

Chapter 10

Imagined Communities: Overcoming the Constraints on Big Classes in Brazil

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1. Context

Foreign language teaching (FLT) in a country the size of Brazil is not an easy task due to serious imbalances in regional development, inequalities in income distribution, and differences in educational quality. Brazil faces several other problems that may also serve as constraints to FLT. For example, some Brazilian teacher education programs do not provide prospective language teachers with the necessary communicative competence in the target language. In addition, one can note inefficient syllabi, poor pedagogical materials, limited hardware and software, and lack of contact with native or proficient speakers. One key problem is that syllabi seldom offer students opportunities for real experiences with the target language. One of the Brazilian narrators in the AMFALE¹ project synthesizes what most students say about learning English in high school, declaring,

Every year the same subjects were taught to us, such as verb to be, negative forms, interrogative forms, etc.

Three narrators from Japan have similar complaints about their English classes:

Lessons were mainly to read a textbook and translate it into Japanese.

I memorized sentences and paragraphs and even whole stories from the textbook, because my teacher said that to memorize them was a good way to master English grammar.

I had no communication classes but only grammar ones.

Another report from Finland also registers negative memories, stating,

I don't remember too many positive things of my English learning history. English learning at school was about grammar and vocabulary and about

tests and external evaluation. At school there was hardly any talking done and when we did speak English at English classes it was often criticised by the teacher or peers.

This problem seems common throughout FLT. Another common problem, also seen in Brazil, is the lack of small classes in private or public school (from elementary schools to universities). The number of students per class tends to range from 30 to 90, even in expensive private schools.

As in many other countries, Brazil has many constraints on the use of technology in language teaching; however, many of these constraints can be avoided or overcome. For example, there are effective solutions for students in large classes. On reading additional narratives in the AMFALE corpus, one can see that real experiences, those that involve language in use in songs, movies, magazines, and so on, are the ones that help learners develop second language proficiency. Language learners who do not belong to English-speaking communities or do not have face-to-face encounters with English speakers can listen to CDs, watch videos and TV, and read magazines. These learners seem to create imagined communities as defined by Anderson (2006). Anderson proposes the substitution of the concept of nation for imagined communities and explains that a nation is imagined “because the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion” (p. 6). Although the concept was not intended for language learners, it is perfectly suitable for our understanding of what happens in several English language teaching contexts. These imagined communities, represented in the learners’ minds by singers and their songs, actors and their movies, and characters and their television shows, provide the energy that makes learning systems evolve. The imagined communities offer learners the input they need to learn the language, especially when language teaching in big classes extends no further than noncontextualized grammar items and useless translations.

In this light and drawing on chaos and complexity theories, the aim of this chapter is threefold: (a) to argue that despite limited technology, teachers can still teach online with free resources available on the net; (b) to show that a decentralized collaborative instructional design may promote opportunities for interaction and construction of meaning in classes with a large number of students; and (c) to present empirical evidence of how learners can contribute to grander collective possibilities by dealing with technological constraints dictated by the context. To accomplish these goals, we will describe educational experiences regarding the use of technology at a university in Brazil with emphasis on an empirical study of autonomous learning communities online (Braga, 2007).

2. Background

2.1 Complexity

We believe that complexity theory can shed light on the object of our analysis and help us understand how the agents in big classes overcome the problems caused

by limited technologies. Initially arising from the natural sciences, complexity theory has been gaining ground in the human and social sciences. An ever-increasing number of articles in the area of applied linguistics (e.g., Braga, 2007; Cameron, 1999; Finch, 2002; Larsen-Freeman, 1997, 2000, 2006; Martins, 2008; Paiva, 2002, 2006a, 2006b; Parreiras, 2005); Silva, 2008) have sought to use complexity to analyze phenomena such as interlanguage, individual differences, and autonomy as well as the language learning classroom in general. These works recognize that complexity theory is a powerful alternative to linear and reductionist approaches; it is a new view that contemplates the relations among agents and the patterns that emerge from these relations.

The literature on complex systems has identified several necessary qualities for a phenomenon to be classified as complex. The discussion here will focus on dynamism, self-organization, adaptability, fractality, and emergence—qualities frequently present in phenomena such as language acquisition, language classrooms, and online learning environments.

