Reflections on E-learning from a Communication Perspective

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Introduction

While there are many approaches for understanding the e-learning phenomenon, communications theory provides an important perspective for mapping out the nature of the communicative acts that take place in e-learning (Andrews & Haythornwaite, 2007, p. 24). This paper is based on the premise that "(t)eaching and learning is negotiation of meaning" (Brabazon, 2007, p. 101).

The collaborative–constructivist perspective puts communication and interaction at the centre of learning. This perspective argues for enabling the "construction of meaning and knowledge through shared dialogue and the confirmation of understanding through mutual sharing and testing of ideas in a collaborative environment" (Jones & Cook, 2006, p. 262). While the guiding principle of constructivism is that learning is a search for meaning, in e-learning the possibilities for being misunderstood increase in many more ways. As Zhang and Xun (2006, p. 99) put it, "misunderstanding and miscommunication are more likely to happen and are less detectable in an online environment".

Why is this so? How does occur it in the transactional process? Communication modelling offers a way to understand, describe, and scrutinise communication in the e-learning context.

Definition of communication and theoretical discussion

In the discipline of communication science, certain concepts are defined as being essential to the process of communication, and are inevitably present

no matter which kind of theoretical model or approach is used. This essential structure of communication is referred to as the "triptych of communication" (Van Schoor, 1979; 1986; Mersham & Skinner, 1999, p. 7). The main elements are commonly labelled *communicator, message,* and *recipient.* Communication is seen as a process of expression and interpretation. Understanding is transactional, occurring through an exchange of meaning via cultural and technical codes.

The model in Figure 1 illustrates the three central components of the process: communicator, message, and recipient; the transactional process of encoding and decoding; and a series of contexts.
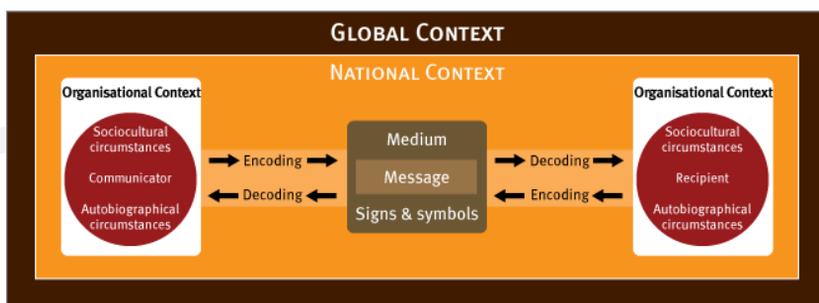

Figure 1 A graphical model of dialogical communication
Source: Mersham and Viviers, 2007

Concerns about terminology

The term *e-learning* itself suggests a biased view of education from the perspective of a dialogical communication model, because it comprises one letter that represents a property of technology (*e* for *electronic*) and the anticipated outcome (*learning*) for one participant in the interaction (Thompson 2007, p. 162).

The ubiquitous use of the term *learner-centred* as a quality indicator creates a distorted view of the negotiation of meaning. "In response to a perceived need to shift the focus from the instructor or the institution to the student, new terms have been coined that effectively eliminate one half of the social interaction formerly referred to as education" (Thompson, 2007, p. 162). Clearly, the missing half is the interaction between tutor/lecturer and learner, and this is a communication issue.

Substituting 'learning' for 'education' is happily uncontested within the call to democratise education by empowering students or learners. It has the sense

of an incantation about it: if you name the promise (learning), it is brought into being by 'linguistic fiat'. This promise falls into a wider, generally optimistic view of technology, and e-learning's ability to deliver a variety of astonishing results that are divorced from any need to understand how and why it works from a communication perspective (Mersham, 2008).

In distance learning scholarship, *distance* has always referred to both a physical space that needs to be bridged, and the psychological and cognitive distance that characterises educational activity. Saba argues that:

> [Physical] separation can be bridged by communication technology, a fact demonstrated by the teachers and students everywhere. But if students and teachers are separated by the total lack of dialog, as occurs in many classrooms across the country and around the world, bringing them together until they stand nose to nose will not offer a solution (2003, p. 17).

The focus on dialogue, a specific form of communication, is fundamental to understanding the broader challenges of education. E-educators claim to focus primarily on the pedagogy used with technology, yet the effect of the technology on the communication phenomenon is less considered. A key challenge for educators is to understand how communication takes place in various mediated forms, "because it is through these forms that we can see how they facilitate the different logics in terms of sensing, interpreting and reasoning" (Van Loon, 2008, p. 9).

