A Review of the Terminologies Used in the Field of Online Learning

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Abstract

With the rapid development of online learning, various terms related to this field have been used in the literature, leading to great confusion in research when they are not clarified. This paper analysed these terms from two perspectives: one was technological and the other was pedagogical. In the first category, the authors of this paper first studied the characteristics of the constituent parts of the technology-related online learning terms. After analysing ten online learning terms related to technology, the paper found that, although there were some discrepancies among these terms, the connections to either internet or network was one of their common characteristics. In addition, online learning was more than using the internet as a medium, the whole learning process and learners’ contribution should be considered in online learning.

In the second category, the authors classified the online learning terms by using different pedagogical criteria. Based on the configuration of online delivery, online learning can be divided into fully online learning, blended learning and adjunct learning. Classified by the level of learners’ experience, online learning can be categorised into expository learning, active learning, and interactive learning. Although the degree of the integration of online delivery and the extent of learners’ participation vary in each classification, all forms of online learning aim to enhance learners’ participation and interaction by expanding the traditional learning boundaries.

1. Introduction

Information and communication technology (ICT) has been evolving at an amazing speed for more than two decades. ICT not only includes a broad range of communication devices, such as personal computer, digital television, mobile and satellite system, etc., but also encompasses various services and applications, such as videoconferencing, online learning, and email, etc. Currently, ICT has made considerable inroads into educational contexts, providing new approaches and paradigms for developing knowledge acquisition (De La Campa Portela & Bocanegra Valle, 2007).

In line with this trend, online learning and its related research have received an increasing attention in the area of education. Instead of being peripheral or supplementary, online learning has become an indispensable part of learning process in the 21st century (Bozkurt et al., 2015). Due to the thriving research appear in this area, numerous terms associated with online learning appear in a large number of academic papers, such as e-learning, online learning, internet-assisted learning, mobile learning, digital learning, web-based learning, network-based learning, telelearning, technology enhanced learning, virtual learning, computer-assisted learning, computer-based learning, distributed learning and distance learning, etc. Although we can find their definitions from various resources like academic papers and glossaries, the definitions of these terms in most cases focus on individuals without a holistic analysis. Some definitions overlap or have similar meanings with each other (Fan, 2011). Therefore, if they are not clarified, newcomers in this area may be confused about the differences among these terms and when these terms are used interchangeably. If they could not find the answer, probably the new researchers would limit the scope of their references on account of the different terms. This research gives an examination of the definitions of the frequently used terms so that future researchers can have a clear research scope and can find relevant literature that may use different academic terms.
2. The classification of terms related to online learning

Online learning is now becoming a very broad area that comprises a variety of terms. These terms arise at the confluence of technological and pedagogical development (Ally, 2008). Therefore, in this paper, the online-learning-related terms are analysed from technological and pedagogical perspectives respectively. The former category focuses on the terms with a technological feature, such as e-learning, online learning, distance learning, virtual learning and web-based learning. The latter category analyses the terms that can show their pedagogical traits, such as blended learning, fully online learning, and active learning.

3. The terms with a technological feature

3.1 The constituents of the terms with a technological feature

Although there are many technology-related terms appeared in the online learning area, it is noticeable that these terms are made up of two or three parts. The first part expresses either the major technologies used in the learning, such as online, computer, electronic and the internet; or the characteristics related to the major technologies applied in the learning process, such as distance, virtual and tele-. Some terms have a middle part that connects the first part and the last part, such as the words assisted, enhanced, based, facilitated and mediated. These words normally show the role of the technologies applied in the learning process. This part is often omitted in some terms. The last part is usually formed by a word related to the pedagogical forms (Anohina, 2005), such as learning, teaching, education, training, tutoring, and instruction.

