Review

Technology-Enhanced Learning and Teaching Methodologies through Audiovisual Media

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Abstract: Contemporary rapid advancements in science and technology have brought about and continue to convey change in all sectors of everyday life. Education as one of the institutions of utmost importance is directly and indirectly affected by these changes and needs to redefine its role to keep pace. Nowadays, information and communications technologies (ICTs), in which audiovisual media technologies are encompassed, are omnipresent in all educational levels and disciplines, including media studies. New approaches in traditional teaching methodologies, which demand many skills and abilities by the educators, are reformulated through utilization of audiovisual media technologies, aiming at administering enriched outcomes that support the objectives that are set, especially in the field of media studies, where audiovisual media technologies are an integral part and even inherent in many of the courses (journalism, radio, television, social media, public relations, communication). The purpose of this paper is to summarize, through a theory and bibliographic review, the various implementations of audiovisual media as the educational techniques and tools that will provide technology-enhanced learning. As this paper is an investigation of the effects of audiovisual media in technology-enhanced learning and teaching methodologies, the contribution to the discipline of media studies is straightforward.

Keywords: audiovisual media technologies; teaching methodologies; ICTs; education; technology-enhanced learning; media studies

1. Introduction

In contemporary society of globalization, special emphasis is placed on technology, concerning the achievement of quality, improvement, and/or change in almost all everyday life domains, including learning and working. Information and communications technologies (ICTs) are essentially contributing to the enhancement and effectiveness of the provided education, which has always been at the center of social changes, as it influences, directs, and naturally delivers knowledge. Audiovisual media technologies are integrated in ICTs and are used as tools to create and disseminate digital media literacy, employing widespread content delivery modes, which results in acquiring improved knowledge.

Historically, advances in technology of each era correspond to the content of the ICTs as new technologies, and as each new medium is adopted in society, education attempts to integrate it in the teaching procedure [1] (p. 33). Blackboard (1841), motion picture (1940), television (1957), and the internet (1992) at their times were considered pioneering tools and devices [2], while today, social media networks, internet services, and applications and new media as a general term are the new technologies [3–5] that have contributed significantly to the field of education by enhancing learning [6]. Quality in education has always been a key issue internationally, and evaluations and proposals are taking place, constantly seeking for new ways that could support learning. Educators should always

innovate in the use of means and differentiate the methods of didactic processes for providing quality in education to meet the criteria of each level and discipline.

The generations that are now at the educational stages approach information in diverse and innovative ways, and therefore, learning environments should adapt to their existing skills, needs, and prior knowledge in order to be effective. They learn more and better while watching video material, handle more than one screen simultaneously, prefer interactivity, and have an active presence in social media; therefore, one-way teaching makes them less interested in the procedure [1,7]. Their competencies, if taken into account, may result in successful implementation of the newly introduced teaching methods, providing added value to the outcomes [6]. Moreover, learners' perceptions and preferences are differentiated between generations [4,5,7]. These alterations are very significant factors that must be taken into consideration by the educators, while new curricula with the integration of new educational techniques and tools are being designed [6,8].

Audiovisual media technologies can be implemented by educators on all educational levels and disciplines, either as tools they use themselves to convey knowledge through stimulating the senses as a vivid teaching environment is created, or as tools for the learners to use which correlate concepts with skills to reach more effective outcomes through creativity [6,9,10]. Especially in the field of media studies, where those technologies are inherent in many of the professions that the schools lead to, universities' curricula should be adapted to meet the demands of cross-disciplinary courses and, by extension, of cross-disciplinary professions [6].

The aim of this paper is to investigate, through a theory and bibliographic review, the use of audiovisual media technologies in education to support technology-enhanced learning. Their current uses are presented in conjunction with communication features, modern trends, approaches, and learning methodology in teaching as well as the educational process that educators can use in technology-enhanced learning. The goal, which was set out from the outset, was twofold. The primary objective was to capture audiovisual media technologies as educational techniques and tools, and secondly, as this study belongs to an ongoing research on the multidisciplinary field that incorporates media, audiovisual content, and education (MACE), to set the foundations of establishing an initial basis for the formation of an audiovisual media (new) theory in education as well as in the field of media studies. In conclusion, the paper will address issues of audiovisual media and teaching methodology, aiming at quality and efficient teaching in education.