According to Waldrop (1992), a complex system consists of independent agents, any element or factor that contributes to the evolution of the system, that interact with one another in many different ways. A **dynamic** system continuously changes over time. Nothing in the system is fixed, and the network of agents integrated into a dynamic whole also relies on the capacity to adapt its behavior to possible changes in the environment, conferring upon the system an **adaptive** character. A complex system is also capable of natural selection and **self-organization**. As Palazzo (2004) notes, “The organization emerges, spontaneously, from the disorder and does not appear to be guided by known laws of physics. In some way, the order emerges from multiple interactions among the component units” (p. 4). Another property of complex systems is **fractality**, which means that the system exhibits similar behaviors at different time scales. A fundamental characteristic of a complex system also arises from the interaction of local agents. When agents interact, something new and different may result, or something that is more than the sum of its parts arises; this is a consistent pattern commonly called **emergence**. In addition to the properties of complex systems, some conditions are considered necessary for complex emergence (Davis & Sumara, 2006; Davis & Simmt, 2003). These conditions include internal diversity, redundancy, neighbor interaction, and decentralized control.

In educational contexts, **diversity**, the source of intelligence of the system, addresses the value of having different learners and teachers in a class (van Lier, 2004). The internal diversity manifested in the system, such as that produced by peers of different competences, can provide further incentive toward the capacity of a learning community. In formal learning settings, **redundancy** refers to the communalities of its agents, such as language, shared responsibilities, and similar social status. Redundancy enables interactions among agents because it compensates for the failings of others. According to Davis and Sumara (2006, p. 139), “the vibrancy of complex unities arises in the mix of its redundant and its diverse elements - or, in systemic terms, the sources of its stability and creativity.”

As for **neighbor interaction**, Davis and Sumara (2006, p. 142) argue that “agents of a system must be able to affect one another’s activities” and must communicate as they come together in a grander unity. Moreover, neighbor interaction contributes to the emergence of collective possibilities.

Finally, **decentralized control** is at the same time both a property and a condition in that a system evolves because decentralization allows for neighboring interaction. The distribution of control may be considered a condition that positively influences learners’ educational experience since it fosters neighbor communication as well as the shared construction of meaning.

Bearing all these characteristics in mind, these elements and their dynamic interaction can help to demonstrate the complexity of online educational experiences. In short, from the interaction of several elements—be they technological or pedagogical—emerge solutions or constraints that affect and are affected by the context in which they are nested.

2.1. The Importance of Technology and Big Classes

Complex systems are open; that is, they are far from equilibrium because they are always changing. Language education, understood as a complex system, is open to innovations such as new technologies. In a metaphorical way, innovations can be considered as a kind of energy that moves the system to different routes. To emphasize this point when reading the AMFALE language learning narratives, one is struck by the repeated reference to technology in foreign language learning. What is amazing in classroom contexts is that some technological artifacts have been fully integrated into FLT (e.g., pens, blackboard, books, dictionaries, and recorded material), but others have not reached “the stage when a technology is invisible, hardly even recognized as a technology, taken for granted in everyday life” (Bax, 2003, p. 23).

Computers have not been normalized thus far and, according to Bax (2003), use of the acronym *CALL* seems to reinforce this assertion. He says that “we do not speak of PALL (Pen Assisted Language Learning) or of BALL (Book Assisted Language Learning) because those two technologies are completely integrated into education, but CALL has not yet reached that normalised stage” (p. 23). Computers and the internet have, however, brought together all the communication media known to date (e.g., sound, image, text, and video) and several information artifacts (e.g., typewriter, tape recorder, slide projector, telephone, telegraph, fax machine, press, databanks, directories, museums, newspapers, academic journals, and libraries). Moreover, it has offered new forms of interaction, such as chat, email, and social networking sites (e.g., Facebook, Orkut, Twitter). In big classes, the internet and its asynchronous tools have opened opportunities for more interaction. Learners no longer need to wait for their turn to participate. They now have the chance to interact with real speakers and to be in contact with most of the cultural production in foreign languages. Nevertheless, limited access to technology is still a problem.