As well as ensuring that dialogic communication takes place between tutor and learner, e-learning must develop learners' communication skills as they engage with fellow students in various fora. Communication skills are relevant for life and are transferable between jobs and careers, while much technical learning becomes obsolete in a relatively short time. Course designers and learning managers have largely ignored such realities. The continuing belief that communication skills can be 'picked up' along the way by teachers and students is erroneous. Students spend much more time presenting their own examples and 'monologuing' than engaging with the ideas of fellow students (Dysthe, 2002). It is commonly held that students will acquire team and group skills simply by completing group assignments. This is not so. Students need to study group interaction as a separate and pedagogically valid set of content before embarking on group assignments (Eunson, 2007, p. vi).

Various contexts of communication

Communication context describes the situation, setting, or environment within which the communication takes place. These circumstances influence the entire communication process (Dwyer, 1990; Mersham & Skinner, 1999). De Figueiredo and Afonso (2006) say:

> [In e-learning] the intensive use of technology as a mediator (besides the traditional mediation of language), the decisive importance of the social dimension, and the paradoxical absence of presence (when the social dimension is so critically important) make virtual settings much more sensitive to the interpretation of context (p. 4).

The communication discipline persistently refers to the effect of the contexts of communication: intrapersonal, interpersonal, small group, mass, and intercultural communication are commonly identified (De Vito, 2000; Trenholm, 2008; Mersham & Skinner, 1999; McMillan, 2006). The e-educator needs to be aware and sensitive to communicative context(s). For example, a learning management system (LMS), which is the 'medium' of exchange, presents opportunities to engage in all of the traditional contexts of communication—one-to-one and one-to-many, synchronous and asynchronous, in a flexible matrix of interaction—but certain encoding and decoding options are absent or limited as a result of the 'absence of presence' referred to above.

Missing codes of communication

While it is possible to engage in synchronous interpersonal and small-group communication through video conferencing, important meaning-generating, non-verbal communication codes such as gaze behaviour, kinesics, facial expression, gestures, proxemics, and posture (Mersham & Skinner, 1999, pp. 18–28) are only partly (or not at all) accessible to parties in the interaction. The importance of the social dimension and the paradoxical absence of physical presence ('proximity') replaced with variations of electronic presence, is frequently glossed over or ignored in e-learning pedagogy.

The problem of place

It is unnecessary to repeat here the numerous accounts of the world's ever-deepening love affair with technology in general (that is, all things *e*).

Techno-utopians at e-learning conferences de-legitimise older forms of correspondence or distance education by claiming that the convergence between telecommunications and computers represents a paradigm shift (Harasim, Hiltz, Teles, & Turoff, 1996). They suggest that 'distance is dead', implying that the physical place of educator and student alike matters little, and conveniently ignoring the cultural implications for communication of a sense of place (Mersham, 2008). Such 'paradigm shift' presentations, delivered in enthusiastic addresses crammed with invocations about empowerment and the impact of social media, are often simply about new software applications or programmes.

It has been argued that electronic communications obliterate our sense of place because they present information in a decontextualised fashion—as if it emerged from nowhere because social place is separated from physical place (Meyrowitz, 1985, p. 115). Place becomes devoid of culture; it no longer matters where one is. As a result, communication loses its historical sense, and becomes abstract and individuated (Van Loon, 2008, p. 46). According to Van Loon, this separation creates a crisis that extends to the personal level. Without place the individual finds it more difficult to attain a sense of integrity; the interpersonal responsibilities that go with a sense of place become loosened and disconnected from faces and from face-to-face encounters. In the interfaciality of electronic communications, participants suspend claims to 'authentic being' in favour of playful and performative assertions of the kind that are endemic in Second Life.

The communication scientist's dilemma

The rush of pronouncements by technological optimists is paralleled with those of technological pessimists who are suspicious of computer-mediated communication. We are "abandoning face-to-face interaction in favour of (an inauthentic) life lived in cyberspace" (Trenholm, 2008, p. 328). "The result of all of this connectivity is that we may be witnessing and hastening the end of real human communication" (Sachs, 2007, n.p.). Communication scholars, grounded in the paradigms of the humanities, are concerned with these important questions. What is 'real' and 'authentic' communication in the context of e-learning?