2. Theoretical Background: Audiovisual Media in Technology-Enhanced Learning

As presented in the literature of recent decades, the use of technology, in particular audiovisual media technologies, is an important factor in achieving enhanced learning [6,8–12]. Its employment presupposes new ways of approaching effective teaching and also requires the educator to display with competence many advanced skills and abilities [6,8,12]. As technology and audiences evolve, interdisciplinary teaching methods and practices are applied, since, in addition to delivering knowledge itself, new classroom norms must be sought for better results to be reached.

Audiovisual media technologies support the impartation of information between transmitter and receiver, and as they illustrate objective reality, they contribute to the learning process through representations [13,14]. Their utilization in the educational procedure results in the achievement of planned teaching or planned learning and reduces the factor of learning style, according to which all learners are not alike, and teaching should be adapted to individual comprehension styles [15–18]. This can be accomplished if the employment of audiovisual media technologies is based on critical analysis and discussion of transmitted messages as well as self-action of learners. Thus, this method will escape the indirect and one-way communication that characterizes it and can be utilized appropriately as complex direct interpersonal communication.

In recent years, several efforts have been made to develop a common language for the use of audiovisual media technologies in the educational process, which could be the basis for the formation of an audiovisual media (new) theory in education as well as in the field of media studies. In the

following subchapters, a concise description along with applied references on the technologies used to enhance learning is made.

2.1. Computer

The computer as an integral part and backbone of Information Science has offered to the field of education a great deal of solutions to various didactic problems, as well as new educative methods, revolutionizing the educational process in technology-enhanced learning. Its diverse uses in education and educational applications are summarized in the three "T": tutor–tool–tutee [19] (pp. 1–10). Some of its fundamental capabilities in the field of education are: personalized teaching and learning, group collaboration learning, a good way of representing reality, feedback, lifelong education, the connection with the world, and aiding vulnerable social groups and special categories of audiences [20]. Its main use as a means of teaching is that through simulation, the computer offers a dynamic representation of reality, with methods of virtual and augmented reality, thus allowing learners to interact with the real world in ways that were not possible before [21,22], Applications such as electronic mail (email) communication, which is an interchange method of asynchronous sending, receiving, and storing messages, which can include attachments, and where, finally, the same message may be sent to many recipients, are nowadays an integral part of education. More direct, flexible, and faster communication is achieved, and information is easily exchanged using email. Educators and learners can also engage in discussion groups/newsgroups, ask questions, discuss issues, and share experiences between themselves and with other users [23]. The golden intersection of computer use as a teaching tool and not as a medium of achieving satisfactory growth lies in the proper pedagogical and didactic use of audiovisual media technologies applications in the educational process as well as in their implementation in the context of educator training [24]. Contemporary professional media environments present a vast diversity on the employed modes for the delivery of the final products, leading to the necessity for the provision of corresponding education. Working with computer software packages is considered a prerequisite, and competence in their use is highly evaluated.

2.2. Visual Media

The primary reason to design visual media is to communicate a message or information, and they are two-dimensional materials. The contemporary society is highly visualized, especially when taking into account that visual material, such as photographs in various publications (e.g., newspapers, magazines, books), posters/signs on the streets, and graphics, are used daily and are encountered on various websites on the internet through the computer's screen [6,25]. The reason is that visual materials are more efficient and allow the representation of images, causing identical cognitive recognition processes, such as those we follow in the real world [6,9,10].

In the context of the educational process, visual media are essential elements, since they have the ability to increase the effectiveness of teaching through graphs, illustrations, charts, and more, as they are mostly based on the way the message is presented, as well as on the receiver's ability to decode the messages [6]. In addition, visual media emphasize concepts, increase comprehension, and broaden perception, giving the abstract or the virtual representation of the information referred to in the text as content or structure [9,10]. For effective use, they must meet certain requirements, such as: (a) They should transmit messages which are or must be unambiguous, (b) the information being transported should be clear and limited, and finally, (c) they should be "readable" and display the maximum degree of "virtuality" and figurativeness [25,26].