Currently, the internet has helped to bridge the gap among countries and represented a turn towards real experiences in foreign language learning. Even so, it is still searching for its niche in schools. Those who accept the challenge of using technology must still deal with big classes and limited technology. As Paiva (2008, p. 6) puts it, "When a new element enters the system it causes some turbulence and disorganizes the system, but out of disorder or chaos, a new order is achieved and the system self-organizes." In the next section, we discuss some solutions or new orders that have emerged to solve our problems with big classes.

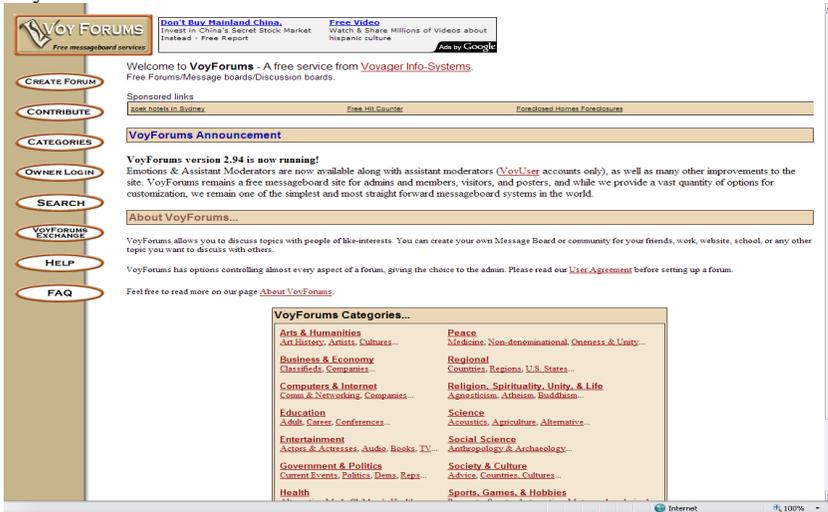
3. Solutions for Big Classes and Limited Technology

Big classes have always been a problem in our FLT context. Since 1997, when our first computer lab was set up, we have been using email, threaded discussion forums, chat, and various web sites for English classes and teacher education activities, but students have had to share computers, which is a demotivating factor. Technology has changed and so have the problems. In 1997, for example, we had no technical support and did not know how to create a discussion list, so we typed all the students' addresses and asked the participants to use the "reply all" button to create one-to-all interactions. The solution did not solve the whole problem because some students failed to receive part of the messages due to absentminded classmates who would select "reply" instead of "reply all." In addition, the number of messages in students' mailboxes would eventually block their accounts.

As interest in CALL increased, the number of students grew each semester, and the lab could not accommodate all of them. Thus, we decided to use asynchronous online methodologies, but we encountered a serious technical limitation: learning environments were expensive and demanded technical support that was not available in our department. Then we found eGroups.com, a free email list management where we could create our own lists free of charge. In August 2000, eGroups.com was bought by Yahoo! and became Yahoo! Groups (<http://groups.yahoo.com>). Students could receive emails with teacher's instructions and send their tasks back to the list. Teacher and classmates could post feedback in order to collaborate with each participant, and all participants could share doubts and suggestions. Since the software offers three possibilities of email delivery (individual, daily digest, and web only), students and teachers could choose the best format to read the messages, solving the problem of blocked email boxes.

We solved one problem, but another persisted: the posting of the messages in Yahoo! Groups followed a linear organization according to the date and time the message was posted. Consequently we began to search for a free host forum, which we found in VoyForums (<http://voy.com>). Figure 1 shows VoyForums' home page.

Figure 1
VoyForums



VoyForums is a free message board site that offers different forms of organization, from linear to threads and turns, the latter shown below.

Message 1

- Message 2
 - Reply to message 2
- Message 3
 - Reply to message 3
 - Reply to the above reply
 - Reply to the above reply
- Message 4
 - Reply to message 4

Having solved two problems (blocked email accounts and email organization), we observed a reduction in student avoidance of the system because the students had the option of selecting the messages they wanted to read (not true for the teacher, who was expected to read all messages).

