

Multimodal Learning

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Abstract

According to Bouchey et al. (2021) global digitalization has dramatically changed the way we learn. These authors claim that digitalization poses a challenge for teaching and learning in 3 ways: The first one is an abundance, or over-abundance of information provided in several forms: audios, videos, texts and multimedia. They state that these new forms of providing information create multiple access points for the learners; the second one is that these diverse modes of obtaining information provide opportunities for both the teachers and the students; and third, the student body is increasingly diverse. Multimodal learning can thus be defined as learning environments that provide elements of instruction in more than one sensory mode (written, auditory or visual). Multimodal learning (MML) provides opportunities for learning that best suit the needs of the learners: learners who are more auditive can access new information in the form of audio files or audiovisual materials; learners who are more visual can access information in the form of graphic materials, or audiovisual materials, and learners that like printed materials can access texts. MML provides chances for learning to people who formerly were considered handicapped, or having special needs, like learners with dyslexia. However, as Bouchey et al. (2021) point out, MML requires a high level of determination on the learner's side: The learner must be able to understand how s/he learns, and also be able to take the challenge of adopting new modes of learning. These results suggest that though MML, provide students a considerably wider variety of learning options, there are drawbacks for students, instructors, institutions, and infrastructure as a whole.

Keywords: Higher Education, Digitalization, Self-directed, Multimodal Learning, Project-Based Learning, Blended Learning

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Introduction

MML enables content to be delivered in multiple forms: as Power Point presentations, videos, audios, text and multimedia. These new forms of knowledge delivery can engage students participate more in deepening the learning process and making sense of the learning objectives. However, there are some challenges to moving from traditional teacher-learner model where the teacher provides knowledge and the students are passive receptacles: MML requires the teacher to shift his or her role from learning designer to learning facilitator (Bouchey et al., 2021). With MML knowledge is constructed both by the teacher-facilitator and the learners. Thus, learning activities are produced “just in time”, based on the preferred mode of the learners and taking their preferences into account. “In addition, the use and integration of different modal representations can reinforce ideas and make learning more memorable” (Bouchey et al., 2021, p.38). Furthermore, the multimodal learning platform can be opened to actors in the learning process other than faculty and students, thus making the learning experience more meaningful. This is of special significance for college students who aim to enter the workforce and need other skills apart from the ones provided by college curricula.

MML provides opportunities that did not exist prior to the age of digitalization: students can now access information delivered in their preferred mode, which makes learning more meaningful. Moreover, MML can be used as a supplement to class lectures giving more flexibility to lecturers. Besides, virtual environments provide students with learning opportunities that would be very difficult to obtain in real life. Examples of these are lab simulations and augmented reality. Lab simulations in biology or medicine allow students to learn content without doing harm. Whereas in the past animals were dissected so students could learn anatomy, something that created tremendous suffering but that was justified by some teachers in the name of knowledge acquisition, is nowadays unnecessary, as virtual dissections provide students with the same knowledge as live dissections but without the trauma that hurting a sentient being implies.

Nonetheless, MML presents big challenges to teaching and learning: Creating didactic materials in different modes can be prohibitive in economic terms and time-consuming. For bigger groups, it might prove prohibitive. Another challenge has to do with the faculty, who would have to change to different learning modes and managing technology that not always works. Teachers may also find it difficult to create content in modes other than their preferred ones (Bouchey et al., 2021). But perhaps the greatest challenge is relying on student’s motivation and agency to access information provided in different modes.

Other challenges are that MML presupposes that all learners in a group are digital literate. Furthermore, relying solely on digital technologies for delivering learning content might create feelings of isolation in the learners. Thus, MML should be seen as complementary to classroom-based learning and not an alternative to it. Another challenge is that with evolving technology, channels of communication used to deliver knowledge must be regularly evaluated for privacy and security (Bouchey et al. 2021).

Assessment is another area that would necessarily have to change with MML: Traditional methods of assessment have usually been limited to written tests and assignments, first because they are the easiest to deliver, and second, because it is easier for the learner to get feedback from written materials. However, new modes of assessment are needed to evaluate students’ competencies through projects and multimedia presentations. Thus, “By reducing

the cognitive load associated with using an unfamiliar or uncomfortable mode, learning and mastery can be more easily conveyed” (Bouchev et al., 2021, p.48). Again, this presents a new challenge to the teacher-facilitator, since s/he must evaluate content that looks different depending on the mode it was presented in.