Among the forms of visual media are printed visuals, such as photos, drawings, shapes, sketches, cartoons, comics, as well as books, newspapers, and magazines; and projected visuals, which are ranked as the most effective visual media because they are based on the basic principles of gradual presentation of information and visual representation, enabling the teacher to adapt, control, and prepare the material of the lesson [27,28]. Some examples of projected visuals materials are: (a) projection slides through the overhead projector [29] and (b) the use of presentation software (e.g., Microsoft PowerPoint)

via the computer, connected to a projector [30]. It is worth mentioning that the use of presentation software in the educational process is the most widespread form today [31], since it allows the creation of visual material with multimedia projection, combining text, images, drawings, diagrams, sound, and/or video and mainly motion. Although projection slides offer unlimited and varied educational uses, their most significant disadvantage is that they are solely controlled by the educator, thus limiting participation and activation of the learners.

2.3. Sound and Audio Media

The use of sound and audio media in education, among others, greatly increases oral communication due to the fact that audio content may come in touch with emotions, create emotions, give life to the past by activating memory, and generally sensitize the deeper elements of people's culture [32]. The basic forms of sound may be distinguished to the three main categories of human speech, music, and sound effects (sfx) and are commonly used as:

1. Audio and audiovisual narrations, e.g., for presentation purposes of a variety of topics (using audio, motion, video) [6];
2. Musical backgrounds, which usually aim at relaxing the user, changing the mood, bringing the desired emotional load, and creating a proper atmosphere and pace [6]. Moreover, music in teaching may aim at retaining the attention of learners, may keep an expressive role, while accompanying narrative or action, or highlight the image or speech [9,10];. Finally, in a thematic message type, in which music is strongly expressive and emotional, it may favor dramatization, sensitize, and activate the subconscious of learners [6,9,10];
3. Synchronous or asynchronous sound effects, which are used to indicate the location, guide the audience's attention and feelings, determine the time of the day and the mood, indicate inputs and outputs, denote transitions, create unrealistic effects, as well as the narrative of the "virtual world" (e.g., video games, computer games and the internet), satisfying the needs of realism and also the interest of the user [33], and finally;
4. Navigation aids and/or advanced human–computer audio interaction, including various tools for identifying and classifying audio events/standards, speech recognition systems, and other modern semantic analysis services [34–36].

Experimentations with podcasting, which was used as an asynchronous on-demand teaching practice employing audio files of academic lectures that could be listened to anytime and at any place, have presented great acceptance by students and are recognized as a valuable tool. Three categories of use are mentioned in the literature: substitutional, supplementary, and creative. Among the assets of this method are that it increases flexibility and accessibility and, finally, it enhances learning [37,38]. Journalism learners stated that the use of podcasts expanded the time available for discussions and lectures in class [37]. As in every technology used in education, drawbacks are also referred to, especially the decline in learners' class attendance [39]; however, the involvement of learners in such implementations could result in their engagement in learning procedures which are in accordance with their interests, leading to the development of their skills.

Audio productions created by learners themselves as part of fulfilment of course obligations, although initially considered difficult to perform, in the end were highly evaluated in terms of satisfaction and usefulness. In [40], learners majoring in media studies were asked to study and learn to employ sound equipment and software to create productions of their own, and the research revealed that they apprehended the usefulness of the incorporated technological tools in the procedures of teaching.

In conclusion, sound is multidimensional and characterized by immediacy, simplicity, similarity in the forms of human communication, as well as easy management, processing, and transmission. All of this enables people in general and/or minority populations, vulnerable social groups, and special audiences (e.g., people with muscular disabilities or kinetic problems, impaired vision) who

cannot read or have a different native language, to perceive, understand, and learn better through step-by-step written instructions, thus facilitating communication between people and communication in general [41,42].

2.4. Video

As the most illustrative and, at the same time, the most demanding form of content, since it combines and integrates all forms of content (e.g., text, image, and sound), video dominates the majority of activities of modern everyday life as well as the educational process in technology-enhanced learning. The form of digital storytelling delivers a contextual, realistic, and intrinsically interesting experience for something that is impossible to watch directly. Moreover, it provides the repetition and imitation of activities which are needed in order to gain psychomotor skills through repeated observation and practice [43,44]. It is also offered as a method of self-observation [45] (pp. 131–132) for both learning and/or improving professional and social behaviors, as well as multifaceted analyses of social and psychological content.