In 2004, we were challenged to include, in the same teacher education class, students who were enrolled in different language majors: Spanish, English, and Portuguese. Two problems emerged: (a) how to cope with the massive number of posted messages and (b) how to manage a big class made up of preservice teachers majoring in different languages. Possible solutions might include limiting the number of emails per student and thinking of tasks that could generate automatic feedback. However, these options worked against the assumption of collaboration underlying our courses, such as the shared construction of meaning and the principle that one learns the language by using the language. The next section presents our proposal to deal with these problems and the role that complexity theory can play in grounding such decisions.

3.1 Autonomous Groups

Given that groups can work autonomously and that the same behavior found in a big group can be observed in small subdivisions of this group (fractality property), we decided to fractalize (break) our big group into smaller groups and see whether the fractality property would arise in an online classroom.

This experiment took place in 2004, when 50 students enrolled in 60-hour Communicative Dimensions course focusing on the communicative approach to language teaching. Students were invited by email to sign up for a Yahoo! Groups discussion list and to visit our web page (<http://www.veramenezes.com/pratica.htm>) for instructions. The central idea of the instructional design of the course, elaborated by the first author of this chapter, was to promote the accomplishment of shared tasks in an asynchronous online environment. Students were divided into small groups and interacted so as to develop the tasks without intervention from the teacher, thus forming autonomous groups. Because students had different language majors, they were divided accordingly and given the opportunity to use the language of their interest in their own autonomous group. The outcome of each group's tasks was shared weekly with the greater community (all subgroups) in a discussion forum in which all the members of the community received feedback from their peers and their teacher. Figure 2 shows the home page of the Communicative Dimensions course.

Figure 2
Home Page of the Communicative Dimensions Course



The procedures of this collaborative course design are in line with Brown (2003), who suggests four strategies for teachers to deal with technology in big classes: delegate, communicate, collaborate, and customize. Our pedagogical de-

sign included control dispersion (delegate), interaction among peers (communicate), task sharing (collaborate), and opportunities to discuss issues concerning specific discursive communities (customize).

Although customizing was crucial to our groups because students belonged to different majors, task sharing offered opportunities for the distribution of control in autonomous learning communities online. Furthermore, this distribution of control was intended to enhance group management. In the groups investigated, learners elected deadlines for the accomplishment of tasks and the alternation of leadership, thus promoting an organization that overcomes possible difficulties in accessing the internet, as shown in the following post:

I only have access to the Internet at work, so I propose we organize deadlines for the posting of our tasks. Would Thursdays be alright? If everyone posts his tasks in advance, the leader would not be overtaxed and consequently the collective contribution that the leader is supposed to post in the forum could be better elaborated. What do you think?

There were many instances in which students mentioned their difficulty in accessing the internet. The interaction in small groups gave students the opportunity to negotiate an organization that allowed them to participate equally in their common enterprise. Likewise, the groups adapted to their contextual conditions and self-organized in order to accomplish their common goals. As a result, new rules emerged to solve common problems such as technological constraints and the collaborative completion of tasks.

In addition to the schedules and deadlines, the alternation of leadership facilitated the mobilization of competences. Thus, in the event of technological problems, the group members always tried to help one another. The following examples demonstrate some of these events:

When you enter the group there is a link on the right hand side. Click there and follow the instructions.

Did you click on commentary? If you can't make it, send it me and I'll post it.

These ideas elucidate the notions of diversity and redundancy of complex systems, according to Davis and Sumara (2006) and Holland (1997), the expertise of some group members (diversity) can make up for the possible failings of others (redundancy). In addition to the diversity of the members of the autonomous communities, the diversity of other agents, such as learning environments and the teacher,² was crucial in overcoming technological constraints throughout the course. Since the design of the course included management lists, blogs, and forums, students could always resort to one of these alternatives to make a post if their group forum was not available online. Moreover, they could also consult with their teacher to discuss problems that could not be solved in the group.

The aforementioned dynamics demonstrate that, in addition to distributed control, key conditions for complex emergence were neighbor interaction, diversity, and redundancy. These conditions seemed to foster mutual engagement through-

out the life of the autonomous groups and promoted opportunities for the emergence of interdependence and group coherence—emergent properties capable of ensuring that the groups were able to ‘stand on their own two feet.’ The following excerpts demonstrate the active participation of group members and their commitment to overcome technological problems in order to accomplish collaborative tasks:

Whew!!! Task 7 was posted – with a lot of sweat and “pics” of light(s), but it went. (Original excerpt in Portuguese.)