Throughout the discourse of communication studies one finds reference to the ideal type of communication as interpersonal, two-way, face-to-face, dialogic, and synchronous (Van Schoor, 1979; 1986). Interpersonal communication is typically understood as being face-to-face, direct persona-to-persona

communication, unassisted, uninterrupted, and unmediated by media technologies (O'Sullivan, Hartley, Montgomery, & Fiske, 1994). Interpersonal communication occupies "a central position" in the communication panoply of contexts (Tyler, Kossan, & Ryan, 2002, p. 184) and "is arguably the most important form of communication that humans undertake" (Trenholm, 2008, p. 140). Historically, people have sought to transact face to face, asserting the authenticity and richness of non-verbal and visual cues (Burgoon, 1996; Jones & LeBaron, 2002; Burgoon et al., 2002). For example, what lecturer in communication has not referred to the oft-cited proposition that in ideal face-to-face communications, the words we speak actually account for less than 10 percent of our meaning, non-verbal cues for more than half, and that other meta-linguistic codes (such as tone of voice) communicate the rest? To what extent can one talk of interpersonal communication in the e-learning context if it is not face to face? Is interpersonal communication, for so long held up as the ideal type of dialogic, synchronous communication, really the philosophical benchmark we have made it out to be?

We cannot easily transpose such ideal types into the electronic environment because our modelling supposes that many of the codes of interpersonal, face-to-face communication (non-verbal, gestural, haptic, and so on) are not present in the online environment. Hallowell (1999, p. 63) states that "(t)he electronic world, while useful in many respects, is not an adequate substitute for the world of human contact" and Weaver (1996, p. 19) warns that "(e)liminating direct contact in interpersonal communication almost has the effect of taking the personal out of interpersonal communication".

Traditionally, interpersonal communication involves people (such as students and teachers) meeting physically in a real space (such as a classroom or lecture hall) at predetermined times. Engagement in e-learning occurs in cyber space and time. No physical presences or spaces are necessary, and the interaction is computer mediated rather than interpersonally managed (Witt & Wheeless, 1999).

Hallowell (1999) argues strongly for the need for physical proximity in the teaching and learning environment. He introduces the concept of *face time*, which he defines as the physical interaction of people in one-on-one and/or small-group scenarios. He calls this "an authentic psychological encounter that can happen only when two people share the same physical space" (1999, p. 59). While physical presence is a necessary condition for teaching and learning, engagement through emotional and intellectual attention is also a prerequisite. Hallowell calls this "the human moment" (1999, p. 58). As open and distance learning increases in a globally competitive environment,

removal of the human moment becomes more common.

In education, psychology, and communication, numerous researchers including Dewey (1964), Rogers (1961; 1980), Freire (1970), and Arnett (1992) found that being involved in the human moment and actively participating in the transaction strengthens and harmonises cognitive, affective, and behavioural understanding. Reasons for this improved understanding range from the heightened immediacy of physical engagement and the relevance of 'voice' to experiential, participative, hands-on criteria required for practical skills development (Boud, Cohen, & Walker, 1993; Grant, 1999).

Ryan (1999, p. 93) suggests that skills development is highly dependent on participants and tutors being in physical proximity. "New communication technologies tend to filter out important contextual and social cues" resulting in an "impoverished communication environment" which could "degrade the quality of communication, impair working relationships, and undermine task performance compared to face-to-face interaction unless communicators are able to compensate for such losses" (Burgoon et al., 2002, p. 658).

Proximity, physiology, and communication

Burgoon et al. (2002, p. 673) found that the "proxemic, environmental and vocalic nonverbal cues" available in face-to-face communication result in heightened empathy, involvement, trust, and morale, and they questioned how successfully these outcomes could be achieved online or over distance.

Other codes that are absent from open and distance learning (apart from non-verbal visual codes), such as tactile and olfactory cues, are held by some to be very important in communication. While studies of non-verbal communication and body language are plentiful (for example, Gumperz, 1992; Burgoon, 1996; and Burgoon et al., 2002), much less attention is paid to the role of chemical and hormonal neurotransmitters in communication.

