Review of *Disruptive technologies and the language classroom: A complex systems theory approach*

Leonardo A. Guédez, Michigan State University

Disruptive technologies and the language classroom: A complex systems theory approach
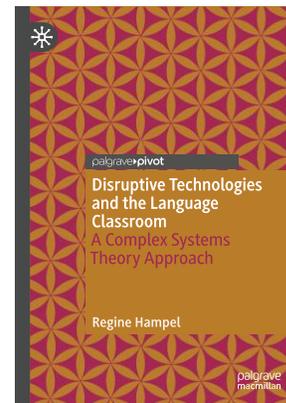
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In *Disruptive Technologies and the Language Classroom: A Complex Systems Theory Approach*, the author Regine Hampel proposes that new technologies are radically transforming the way second and foreign language learners learn in the classroom. She could not be more correct about this, especially given the recent drastic uptake of technology in L2 learning classrooms in the age of COVID-19, an environment radically transformed to hybrid or fully online learning in many elementary, high school, and college-level learning contexts around the world. Published in November 2019, shortly before the onset of the global pandemic, Hampel's book is timely and foretelling. As she wrote on page 72, multimodal tools and environments "have the potential to augment the traditional classroom in a blended format or they can replace it." With the advent of COVID-19, the creation and delivery of content associated with traditional classrooms was indeed replaced with digitally based modes of interaction, within which new protocols and dynamics emerged. The complex dynamic systems approach adopted in this book represents a valuable framework for understanding current changes in the process of language learning and teaching.

The book consists of seven chapters that cover topics ranging from theoretical foundations to concrete social implications of technological disruption in the context of computer-assisted language learning. Chapter 1 introduces the main points of technological disruption and language learning and presents the framework adopted in the book, which consists of an intersection among *dynamic systems theory*, *sociocultural theory*, and the *theory of multimodality*. To ensure that readers of this review are up-to-date on what Hampel means by these terms, I explain them briefly here by summarizing their definitions. First, dynamic systems theory (DST), according to Larsen-Freeman (as cited in Hampel), is a theory that attempts to better understand phenomena (such as social interaction) in which there are multiple factors that interact with each other and which eventually give rise to new, emergent phenomena (such as language learning) within a given group or context. Second, sociocultural theory refers to the analytical approach which holds that the development of human cognition is fundamentally social. The sociocultural approach was developed by Lev Vygotsky (1978) who applied Marxist ideas to the scientific study of psychological processes. To Vygotsky, development constitutes both the interaction of the individual with their environment and people in that environment (through the use of tools such as language) *and* the internal cognitive changes that this interaction causes; this is known as a *dialectical* (or mutual) relationship in Marxist terms. Finally, the theory of multimodality is a theory that maintains that languages are systems of

creative activity, or of meaning potential, and that the ways, or *modes*, in which meaning is created are numerous, including gestures, facial expressions, voice quality, and proxemics. Hampel explains that it is possible to use a convergence of these three theories in order to better understand how language learning is changing given the periods of disruption that new technologies give rise to. After laying the foundations of these areas of inquiry that are important for foreign and second language pedagogy, Hampel moves on to the aims of this book. Two key questions are posed in Chapter 1 and serve as the starting point from which the author elaborates her discussion on disruptive technologies. The first question, originally posed by Roger Säljö in 1999, asks, rather rhetorically, whether language learning and teaching are fundamentally changing due to the new digital technologies. The second, follow-up question is what this change means for learners, teachers, and researchers. These questions are evaluated throughout the book and are especially addressed in Chapter 7, which I will discuss later below.

In Chapter 2, Hampel traces how Computer-Assisted Language Learning (CALL) has been explored so far. She discusses that the theoretical approaches to CALL have mainly originated from face-to-face pedagogical principles; therefore, research has not covered enough ground, she opines, to account for the type of change that takes place in interaction when digital technologies are used. Subsequently, the author discusses how CALL can be analyzed from the overarching perspective of complex systems theory, and also draws on ideas from sociocultural theory and the multimodal theory of communication. One important aspect of language that is pointed out here is the notion of constant change at varying degrees and levels. From a complex systems point of view, language is paradoxically both a structure and a process; it is also fundamentally social (dialogic).

Chapter 3 focuses on summarizing the evolution of communication and portraying human language as a technology in itself. The chapter presents an overview of the history of human communication from the early and continuing uses of body gestures to the current uses of digital media. The metaphor of language as a tool, which is drawn from Vygotsky, is particularly important here. This metaphor postulates that human activity is fundamentally based on the development of "tools" that mediate human communicative activity. Vygotsky (1978) explicitly asked himself about the relationship between the use of human tools and the development of speech, and he was particularly interested in how humans use language also as a "tool" to solve problems. In his terms, language, particularly written language, constitutes "a critical turning-point in the entire cultural development of the child" (p. 106). Hampel points to the notion of language as a technological tool and other modes of meaning making beyond the dichotomies of speech and writing. Ultimately, she advocates for an intersection of theories that conceives language and other technologies as potential tools for redefining the way we communicate and learn.

Chapter 4 constitutes the central point from which Hampel makes her case that traditional concepts of classrooms are being challenged and that digital technologies have paved the way for new multimodal forms of interaction. In this comprehensive chapter, she discusses the notion of face-to-face interaction as the fundamental form of discourse and how it is characterized by a number of fundamental dimensions that she calls *attractors*. She defines these attractors on page 49 (i.e., "modes and behaviours that the (classroom) system prefers"). Using a complex systems conceptualization, Hampel then explains how digital technologies have been disrupting language learning and teaching in relation to each of these attractors.