The technical and functional forms and the multiple uses of video for educational reasons vary. The leading forms of employment are the following:

1. Audiovisual narrative for presentation purposes;
2. As introductory video and/or animations (with or without sound background) for accompanying welcoming/reception content (splash/intro video);
3. As video-lectures of educational nature, as tutorial videos for support and guidance navigating and as help videos or user manuals;
4. As an integration into recreational activities and games (e.g., use of natural video, two-dimensional and three-dimensional animations);
5. As interactive video (hypervideo) on non-linear narrative articulated systems (e.g., hypermedia, web-docs);
6. As a human–computer audiovisual interaction, including advanced audiovisual recognition, synthesis and control services, virtual character interfaces–intelligent agents, etc.;
7. As virtual reality and/or immersion services through high-definition systems, stereoscopic (and stereo) playback techniques, personal audiovisual downloading-projection devices, video and graphics effects, virtual studio techniques;
8. As time-lapse sequences, which adopt long-time capture and processing techniques in combination with graphics systems, either aiming at time-lapse or time condensing (or expansion) during the presentation of various phenomena, and finally;
9. As panoramic projection and virtual browsing applications (panoramas, 360°) with motion capabilities (spatial displacement) and/or the capability to change the viewing range (zoom in–zoom out), which may also be accompanied by adaptive high-definition images (Giga-pixels) [6,9,10].

Video utilization is a medium that captures audience's attention efficiently while increasing the interest; therefore, it may be engaged in a wide variety of educational levels and disciplines dealing with different requirements and needs. According to [46], who created a simulation-based video teaching interventions in programs of nurse anesthesia, these methods are designed to supplement and augment traditional teaching approaches and better engage students in the learning procedure. Further, in health education programs, video can be used to increase learners' knowledge, since capturing the information is made easier.

In another respect, in [47] (p. 98) and [48], studies on teaching listening on foreign language learning, the learners stated that they were more interested in the course if video was used a teaching material, and they perceived it as a great tool since it provides authentic, meaningful, and real-life situation contexts. Overall, it enhanced their comprehension regarding the course.

Video creations, in the same respect as audio creations, which may originate as the courses' products in addition to contributing to individual knowledge gain, may engage learners in very significant peer- and self-evaluation processes, which will aid in the identification of strengths and weaknesses.

Streaming video is a format for accessing content that is highly preferred by young learners of Generations Y and Z, so it was inevitable for it to appear as an educational technique and tool [7]. According to [49], university libraries along with audiovisual media collections have also created streaming video services for the benefit of faculty members of many different disciplines, since at present, there are publications related to developing and maintaining streaming video. The results of the study pointed out that faculty members support continued investment in streaming video for teaching purposes and highlight a clear need for raising awareness of such services. The authors believe that the creation of a web repository of indexed audiovisual media educational content would be most valued both by educators and learners.

In conclusion, video presents unique immediacy and simplicity, motivates, transmits information, contributes to the supervision of how knowledge is presented, and is ultimately irreplaceable in individuals and/or vulnerable social groups and special audiences (e.g., the elderly, people with muscular disabilities or kinetic problems, deaf people), giving equal opportunities [41,50]. It is also one of the teaching tools that can be used in a variety but also exclusive techniques within the educational process in technology-enhanced learning, one of which is a distancing, in which the educator, after viewing a video, is called upon to provoke detachment, always aware that the subject and the content of the video allow it [51].

2.5. Social Media and Audiovisual Platforms

The continuous evolutions in our everyday lives combined with personal involvement and the rapid development of technology have highlighted the need of social media and audiovisual platforms which established their presence from 2006 onwards [3,52–55]. They are usually based on the dynamic platform of WEB 2.0, where online content is mostly the product of the users themselves (user-generated content, UGC) who may be considered as potential producers, since they can easily produce and contribute their own content using open and/or free software and application [3,54,56]. Today, there is a variety of such software and applications on the Internet, resulting in an immense two-way interaction, discussion, and conversation, promoting communication [56,57]. It should be pointed out that in the literature, these are also divided into various categories or major ideas in order to provide analytical descriptions for this new environment in which we live, create, and learn, but at this stage and in this study, they are not categorized. The transition to semantic services (WEB 3.0), where data integration occurs, will provide enhancement, among others, in the areas of knowledge construction, specifically in course development with multimedia learning objects and learner support with the use of agents, and therefore, students will benefit from personalized learning [58].

The most common social media platforms worldwide are currently Facebook and Twitter, while accordingly, the audiovisual platforms YouTube, Vimeo, and Netflix are the ones with greater penetration to the audiences [3–7,59,60]. Their vast expansion inevitably led scholars to their study on many different levels, one of which is their contribution to education that could result in technology-enhanced learning [61–66].