The energy levels and adrenaline rush of active involvement are often subjectively evident in interpersonal communication, giving rise to heightened states of motivation and well-being. Studies suggest that physiological and chemical processes are triggered in physical interpersonal communication. It is known that lack of physical human contact damages a person's emotional health and sense of identity. Socially isolated people are less emotionally balanced and have lower immune-system responsiveness and lowered T-cell counts (Taylor, 1994; Steer, 2000; Langer, 1989; Trethewey,

2001). Hallowell (1999) suggests that isolation resulting from online learning might have the same consequences.

Human-to-human contact reduces the blood levels of the stress hormones epinephrine, norepinephrine, and cortisol. Hormones such as oxytocin and vasopressin promote bonding and trust (Hallowell, 1999). These hormone levels rise naturally when people are physically near to one another but are suppressed when people are physically separated. Hallowell suggests that this is one reason why, for example, people find it much "easier to deal harshly with someone via e-mail than in person" (1999, p. 63). Other people's emotions (such as fear, contentment and/or sexuality) may be experienced and communicated by smell. Memory, too, is often associated with smell (Jacob, 2007).

The communicative and territorial influence of the role of the vomeronasal organ has recently become an area of research (Taylor, 1994). Identified anatomically as a tympanic nerve, the vomeronasal organ serves as a sensory conduit which seemingly links other sensory organs communicatively—bringing this canal, cartilage, plexus, nerve, or organ (it is known by all of these names) into chemical concert. Those patients who have a damaged organ, or have had it removed, seem to lose their ability to judge others astutely. They appear gullible and lose their intuitive ability to 'size up' a situation (Grant, 2005, p. 98).

The role of this organ might explain the source of expressions such as having a 'nose for trouble', 'smelling a rat', or experiencing 'burning ears'. It may also explain feelings of instant attraction or repulsion when meeting someone for the first time (Grant, 2005, p. 98). Grant therefore proposes that exposure to both computer-mediated communication and face-to-face contact contexts will provide the best possible outcomes (2005, p. 103).

Other scholars suggest that the debate should focus on a wider definition of learning outcomes. Farber (1998) finds that distance learning has enhanced testable, quantifiable knowledge outcomes but claims that although this is the sole standard of success in distance education, it is not the sole point of education. Lievrouw (2001, p. 6) contends that education encompasses "the life experiences and socialization that result from personal involvement with the campus setting". Farber (1998, p. 797) claims that competence must be complemented by education. "'If we want no more than measurable

competence, it comes fairly cheap. But if we want education ... we need to stop pretending that we can deliver the university experience on a screen."

Farber (1998) asserts that:

> university educated people differ from other groups in terms of their cultural and political styles ... they tend to be less authoritarian and dogmatic, are more flexible and tolerant of ambiguity, and show greater preferences for abstract, reflective thought, and rational, critical problem solving ... The greatest influence on such attitudes and orientations is exposure to, and interaction with, other students (p. 797).

The circumstances (communicator and recipient)

Mersham, Rensburg, and Skinner (1995, p. 5) argue strongly for the recognition of autobiographical and sociocultural circumstances in their model of communication. In spite of the commonalities that link us into the social structure, no two lives are ever the same in terms of individual experiences, expertise, and world view. "It is these personal circumstances that warn the communicator to remain constantly aware of the differences in life experiences of the various players in the communication experience" (Mersham et al., 1995, p. 57).

Autobiographical and sociocultural circumstances of the educator

What are the circumstances of academic communicators in e-learning? Kanwar (2007) argues that they must revise many of their existing teaching practices. Rather than delivering instruction, they should provide academic facilitation. The e-learning academic will be a sound scholar, a skilled communicator, a versatile instructional designer, a computer expert, and an effective mentor/guide. How many academics can claim that they currently meet this description? A social constructivist model emphasises the importance of *networked connectivism*–the collaboration of learners. This is perhaps the greatest challenge that academics face in e-learning. They have to be able to facilitate communication, not only between themselves and learners, but within the group of learners. This is clearly quite different from assigning a postgraduate student to conduct tutorials.

Hofmann (2003a; 2003b) argues that the online educator must understand the online learner's experience by having themselves participated in

asynchronous, synchronous, and blended programmes—so they understand the pedagogy. This understanding requires undertaking a detailed review of the programme design and strategies, and working with instructional designers to answer questions and clarify misunderstandings. Academics will probably require training or retraining in the technology.

Not all academics want to be online facilitators. Administrators must understand that facilitators need to be willing players and believe in the effectiveness of online learning.