There are some discrepancies among the different words used in the second or the third part, but in practical use, it is the first part which is related to technologies, that determines the scope and feature of each term (Anohina, 2005). In this paper, the focus is put on the first part of the terms, that is, the technology-related terms are primarily examined through an online technological stance. As for the second part, the words are chosen according to the common usages. With regard to the third part, the authors of this paper choose “learning” as the word for this part because the application of online technologies shifts the centre of the class from the teachers to the students (Weegar & Pacis, 2012).

Some frameworks or standards for online learning place much emphasis on students’ needs, such as Quality Matters Rubric Standards (Collis & Moonen, 2008), E-quality Framework (Masoumi & Lindström, 2012), and e-Learning Maturity Model (Marshall & Mitchell, 2007). The word “learning” emphasises the learners’ activities in the learning process (Halversen & Tran, 2016). Therefore, it is the proper word that can embody the characteristic and influence of online technology. One exception of the word using in the third part is “computer-mediated communication (CMC)” for the reason that CMC is now a relatively fixed academic term. It is used far more frequently than “computer-mediated learning”. To testify this idea, the authors searched “computer-mediated communication” in Google on November 8, 2016, and found about 596,000 results, whereas the search for “computer-mediated learning” only about 35,300 results. In academic research, it is necessary to know the difference between “communication” and “learning” on account of the frequent appearance of the term CMC.

In this section, the terms are discussed either through the major technologies applied in the learning, such as electronic, online, network, the web, computer and mobile learning, or through the major technological features appear in the learning, such as distance and virtual learning. The following part of this section tries to analyse and compare the frequently used technology-related online learning terms to identify the scopes and features of them.

3.2 The analysis of the terms with a technological feature

3.2.1 E-learning

Literature shows that a normal delineation of e-learning is drawn on the perception of the instrumental characteristic of this term. For example, Zhang, Zhao, Zhou, and Nunamaker Jr (2004) maintain that unlike confined traditional learning, e-learning refers to technology-based learning process delivered electronically to the remote learners through a computer network. Ellis, Ginn, and Piggott (2009)
define e-learning as an educational process facilitated by ICT to assist in students’ learning process. In some definitions, the scope of e-learning is extended by adding the asynchronous feature. For instance, Lee and Lee (2006) believe that e-learning is an instructional delivery to the target learners by using internet techniques, be it synchronous or asynchronous.

Although technological characteristics are prominent in the above definitions, there are divergences as to what kind of technologies should be focused on. As shown in the above definitions, electronic facilities, internet and ICT are the technological media of e-learning. As such, e-learning comprises a variety of digital programs, components and delivery approaches (Selwyn, 2011).

However, Tavangarian, Leypold, Nöltting, Röser, and Voigt (2004) believe that technology or electronic media alone is insufficient to define e-learning, because, from the perspective of constructivism, learning is a generative process that should be constructed by the learner independently. Based on this theory, e-learning is a procedural construction of knowledge with regard to individual experience via information and communication systems, no matter they are networked or not (Tavangarian et al., 2004). From this perspective, e-learning is an aggregation of multiple learning forms with the support of electronic devices (Tavangarian et al., 2004). In other words, it involves electronic facilities or the internet as an integrated part of the learning process rather than treating them as a supporting role.

3.2.2 Online learning

The scope of online learning definitions varies greatly with each other due to the diversity of the practice and different understandings of online technology (Ally, 2008; Anohina, 2005). The following part lists some representative definitions of online learning. Watson (2005) defines online learning as a kind of education that are delivered mainly through the internet. This implies the term does not include those educational forms without a significant internet element. Carliner (2004) regards online learning as the education in which learning activities and supportive resources are presented via a computer. From this definition, computers, or more generally speaking electronic devices, no matter they are connected to the internet or not, play a key role in online learning. Some definitions combine the two types of definitions and thus form a definition with a narrower scope. Peters (2015) maintains that online learning is using internet-connected computers to get educational information. In such definitions, the connection to the network or the internet through a computer or other electronic device becomes a necessary component of online learning.