In this context, some new perspectives from these several studies which have been formulated allow learners to participate in formal (e.g., study of course material) and informal (e.g., look for useful information everywhere) learning conditions. Moreover, learners can find other people with a similar way of thinking and exchange knowledge in an informal way (e.g., exchange of their educational experiences) for educational purposes [67,68]. Furthermore, in addition to the abovementioned common social media platforms, there are many online learning management systems, such as Blackboard, WebCT, Moodle, as well as Wikis or blogs created by teachers that facilitate courses' demands in supplementary material and communication that can be accessed at any time, resulting in increased student engagement [69]. As mentioned before, contemporary students belong to a generation that has

a short attention span and wants to learn at their own pace; taking that into account, the incorporation of interactive online materials helps students to better comprehend the teaching material as well as establish communication with the faculty members in familiar methods [70].

The incorporation of social media may result in the creation of progressive, interactive, and effective learning environments. One sector that is improved is the communication system among learners who are characterized as digital natives and by their utilization are empowered to generate discussions and exchange/share faster and easier information [62]. Another one is the positive view that is created for their educators who are characterized as innovative and people who know what is popular, along with social interaction which is considered as a strong motivation feature that leads students to engaging with social media in an educational setting [71].

3. Teaching Methodologies Employing Audiovisual Media Technologies

According to [72] (p. 10), "the challenge for educators is to utilize technology in ways that facilitate the highest level of learning outcomes". In this case, however, the issue is not how the educator employs technology, but which the followed process is, i.e., the teaching methodology. There are various and varied traditional teaching methodologies that can be implemented in the educational procedure in order to achieve the aims and objectives of cognitive subjects, but not all are well-suited and offered along with the use of audiovisual media technologies in enhanced learning [6,9,10].

The modern approaches in teaching methodologies, based on the literature (theoretical and bibliographic) of recent decades [73–75] and in already published (new) researches and reviews in education [42,43,76–79], as well as the field of media studies [40,80–83], are:

1. Differentiated teaching, which can be applied to mixed capacity faculties by providing challenging learning experiences, and;
2. Interdisciplinary teaching, which is considered a successful option for achieving the objective of holistic viewing of things, also relying on the concept of experience [6,84,85].

Differentiated teaching is an educational intervention and is based mainly on the theory of constructive learning (or constructivism theory) [86]. The educator should rely on previous and/or prerequisite knowledge and experiences that are coded and processed, seeking to stimulate motivation and cognitive and metacognitive development and performance of learners during the educational process. Learners can learn anything at any age, as long as it galvanizes them and it becomes the tool for their later performance [87,88].

Interdisciplinary teaching is integrated into action research, which is a special research process that aims to improve the professional practices of people involved in the practice itself [89,90]. With the implementation of interdisciplinary teaching, the aim is to socialize learners, to promote the cooperative process, and ensure the conditions of experiential learning in the educational process. Interdisciplinary teaching, for the most part, may be applied if the intended educational purposes allow it and if the subject is of the utmost importance for a deeper understanding or acquisition of broader skills and the formation of the knowledge as a whole and where the sources are not accessible to cover the module [6,9,10].

Choosing any teaching methodology is not an easy task for the educator [6], and there is always a great risk of its unnecessary and superficial implementation [91]. For this reason, the educator should also be able to calculate the building blocks, which also define the development models of programs, both at the macro and micro-level of teaching, so that through the educational process, the learner can actively participate and not only obtain knowledge but also be interested in something new or different in a way that makes it meaningful [6,9,10].

However, to achieve this, the educator should always keep in mind the learners' profile based on their inherent characteristics (e.g., performance, gender, religion, and age), the cultural background, readiness, interests, the current sets of needs and incentive, both in incited motivations and external stimulation, which may converge or complement each other, as well as both the existing experience

and metacognitive, in order to select, adapt, and apply the most appropriate teaching process in technology-enhanced learning [6,9,10].

At this point, it has to be mentioned that it is of crucial importance that the employment of audiovisual media technologies in the educational procedure is a complex process, which includes human and material resources [6]. The authors believe that the new approaches from and through traditional teaching methodologies are the key audiovisual media to be used in technology-enhanced learning correctly by the educators.