Finally, the online facilitator's administration needs to be supportive. The facilitator's preparation time may exceed that required for contact environments. Administrators need to realise that preparing to teach online takes time, and they must balance workloads accordingly. As well as participating in live online events, facilitators need to be able to communicate with participants throughout the course. They need time to answer questions, respond to posts, and review assignments. For every hour of synchronous facilitation in a blended programme, there may be many more hours of asynchronous facilitation and administration.

Clearly, the educator needs to be sensitive to their own sociocultural circumstances and the worldview of their own cultural and social life. For example, for many distance and e-learning students, English is a second language. This is particularly likely if the institution offers courses to students who live in different countries with different cultural norms and official languages. New Zealand is also increasingly characterised by ethnic and cultural diversity.

Autobiographical and sociocultural circumstances of learners

Motivation, self-discipline, self-organisation, and time management are probably the most commonly identified characteristics of successful e-learners (Hofmann (2003a; 2003b; Petrova & Sinclair, 2008, p. 25; Blandin, 2006, p. 72).

The demographics and psychographics of learners who engage in fully online programmes vary from those in contact programmes. Online learners are more likely to be working full or part time, be mature-age learners, and come from a wider range of socio-economic groups. A new online learner is often a person of working age who needs continuing professional development combined with full-time employment. They may have little time for

synchronous instruction. The number of such academic customers is rising in both developed and developing countries.

The loss of important contextual information and non-verbal cues, so indispensable to proponents of face-to-face dialogical communication, may be viewed as an advantage by some students if it blurs social class and obscures race, gender, and age (Aithaus, 1997). Less-confident students can participate in a kind of rhetorical safe-house where they feel comfortable asking questions online and in private. This opportunity demonstrates the flexibility that e-learning provides in meeting the unique sociocultural and individual circumstances of each participant.

Learners will increasingly come from a more diverse set of sociocultural circumstances—at the national level in New Zealand, and at the international level when institutions offer courses to residents of other countries. Not only are there greater challenges at the level of the prime code of communication (written and spoken language), but also in the many protocols of cultural codes of engagement.

The codes

In the model (see Figure 1), where coding is indicated, two types of communication codes—cultural and technical—can be distinguished. Technical codes are important. For example, two of the most common technical decoding issues that discourage e-learners are low bandwidth and incorrect computer configurations (Munzer, 2002). Content created for high bandwidth is often unsuitable for recipients using dialup access. Incorrect browser and PC settings are another common cause of e-learner defection.

Many online courses use Java, JavaScript, and browser plug-ins. For example, courses using the chat function in the Moodle course management system must have Java embedded. Java requires the learner's workstation to have Java Virtual Machine (JVM), which is usually included in the web browser installation; however, the version may be outdated and cause errors that are difficult to track. JavaScript is also included in the browser installation and, like Java, has different versions and types. Microsoft and Netscape both have their own versions of JavaScript. For example, a course using Microsoft's JavaScript version 1.2 will misbehave when launched from a browser that supports only version 1.1. The errors generated by mismatched versions are elusive and difficult to troubleshoot.

When a course contains audio, video, or rich simulations that the web browser isn't programmed to handle, plug-ins step in to deliver the media. The most common of these add-ons to the web browser are Macromedia's Flash Player and Microsoft's Media Player. If a course is programmed properly, it will recognise when the necessary plug-in is missing and ask the user to visit the vendor's website to download and install the proper software.

But including the code to find and install a plug-in is not always the ideal solution. If learners go to the vendor's site to install the plug-in, they may be forced to leave the course and may have to restart their computer to install the plug-in. They may exit the course improperly, losing course bookmarks and causing tracking problems.

Cultural codes are concerned with natural language in all its cultural forms— written, spoken, visual, and so on. Language consists of signs and symbols arranged into codes according to the rules that govern their use; for example, written letters, words, and grammatical construction. This area is a locus of interest for communicologists studying e-learning. Cross-cultural and transnational communication has opened up an array of coding and decoding challenges for e-learning as institutions increasingly realise that learners come from different cultures, political systems and lifeworlds, and that these differences have profound effects on how they interpret course material. Moves toward fit-for-purpose industrial systems that employ transferable learning objects may lead to incorrect assumptions about cultural fit and authenticity.

Technical coding can help practitioners to take cultural differences into account. For example, the New Zealand Open Source Virtual Learning Environment project has developed Māori, Tongan, and Samoan language packs for Moodle.