Despite such diversities in the definitions, most definitions of online learning focus on the importance of connections, be it with a computer or not (Anohina, 2005). Online learning can be any forms of educational activities that are carried out via the connection to the internet (Beek, 2011). Apart from the definitions with a focus on technology, another kind of definitions investigates online learning from a different perspective. Ally (2008) believes that online learning is more than using the internet as a medium although the internet is an important component of it. In the process of online learning, the internet exerts vital functions, such as accessing learning materials, interacting with others, and obtaining support. As such, the learning process and learners’ contribution should be considered in online learning (Ally, 2008).

3.2.3 Web-based learning, internet-based learning, and network-based learning

In some articles, web-based learning is a synonym of online learning (Dringus & Cohen, 2005; iNACOL, 2011; Mbuva, 2014; J. L. Moore, Dickson-Deane, & Galyen, 2011). But web-based learning emphases on “using the web as the medium” (Khan, 1997, p. 5), while online learning comprises a wide spectrum of technologies. In this way, web-based learning can be regarded as a branch of online learning. Similar to web-based learning, internet-based learning, and network-based learning can also be viewed as a subfield of online learning, because internet-based learning focuses on the use of the internet (Anohina, 2005) whereas network-based learning stresses on the use the networks for educational purposes (Kern, Ware, & Warschauer, 2008). In network-based learning, the network is an integrated part or a medium of the learning process that encourages students to get abundant learning resources (Harasim, 2000). The same principle also applies to internet-based learning.
3.2.4 Computer-mediated communication (CMC)

Santoro (1995) describes CMC as the application of computer systems and networks through which information can be transferred, stored or searched. Another delineation of CMC was drawn recently. In this definition, CMC is a kind of communication among separated people, which is implemented synchronously or asynchronously through computers (Musa, Mohamed, Mufti, Latiff, & Amin, 2015). From the two definitions of CMC within a time span of 20 years, the connotation of CMC definitions has not changed much. CMC comprises not only the pedagogical application of online technologies but also the various human interaction in different contexts (Salaberry, 2013). The development of the internet exerts a profound impact on the implementation and performance of CMC (Hrastinski & Keller, 2007).

3.2.5 Computer-assisted learning (CAL)

CAL refers to any instructional activity in any context with computer technologies (Fan, 2011; Le & Fan, 2010). It is the pedagogical application of CMC. Originally, CAL refers to a wide range of such applications of the computer as tests, tutorials, games, drills, simulations, etc., whereas network-based learning on the other hand specifically indicates the pedagogical use of computers connected to either local or international networks, allowing interactive communication (Kern et al., 2008). Given the radical convergence of digital devices and the internet presently, the dividing lines between CAL and network-based learning are increasingly blurring (Kern et al., 2008).

3.2.6 Mobile-assisted learning

Mobile-assisted learning (MAL) can be regarded as any educational provision formally or informally dominated by handheld devices (Traxler, 2005). Whilst, in the past, the scope of MAL was concentrated on the application of mobile technology and mobile devices, more recent opinion has shifted the emphasis to the learning mobility (Sharples, 2006). Guided by this idea, mobile devices can include any instrument that is portable, autonomous and convenient enough to perform educational activities anytime (Trifonova, Knapp, Ronchetti, & Gamper, 2004). As such, MAL is not limited to mobile phones and many portable devices would fall in this category, such as audio-CDs, portable radios, DVD players, and audio-cassettes (Kukulska-Hulme & Shield, 2008).

3.2.7 Distance learning

Distance learning refers to a kind of learning process where learning groups, instructors, and learning resources are geographically separated from each other (iNACOL, 2011). Although the term does not specify what technologies are applied in the delivery of learning, communicative technologies are normally required in distance learning as the principle means of communication (M. G. Moore & Kearsley, 2011). With an emphasis on physical separation, openness, flexibility and support for learners (Lamy, 2013), distance learning can be viewed as a branch of online learning on account of its increasing dependence on online technologies (Bozkurt et al., 2015; Deniz, Kesan, & İzgiol, 2013; Hiltz & Turoff, 2005). Without internet or network, the interactively synchronous or asynchronous communication in distance learning cannot exist (White, 2006).

