. 223). Knapper insisted that "the most important task of the school or university is to teach generic problem-solving or learning to learn' skills" (1988, p. 94). Conversely, Prince considered PBL as a complicated method because it is composed of "a variety of practices" which could lead to progress in learning. He described PBL as "inductive or discovery learning" (2004, p. 229). In this respect, "[t]he ability to generalize problemsolving strategies—that is, to apply previous knowledge and previously successful skills and strategies to new problems—can be conceptualized as a 'transfer challenge'" (Harvey & Chickie-Wolfe, 2007, p. 219). Consequently, PBL is an instructional method aimed at preparing students for real-world settings by promoting their abilities and skills in applying knowledge, solving problems, practicing higher order thinking, and self-directing their own learning.

5-Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) in Education

Virtual Reality (VR) is a fully generated digital world that supersedes your immediate external environment. It is a technology that can display objects as if they were in the real world. You might be sitting in your living room, but while immersed in a VR headset, you can be on

another planet, in a race car speeding around a track, or even at a meeting with coworkers. According to Musril et al. (2020), VR is a technology that can make the user enter the virtual world and interact in it because VR is a technology-based computer that combines special devices for input and output for users to interact directly immersive with the virtual environment as if they were in the real world (as cited in Fitria, 2023, p. 15).

Augmented Reality (AR) is a virtual layer added on top of the real world. Instead of being totally immersed in computer-generated digital environments, you mostly see the real world with a few virtual additions. AR is a technology that augments the real physical world with computer-generated 3D virtual objects, allowing users to interact with them via their mobile devices' screens (Lee et al., 2017, as cited in Fitria, 2023, p. 15).

Mixed Reality (which is sometimes abbreviated to MR, although that's not as widely accepted an acronym as VR or AR) is when VR goggles incorporate augmented reality features. Extended Reality (XR) is simply the catch-all term for Virtual Reality, Augmented Reality, and Mixed Reality. If you cannot decide whether something is strictly Virtual Reality, Mixed Reality, Augmented Reality, or anything else along the spectrum, you can just call it XR.

AR and VR technology increases students' engagement by making the learning environment more interesting and imaginative. Learners can freely to interact with virtual objects, which enables them to analyze, experiment, and gain experiences that enhance their learning. The application of AR and VR in learning makes learning activities more fun. This is also useful for teachers as a medium for delivering material and facilitating the teaching and learning process (Fitria, 2023, p. 16).

6-Personalised and Adaptive Learning

Adaptive learning is a technology-based method that aims at making learning personalized by assessing learners' prior and current knowledge as a basis for selecting the content and monitoring their pogress (Taylor et al., 2021). The aim behind that is relying on the computer to specify "the learning needs of each student and provides individualized learning paths in real time"

by using adaptive learning systems that help teachers provide personalized scaffolding to ensure students' success (Taylor et al., 2021, pp. 18-19).

7-Artificial Intelligence in Education (AIED)

AIED stands for Artificial Intelligence in Education. It aims at the development of interactive and adaptive learning environments for learners of all ages, across all domains. Artificial Intelligence (AI) refers to computer systems capable of performing complex tasks that historically required human intelligence, such as reasoning, recongnising speech, making decisions, and solving problems (Fitria, 2021). It is "a technology that enables machines to imitate various complex human skills" (Sheikh et al., 2023, p. 15). Some of the most common examples of AI in use today include:

ChatGPT: Uses large language models (LLMs) to generate text in response to questions or comments posed to it.

Google Translate: Uses deep learning algorithms to translate text from one language to another.

Netflix: Uses machine learning algorithms to create personalized recommendation engines for users based on their previous viewing history.

Tesla: Uses computer vision to power self-driving features on their cars.

8-Game-based Learning

Game-based learning is a teaching method that uses games and other interactive, playful activities to engage students and help them learn. This approach is based on the idea that students are more likely to be motivated and engaged in their learning when it is presented in the form of a game or other interactive activity. Game-based learning can help students develop important skills such as problem-solving, critical thinking, and collaboration.

9-Global Education

Global education includes practices guided by a set of purposes and approaches intentionally created to provide opportunities for students to develop global competencies (the ability to meet complex demands), and the theories that explain and inform those practices and their effects. Global competencies encompass the knowledge, skills, and dispositions that help students develop, understand, and function in communities which are increasingly interdependent with other

communities around the world, and that provide a foundation for lifelong learning of what they need to participate, at high levels of functioning, in environments in continuous flux because of increasing global change (Reimers, 2020, p. 25).

10-Sustainable Education (SE)

Sustainable education is about empowering learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is an integral part of quality education and is about finding long-lasting solutions through education (lifelong learning), namely with regard to social, environmental, and economic issues – the three pillars of sustainability.

The first plan of SDGs (Sustainable Development Goals) dates back to 2000 when the United Nations launched Millennium Development Goals (MDGs) that include 8 goals. Goal 2 was to achieve universal primary education (Boeren, 2019). Then, in 2015, 17 goals were introduced. Goal 4 ensures inclusive and equitable quality education to overcome the problem of inadequate access to education in many countries of the world.

Quality education is the fourth goal highlighted by the UN as follows (Beiter, 2021):

Target 4.1: "By 2030, ensure that all girls and boys complete free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes"

Target 4.6: "By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy"

Target 4.7: "By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles...appreciation of cultural diversity and of cultures contribution to sustainable development"

Conclusion

New pedagogies are highly influenced by technology which emerged as an important factor in teaching. Preparing young people to meet new contemporary challenges means to review and

update the pedagogies teachers use. However, despite the new approaches implemented by teachers, academic institutions remain largely seen as very resistant places for innovation.