The medium

The choice of medium or LMS is a major consideration in e-learning. This software facilitates management of educational courses, including course development, presentation, and administration. The best-known examples of LMSs include Moodle (2001), Blackboard, (1997) and WebCT (1997).

E-learning pedagogy exists in direct and mutually dependent relationships with the technologies, supporting and allowing certain activities while preventing others. This relationship is referred to as the affordance of the

technology (Gibson, 1979). It is not solely the property of the technology, but rather the way the application is used in real contexts by both experts and novices, that defines its affordance (Anderson, 2007, p. 2). Social, political, personal, economic, and other contexts constrain and define the ways in which the technology is actually used. If any learning is to be gained at all, it will occur through message making. Teachers and students do this together; creating meanings in what Arnett (1992) calls "dialogic education".

As Postman and Weingartner (1969) suggest:

> As soon as students realize that their lessons are about their meanings, learning is no longer a contest between them and something outside of them .... It makes both possible and acceptable a plurality of meanings .... And this is the basis of the process of learning how to learn, how to deal with the otherwise 'meaningless,' how to cope with change that requires new meanings to be made (p. 97).

According to Anderson (2005), the greatest challenge and opportunity facing e-learning is to put into practice the e-pedagogy that relates to social interaction and collaboration. His definition acknowledges that a great deal of learning can be social activity, but does not exclude individual learning or learning that extends beyond the cohort and, especially, face-to-face groups. Rather, the definition focuses on the lifelong learning needs of users to control, in various dimensions, their learning—while not excluding the opportunity to meet with, share, and develop knowledge and understanding in many types of social context. Levin (2004) describes such affordances as new patterns of interconnection in the educative process.

E-learning varies the relationship among the elements of speaker/writer, audience, and the message content. For example, a single teacher, lecturer, or course tutor may address a whole class of e-learners at one time; at other times, the communication may be one-to-one; and at yet other times, a single e-learner may send a message to the class as a whole on a bulletin board or as part of an ongoing dialogue. In some respects these patterns of communication are no different from their face-to-face versions, but the asynchrony potentially available to e-learners makes for a more reflective dynamic. Critically, from the recipient's point of view in communication theory, the reader/student/e-learner is more in control of the rhetorical process. The technology provides opportunities to manoeuvre that are not available in non-mediated communication.

However, communication opportunities in e-learning are under-used and ineffective when they are grafted onto courses that are rooted in pedagogic models and practices with which they are not aligned. For example, reports state that communications facilities were little used when added to existing distance education courses and were unlikely to achieve worthwhile teaching and learning outcomes (Erlich, Erlich-Philip & Gal-Ezer, 2005; Fung, 2004; Kear, 2004).

If a course is designed with all the necessary materials provided for learners, and with assessment that rewards only the outputs from each individual student, there is little room for exploiting the pedagogic potential of communications media. Similarly, if a course package provides everything the students need for their assessment, learners see no benefit from consulting external sources of information (Kirkwood, 2006), and they will ignore collaborative–constructivist ideals.

Conversely, if a course is conceived and designed on the basis of a model that requires communication with other learners, and using online resources, learners will engage actively with these activities (Kirkwood & Price, 2008). Integrated course design of this kind requires the communication rationale to be made explicit (not simply assumed to be self-evident), and the expectations of learners to be managed appropriately.

In the organisational context, choice of medium is important because an LMS locks the institution into a software platform and there are no commonly used standards that define how the learner's performance within a course should be transferred from one LMS to another. Increasingly, organisations are agreeing to share common platforms, particularly Moodle, that use open standards. These standards create a base for long-term interoperability and cost benefits that accrue from membership of a global community of educators involved in its development. Licensing and technical support for proprietary platforms have proved to be more costly and less flexible for institutional modification and development.

Conclusion

Teaching and learning is the negotiation of meaning through communication. The pedagogy of e-learning requires not only communication between teacher and learner, but also facilitation of communication among learners, and between learners and other knowledge sources and stakeholders. Contexts of communication and their attendant coding and decoding

possibilities do not necessarily occur in e-learning in the same way as they do in traditional face-to-face and distance (correspondence) environments.

Whatever name it takes—open learning, flexible learning, e-learning, e-education, or blended learning—it is clear that communication scientists and e-educators will have to consider their customary approaches to the understanding of communication and to try to answer the question: "How does the process of mediation shape our lived teaching and learning experiences?"

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