3.2.8 Virtual Learning

Generally, the definitions of virtual learning put emphasis on the technologies involved in the learning. For instance, virtual learning is a type of education in which computer software, the internet or both are used to deliver instructions to students (Beek, 2011); virtual learning is commonly referred to as a learning process mediated by computers and digital technology (Weiss, 2006). In some scholars’ views, it is synonymous with online learning (iNACOL, 2011). But virtual learning usually takes place in a synchronous learning environment and highlights the visual effects (Günes & Franzén, 2008).

3.2.9 The relationships among the terms related to online learning

From the above definitions and analyses, despite that there exist some discrepancies among these
terms (Lamy, 2013), the connections to either internet or network is one of their common characteristics. In line with this trend, the rapid development of online technologies is blurring the boundaries of many terms. For this reason, some of these terms are interchangeably used in practice (Ally, 2008; Fan, 2011; iNACOL, 2011; Mbuva, 2014; J. L. Moore et al., 2011; Zhang et al., 2004). In practical use, these terms are generally referred to as the applications of online technologies for the educational purposes (Meskill & Quah, 2013). In this way, the term “online learning” was chosen as the umbrella term for other terms. Figure 1 embodies the relationships among the abovementioned terms. Based on the previous analysis and comparison, three focused areas can be identified in the field of online learning, i.e., devices focused, internet/network focused and mobility focused. Figure 1 shows that although different terms have different focuses, every term is, to some extent, internet or network focused.

![Figure 1. The relationships among the terms with a technological feature](image)

4. The terms with a pedagogical feature

4.1 Based on the configurations of online delivery

The terms related to online learning can be categorised into some groups by using different pedagogical criteria. Based on the configurations of online delivery, online learning can be divided into fully online learning mode, mixed learning mode (also called blended learning or hybrid learning, in the following part, the authors of this paper use the term “blended learning” to name this type of online learning because it is used much more frequently than the other two according to the search results made by Google on November 9, 2016) and adjunct learning mode (Harasim, 2000). Fully online learning treats the network or internet as a major medium for the entire course of learning (Harasim, 2000). Literature shows that the major problems in the fully online learning include the lack
of interaction between learners and instructors, the difficulties related to self-regulation ability (Bernard & Rubalcava, 2000) and the indistinct role of online instructional materials (Sun, 2014). Sun (2014) investigates the difficulties of this type of learning from learners’ perspectives through an inductive method. Six major difficulties are identified in her study: (1) studying on a regular basis and following the plan, (2) fixing a time suitable for all the classmates to work together, (3) working in collaboration, (4) keeping constant engagement during learning process, (5) being self-motivated and self-directed, and (6) being socialised (Sun, 2014). Generally, fully online learning is more suitable for those self-disciplinary students with a stronger self-learning ability. Blended learning is an educational mode that combines both face-to-face and online learning methods and experiences (Hockly, 2015). Blended learning is the field that represents a major part of online learning studies (Sun, 2014). The major challenge of blended learning is the identification of the optimum integration of traditional methods with online technology (Garrison & Kanuka, 2004). However, Lamy (2013) maintains that a mere mixture of technologies is not enough to identify the blended learning because the conventional teaching can also be complemented by network-based activities. Blended learning should strive for a balance between self-study, co-present and non-co-present. The virtual interactive ability (Swan, 2001) and the community facilitating capability (Garrison & Kanuka, 2004) contribute much to the effectiveness of the blended learning. Some research shows that blended learning has the potential to be more effective to enhance the learning outcomes than the face-to-face approach (Garrison & Kanuka, 2004; Hockly, 2015) and the fully online learning individually (Rovai & Jordan, 2004). A survey on learners’ perspectives on online learning shows the same result, indicating that the majority of students believe that they could be benefited most from a mix of online learning and the face-to-face approach (Dahlstrom, Brooks, & Bichsel, 2014).