Chapter 5 is dedicated to discussing a long series of "what if" questions about language learning and teaching originally posed by Diane Larsen-Freeman and Lynn Cameron in 2008. These original questions brought the theory of complex dynamic systems to the fields of second language acquisition and applied linguistics, but the questions themselves have never been adequately answered, Hampel opines. Hampel reiterates these questions: "What if we truly understand that teaching does not cause learning?," "What if learning is viewed as an open, continually evolving, system rather than a closed one?," "What if learning a language is not only about learning conventions but also about innovation and creation?," and "What if dichotomies that have been axiomatic in certain linguistic theories obscure insights into the nature of language and its learning rather than facilitate them?" (p. 102). These "what if" questions are related to various notions of language, language teaching, and language learning; they are thought-provoking

questions intended to challenge established epistemological paradigms, particularly post-positivist views of dichotomous thinking and causal inference. Therefore, throughout this chapter, Hampel proposes answers to these questions given the disruption of digital technologies in language learning and teaching. Some of the notions that are delightfully highlighted in this chapter are the fuzziness of the distinction between spoken and written language (which overall challenges the notion in applied linguistics and language testing that these are distinct skills and, instead, promotes an *integrated-skills* view of them), the importance of learners' individual needs, and the predominance of meaning over form. In response to the question "What if we truly understand that teaching does not cause learning?," Hampel paraphrases Larsen-Freeman and Cameron's (2008) claim that there might not be a completely directional link between teaching and learning and that, instead, the focus should be on understanding the affordances (or circumstances) and tools that provide various opportunities for learning. As for the response to the question "What if dichotomies that have been axiomatic in certain linguistic theories obscure insights into the nature of language and its learning rather than facilitate them?," Hampel suggests challenging the established dualistic thinking that makes a distinction between, for example, the classroom and the real world or between spoken language and written language. From the point of view of DST, the classroom is a system that is embedded within another system (i.e., the real world); as for the distinction between speech and writing, this dichotomy is being challenged given that new technologies have allowed for new registers and new communication means to emerge. Answers such as these actually open more doors for future inquiry and research, which is most likely what Hampel intended: The book is like a delightful Pandora's box, begging applied linguistics researchers to be grounded and real and to not be overly blindsided by empirical research outcomes that may gloss over the true nuances and intricacies (as well as the beautiful chaos and messiness) inherent in classroom language learning.

In Chapter 6, the author advocates for ways of integrating digital technologies into language learning and teaching as a response to the challenges that have been posed within traditional classroom models. The three main issues under discussion here are (a) the process of change that language teaching is going through, (b) the need for teachers to acquire the necessary skills in order to effectively help their learners, and (c) the social implications that emerge from analyzing CALL from a dynamic systems perspective.

Chapter 7 is dedicated to the role of theory in CALL and how the process of disruption in language learning and teaching can be explained through the lens of complex systems theory. Subsequently, the chapter brings back Roger Säljö's (1999) question about whether digital technologies are transforming the way we learn in the ways we expected them to. Hampel continues to discuss notions of *phase shift* (which she describes as a key historical milestone that reshapes the way things are done, such as when the press was invented or when the Internet was first introduced), new meaning-making patterns of *intersemiotic relationships* (which, as Hampel explains, is the conjunction of multiple modes of interaction such as speech, text, and images to accomplish a given communicative purpose), and a shift away from the physical classroom to an online environment. The author concludes convincingly that, indeed, digital technologies are transforming the way we learn.

Hampel's book is a welcome challenge for teachers and researchers in the field to remember that the main goal for language teachers is to get students to participate in social interaction, no matter what the platform for that social interaction is. The second goal of language teachers today, especially those teaching entirely online, is to use digital tools strategically in order to create opportunities for the interactions that students need in the real (online and *not* online) world. Digital technologies should not reduce students' interaction opportunities; instead, they should only increase and diversify them in beneficial ways. Hampel asks applied linguists and CALL researchers to explore whether digital technologies move language learning and teaching to positive and novel, pro-communicative grounds. She reminds researchers and teachers that it is not necessary for everyone to learn equally from each digital task, but rather that, collectively, all tasks come together to allow all learners a maximally beneficial, long-term space for developing their humanly-interconnected, translingual, and transnational lives. This book is a thought-provoking joy to read. In particular, it is recommended for language teachers and researchers who will move CALL forward in the years to come. Readers should be aware, however, that the book assumes a good level of general knowledge

about CALL and learning theories. Thus, this book would be particularly beneficial for graduate students in a course on L2 learning theories or in a practical CALL course that additionally investigates the support for digital technologies as mediums for the practice of real-life, meaningful communication and interactions. Hampel has ensured, in a good way, that readers will be "disrupted" in their thinking about technologies: The book is thought-provoking, thorough, and guaranteed to spur discussions on CALL. It is also expected that the book will help develop and grow the theories that push CALL forward.

References

Larsen-Freeman, D., & Cameron, L. (2008). *Complex systems and applied linguistics*. Oxford University Press.

Säljö, R. (1999). Learning as the use of tools: A sociocultural perspective on the human-technology link. In K. Littleton & P. Light (Eds.), *Learning with computers: Analysing productive interaction* (pp. 144–161). Routledge.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

About the Author

Leonardo A. Guédez is a first-year Ph.D. student in the Second Language Studies Program at Michigan State University. His research interests include quantitative corpus linguistics, learner corpus research, and second language psycholinguistics in English and Spanish.

E-mail: guedezle@msu.edu