Methods and Educational Techniques Utilizing Audiovisual Media Technologies

The main traditional teaching methods [6,92,93] utilizing audiovisual media technologies in enhanced learning are:

1. The inductive method, in which the trainer starts from the individual elements and gradually proceeds to more complex forms until they come to capture and describe the whole, the general [93];
2. The production method, in the exact opposite direction of the inductive method, which starts from the general picture and proceeds to the partial [93];
3. The interpretative method, which combines the inductive and productive method and goes even further, thereby cultivating understanding, mobilizing spontaneously and necessarily other cognitive forces of human nature, such as emotion, imagination, intuition, and will [92,93], and finally;
4. The constructivist method [86], which is based on knowledge as: (a) a result of past experience, (b) a customization of personal sustainability, (c) creation, and (d) a social, cultural, and linguistic context [6,92].

The educational techniques and tools that can be applied are again based on the ability of the educator to work with them, taking into account the basic communication mechanism and, above all, implementing the foundation of a common communication field [94]. Indicative techniques using audiovisual media technologies are re-energizing memory, brainstorming, working groups, group discussion, as well as guided didactic discussion and learning discussions, the purpose of which is for individuals to discover advanced knowledge through their own previous knowledge, and experiences [92,93]. In this context and bearing in mind the importance of communication and behavior [76,77], key ideas should be identified and evaluated through critical thinking, in order to distinguish acts, views, and values.

The authors believe that if educators reform the educational process with methods and techniques utilizing audiovisual media technologies, they will also acquire many skills and competences themselves.

4. Conclusions and Discussion

The purpose of this paper was to capture audiovisual media technologies as educational techniques and tools and provide a synopsis of their employment in different educational levels and disciplines where technology-enhanced learning could be employed and achieve the aims and objectives of cognitive subjects. At present, technology has established a new form of literacy, equally important to textual literacy, as it changed users' ability to create digital audiovisual content [3,7]. Educators of all educational stages should expand their concept and embrace visual literacy to match the current reality [26]. The societies of the 21st century are highly exposed to visual stimuli on a daily basis, and many activities are performed through visual procedures. Therefore, there is an augmented necessity for education to keep pace with society and maintain a positive outlook to every emerging innovation.

The right selection of teaching methods utilizing audiovisual media technologies should be adjusted so as to accommodate the differences in learning needs of the distinctive levels and disciplines. Choosing any traditional teaching methodology is not an easy task for the educator [6,92,93], and since there is always a great risk of its unnecessary and superficial implementation [91], more studies could

investigate new aspects and characteristics of both the educators and learners and deliver more precise results. Any type of technologically mediated environment must be customized to the learners' needs, and all parameters should be taken into account so that training will never end and will be evidently lifelong as new educational fields will always come to light. The modern age is constantly changing, new work-force skills appear, and there will always be room for improvement. Well-educated people of all age groups are more easily included in the social, cultural, and economic environment they live in, and they constitute a knowledge-based active society. By enhancing the learning pathways in general, through the implementation of audiovisual media technologies included, more opportunities to establish reinforced social structures are created. The achieved results of a formation of a lifelong learning culture in wide-range domains are very significant for the prosperity of every nation.

Especially in the field of media studies, the use of audiovisual media technologies must be considered mandatory, since, in addition to serving practical purposes of providing the knowledge and skills that are inherent in most of the domains (television, radio, public relations, advertising, web creators), they contribute in obtaining media literacy, which is crucial in their professions regardless of whether they work as producers or as researchers, communication and public relations managers, editors, or analyzers [3–5].

In conclusion, the most important message that emerges is that education is a broad field, and if technology is correctly implemented in its stages and domains, both intellectual capacity and beneficial creativity can be achieved. The use of audiovisual media technologies in the educational procedure can generate motivation and stimulation of perceptual skills that will lead to enhanced learning outcomes [6]. Targeted further study and analysis by the authors, as a part of their ongoing research on the multidisciplinary field that incorporates MACE, of emerging technologies would provide valuable aspects in planning educational programs and course design so as to incorporate them on time and result in delivering progressive learning environments. Technology should be meaningfully connected to the needs, prior education and personal characteristics so as to be effective. Empirical investigations among different educational levels and disciplines that take into consideration many features would highlight and determine the diverse tools and practices that adjust to each case and whose employment with the right pedagogy will promote knowledge. Finally, since technology is changing with a fast pace, the authors agree with [83] that "education must be continuous and must be focused on 'learning to learn'".

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