References

Ally, M. (2005). Using learning theories to design instruction for mobile learning devices. In J. Attwell & C. Savill-Smith (Eds.), *Mobile learning anytime everywhere* (pp. 5-8). *Proceedings of the Third World Conference on Mobile Learning*, Rome.

Beiter, K. D. (2021). SDG 4: Quality education. In R. Michaels, V. R. Abou-Nigm, & H. van Loon (Eds), *The private side of transforming our world: UN sustainable development goals 2030 and the role of private international law* (pp. 125-158). Intersentia.

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day.* International Society for Technology in Education.

Blake, R. (2008). Brave new digital classroom: Technology and foreign language learning. *Language Learning & Technology, 13* (2), 22-28.

Boeren, E. (2019). Understanding Sustainable Development Goal (SDG) 4 on "quality education" from micro, meso and macro perspectives. *International Review of Education, 65*, 277–294.

Bonk, C. J., & Graham, C. R. (2006). *The Handbook of blended learning: Global perspectives, local designs.* John Wiley and Sons.

Criscito, P. (2002). *Guide to distance learning: The practical alternative to standard classroom education.* Barrons Educational Series.

Crompton, H. (2014). A diachronic overview of technology contributing to Mobile Learning: A shift towards student-centred pedagogies. In M. Ally & A. Tsinakos (Eds.), *Increasing access through mobile learning* (pp. 7-16). Commonwealth of Learning and Athabasca University.

Evans, M. A. (2009). Mobility, games, and education. In R. E. Ferdig (Ed.), *Handbook of research on effective electronic gaming in education* (pp. 214-228). IGI Global.

Fasimpaur, (2013). Massive and open: MOOCs are the next big thing in online learning. *Learning & Leading with Technology, 40* (6), 12-17. ISTE: International Society for

Technology in Education.

Fitria, T. N. (2021). The use technology based on artificial intelligence in English teaching and learning. ELT Echo: *The Journal of English Language Teaching in Foreign Language Context, 6* (2). https://doi.org/10.24235/eltecho.v6i2.9299

Fitria, T. N. (2023). Augmented Reality (AR) and Virtual Reality (VR) technology in education: media of teaching and learning: A Review. *International Journal of Computer and Information System (IJCIS), 4* (1), 14-25.

Godwin-Jones, R. (2011). Emerging technologies: Mobile apps for language learning. *Language Learning & Technology, 15,* 2-11.

Graham, C. R. (2006). Blended learning systems: Definition, current trends and future directions. In C. J. Bonk & C. R. Graham (Eds.), *The handbook of blended learning: Global perspectives, local designs* (pp. 3–21). Pfeiffer.

Harvey, V. S., & Chickie-Wolfe, L. A. (2007). *Fostering independent learning: Practical strategies to promote student success.* The Guilford Press.

Heine, L. (2010). *Problem-solving in a foreign language: A study in content and language integrated learning.* De Gruyter Mouton.

Katz, L. G., & Chard, C. (2000). Engaging children's minds: The project approach (2nd ed.). Ablex Publishing Corporation, Stamford.

Ken, R., & Warschauer, M. (2000). *Network-based language teaching: Concepts and practice*. Cambridge University Press.

Knapper, C. (1988). Technology and lifelong learning. In D. Boud (Ed.), *Developing student autonomy in learning* (2nd ed., pp. 91-106). Kogan Page.

Knoll, M. (2014). Project method. In C. D. Phillips (Ed.), *Encyclopedia of educational theory and philosophy* (pp. 665-669). Sage Publications.

Legutke, M., Thomas, H., & Candlin, C. N. (1991). *Process and Experience in the language classroom.* Routledge.

Mohan, D. (2018). Flipped classroom, flipped teaching and flipped learning in the foreign/second

language post-secondary classroom. *Nouvelle Revue Synergies Canada, 11*, 1-12.

Moss, D. C., & Van Duzer, C. H. (1998). Project-Based Learning for Adult English language learners. ERIC Digest.

Park, Y. (2014). A Pedagogical Framework for Mobile Learning: Categorising educational applications of Mobile technologies into four types. In M. Ally & A. Tsinakos (Eds.), *Increasing access through mobile learning* (pp. 27-48). Commonwealth of Learning and Athabasca University.

Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education, 93* (3), 223-231.

Reimers, F. M. (2020). *Educating students to improve the world*. SpringerBriefs in Education, https://doi.org/10.1007/978-981-15-3887-2_1

Sheikh, H., Prins, C., & Schrijvers, E. (2023). Artificial intelligence: Definition and background. In *Mission AI: The new system technology* (pp. 15-41). Springer.

Smith, J. M. (2001). Blended learning: An old friend gets a new name. *Educational Technology, 43* (6), 51-54.

Stein, J., & Graham, C. R. (2014). *Essentials for blended learning: A standard-based guide*. Routledge.

Stoller, F. (2006). Establishing a theoretical foundation for Project-Based Learning in second and foreign language contexts. In G. H. Beckett, & P. C. Miller (Eds.), *Project-based second and foreign language education: Past, present, and future* (pp. 19-40). Information Age.

Taylor, D. L., Yeung, M., & Bashet, A. Z. (2021). Personalized and adaptive learning. In J. Ryoo & K. Winkelmann (Eds.), *Innovative learning environments in STEM higher education* (pp. 17-34). SpringerBriefs in Statistics, https://doi.org/10.1007/978-3-030-58948-6_2

Thomas, J. W., & Mergendoller, J. R. (2000). Managing Project-Based Learning: Principles from the field. *Proceedings of the Annual Meeting of the American Educational Research Association*, New Orleans.