The adjunct learning regards the network-based utilities as an auxiliary tool used to improve the teaching quality in a traditional class rather than an inseparable component of learning process (Harasim, 2000). Originated from e-mail and computer conferencing aiming at the expansion of class discussion (Quinn, Mehan, Levin, & Black, 1983), the adjunct learning is integrating all levels of educational activities, such as distributing instructional materials, assignments, administering tests and quizzes, or providing feedbacks (Harasim, 2000). The main feature that distinguishes the blended learning from the adjunct learning is the extent to which online technologies are embedded into the learning process. In blended learning, online activities constitute an indivisible part of the instruction and form a component of students’ learning achievements, whereas the online facilities in the adjunct learning are used as a means to facilitate regular teaching (DeNeui & Dodge, 2006; Harasim, 2000).

4.2 Based on learning experiences

In terms of learning experiences, online learning can be categorised into expository learning, active learning and interactive learning (Means, Toyama, Murphy, Bakia, & Jones, 2009). Expository learning is a mode where digital devices are used to transmit expository content, such as definitions and equations, to the students. This is a relatively passive learning mode in that students are expected to receive and reproduce the content being taught (Swaak, De Jong, & Van Joostingen, 2004). In contrast, active learning requires learners to explore knowledge or address problems through various inquiry-based manipulation of digital devices (Means et al., 2009). Students’ involvement and participation are the kernels of active learning (Prince, 2004). Students in higher education generally hold a very positive view of active learning (Lea, Stephenson, & Troy, 2003) due to their increased self-learning capability. Unlike the aforesaid two learning modes, interactive learning emphasises that knowledge is gained through inquiry-based collaborative interaction with other learners. In this mode, the teacher plays a role as a co-learner and a facilitator whereas technology as a medium for interactions (Means et al., 2009).

Online learning is an integrated activity which can help overcome isolation and separateness in the learning process (Lamy, 2013). In this respect, no matter what mode of online learning is adopted, a high level of learners’ participation and interaction are the goals of every above-mentioned mode (Sun, 2014). The relationship among the terms with a pedagogical feature is shown in Figure 2. The degree of integration of online delivery increases in the order of adjunct learning, blended learning, and fully online learning. Similarly, the degree of the learners’ participation increases in the order of
expository learning, interactive learning, and active learning. All forms of online learning achieve the effectiveness of online learning by improving learners’ participation and interaction in online learning.

5. Conclusion

This paper analysed the terms related to online learning from technological and pedagogical perspectives respectively. In the first category, the authors of this paper first studied the characteristics of the constituent parts of the technology-related online learning terms. In practical use, it is the first part which is related to technologies, that determines the scope and feature of each term. For this reason, in this paper, the technology-related terms are primarily examined through an online technological stance. After analysing ten online learning terms related to technology, the paper found that, despite the fact that the online-related learning terms had their specific definitions and different focuses, the use of internet in teaching and learning became one of their common characteristics. The wide application of online technologies and advanced electronic devices are continuing to blur the boundaries of these definitions. Online learning is more than using the internet as a medium, the whole learning process and learners’ contribution should be considered in online learning.

In the second category, different online learning terms were classified by using different pedagogical criteria. Based on the configuration of online delivery, online learning can be divided into fully online learning, blended learning and adjunct learning. Classified by the extent of learners’ participation, online learning can be categorised into expository learning, active learning, and interactive learning. Learners’ participation contributes much to the effectiveness of online learning. Although the degree of the integration of online delivery and the extent of learners’ participation vary in each classification, all forms of online learning aim to enhance learners’ participation and interaction by expanding the traditional learning boundaries.

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