MML is nowadays used in most learning environments. In fact, blended learning using audiovisual materials has existed long before digitalization. An inherent disadvantage of using MML is overloading the learners with information; another one, that instructors would need ongoing professional development so that they can become multimodal literate (Bouchev et al. 2021).

Self-Directed Multimodal Learning

As Olivier (2020) points out, within the realm of the 4th Industrial Revolution and an augmenting need for equal access to higher education, the concept of self-directed MML has gained importance considerably. Formerly the only mode used to deliver learning content was the written one. However, for some researchers like Wong (2019 as cited in Olivier, 2020) meaning making is multimodal, as it involves signs, gestures, sounds, action, color, alongside 3D objects. While MML has been used in certain disciplines like language learning, where auditive elements are as important as written ones, MML can be adapted to different disciplines (an example mentioned above was virtual labs); however, “it must be contextualized and situated, and this implies in-depth knowledge of the students and their world” (Olivier, 2020, p.8). Olivier (2020) defines learning basically in terms of language and communication, but learning can also be multimodal. For this researcher, it should foster self-direction in students so that these become life-long learners who are resilient in rapidly changing technological settings. For this researcher, multimodality is closely related to self-direction, in that the students obtain knowledge according to their individual preferences. Olivier (2020) suggests that digitalization has enhanced self-directed learning.

Multimodality and Distance Learning

Although correspondence courses have existed long before the advent of digitalization, there has been a great increase of distance learning opportunities provided by colleges and universities. Distance learning has created opportunities for individuals who otherwise, due to job or family responsibilities, would have been excluded from studying at the tertiary level.

As Olivier (2020) states, most institutions deliver learning content through a combination of both presence courses and distance courses. The need for flexibility in knowledge delivery became evident with the COVID-19 pandemic, as schools and universities worldwide were forced to close to prevent contagion. As the need for distance education has increased, so has the need for delivering knowledge through digital channels: “Self-directed MML has a specific role to play within a context of open education and openness in general, as well as transformation of the higher education space” (Olivier, 2020, p.31).

While MML provides students, faculty, and educational institutions with an array of modes of knowledge delivery, learning has to be situated in a real-life context, it has to consider genre requirements and be supported by adequate technologies. Thus “any attempt towards successful self-directed multimodal learning implies appropriate circumstances, effective environments and institutional support” (Olivier, 2020, p.48). However, for MML to be effective, students and instructors must be multiliterate.

Self-directed learning is becoming ever more significant with the ubiquitous digitalization of the 21st century. Nowadays, most HEIs provide a blend of presence and online courses, or, within a course, blended learning (BL), which basically means integrating technology into the educational arena. As Bosch et al. (2020) point out, for BL to deliver the desired outcomes, the blend of didactic materials, the technology to be used and the activities must be carefully planned. BL provides flexibility to the students allowing for learning “any time, any place”, which is a great advantage especially for adult education. (Bosch et al. 2020). BL is closely linked with MML, as BL incorporates the use of technology to the learning process.

Some of the approaches used in BL include flipped classroom, cooperative learning, and project-based learning (PBL). The flipped-classroom approach is the inclusion of an online component in a presence module; cooperative learning involves breaking up a group into small teams of students so that they help each other learn, and PBL is a learning method in which real-world problems are used as a means to promote active learning by the students instead of just presenting facts and figures to them.

While for Bosch et al. (2020) BL has a lot to offer, especially in higher education settings, there are some challenges to its implementation. Some of the disadvantages these researchers mention in their study are that students missed the interaction with the instructor; that not all students were motivated to participate in the on-line activities, and that discussions had to be more synchronized to allow for more participation. For instructors, BL proved to be an unfamiliar terrain for instructors who, in some cases, reported a higher workload. Furthermore, some students were reluctant to include social media in their class interactions, as this meant merging their social and academic lives. For institutions, especially in developing countries, incorporating educational technologies implied extra costs. Another problem was posed by unreliable internet connections as well as by insufficient infrastructure.

Conclusion

It can be concluded that, while MML, SDL and BL provide a much broader range of means for learning to the students, there are disadvantages at the student, instructor, institutional as well as at the infrastructure level. While MML and SDL can help disadvantaged students, it can also enlarge the already existing divide between students who have access to the internet and those who do not; students who are digitally literate and the digitally illiterate, and students who are highly motivated for self-study and those who require the supervision of an instructor.

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