Everything OK? It’s me again, it’s just that I went to our subgroup’s page, saw all the messages posted there (if I’m not mistaken, there are + or – 33 messages in all). Is there still a problem in our group?

The examples below demonstrate that, given the necessary conditions, learning communities adapt to the new contexts and self-organize.

Since Pedro, our fellow, had problems with the net he asked me to send his contributions. (Original excerpt in Portuguese.)

You know what, I tried to access the forum yesterday afternoon but just couldn’t get to post the message. Would anybody copy and paste our contribution. I can’t access the Internet after 5 p.m. as I do it from work. I have posted it in the discussion list and apologized to Vera. Somebody save us?!! (Original excerpt in Portuguese.)

These examples demonstrate that the learners sought neighbor interaction to solve collective technological constraints. In the messages exchanged by group members, one can notice that, in the event of instability, learners talked to their peers by phone or at school and found a solution for posting their contributions. One of the participants in the course asked her husband to post her contributions while she was on pregnancy leave, an unexpected event that added further to the complexity of the online course. The accomplishment of collaborative tasks in autonomous communities online involved issues that emerged from the interactions among peers and technological artifacts. Thus, depending on the context, an apparently simple event unleashed a series of other events that triggered new interactions, adaptations, and new events of self-organization, as well as the emergence of other different patterns.

4. Adaptations

Overcoming technological events in any context often depends factors other than learners’ efforts. In the course on the communicative approach, some students who did not have a PC or access to the internet at home had to use the institution’s computer lab, oftentimes competing with other classmates for available machines. Others reported difficulties in accessing the web from home. Some students who could afford a PC did not have broadband access and had to make do with dial-up.³ These were but a few of the technological constraints with which some of the participants in the course had to contend.

Because the lack of equipment and lack of internet access are common constraints in many parts of the world, a course design that contemplates the distribution of control, neighbor interaction, diversity, and redundancy in autonomous learning communities with a small number of participants may serve as a solution for overcoming problems encountered in big classes and with technological constraints.

5. Conclusion

The agents in complex systems, in our case teachers and learners, interact on multiple layers of organization and on different scales of both qualitative and quantitative participation. The learning experience is both collective and individual. Students are expected to read every task produced by their classmates and to give feedback to them. Teachers and students become partners, and language is used not only to transmit information but also to accomplish tasks and to promote a collaborative social network. Students with poor computer skills are helped by more experienced ones, and the teacher may improve his/her own technological skills as well, because some students are real computer experts and often come up with solutions to various problems. Students can act as coaches for their classmates, giving feedback, providing scaffolding, and arousing their peers' curiosity. Any message or task sent to the group can trigger a new experience, leading students to venture out on their own virtual quest for learning opportunities.

As Warschauer, Knobel, and Stone (2004) point out, "Many fear that unequal access to new technologies, both at school and at home, will serve to heighten educational and social stratification, thereby creating a new digital divide" (p. 563). Nevertheless, it is our contention that we can and must find ways to overcome this gap by using theory to develop course designs that can accommodate individual differences. Our experience has shown that asynchronous activities can help overcome technological limitations found in schools, such as the lack of computers for big classes. Similarly, autonomous groups proved to be an effective design to cope with the complexities of a large group made up of different students, belonging to different communities of practice, and displaying diverse technological limitations.

Notes

¹ The Project *Aprendendo com Memórias de Falantes e Aprendizagem de Línguas Estrangeiras* (AMFALE) 'Learning with Speakers and Learners of English as a Foreign Language' brings together researchers interested in language learning narratives. Several researchers from Brazil, Japan, and Finland have been collecting language learning histories and using them for different research purposes, including autonomy in language learning. Other contributors are welcome (see <http://www.veramenezes.com/amfale.htm>). So far there is a corpus of written and oral narratives in Portuguese and in English. There is also a small corpus of multimedia narratives written in English (see <http://www.veramenezes.com/nar-multi.htm>).

² Although the teacher did not interact in the autonomous groups, she designed the course and actively participated in the management list and discussion forum.

³ Aside from individual economic restrictions, it is worth mentioning that broadband is not available in many parts of Brazil.

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