P2P AND LEARNING ECOLOGIES IN EFL/ESL

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Abstract
This article briefly introduces the peer-to-peer (P2P) concept and applies it to an educational context. It argues that a pedagogical approach based on P2P can support learning ecologies that both complement and transcend conventional classroom structures and practices, ultimately benefiting learners. The authors discuss both the pedagogical and technological prerequisites for peer-centered learning to occur, suggest possible tools, and provide examples of EFL/ESL projects. Personal Web-publishing in language learning contexts is described as an attempt to bridge the gap between the learners in the classroom and potential conversation partners on the Internet at large, resulting in a network of support and encouragement.

The Background of the P2P Concept

The quality of human interaction is influenced strongly by the social structure in which that interaction occurs. We can gain insight into this relationship by examining the two extremes of network architecture. How the server is configured largely determines how its clients interact. On the one hand is the structured hierarchy of the client/server model, where communication and transaction between any two nodes on the network are mediated through a central server.

On the other hand is the 'peer-to-peer' model (P2P), in which each node in the network functions as both client and server simultaneously, resulting in a decentralized, fluid system of "equipotent members" (Bauwens, 2005). Interaction in P2P networks, then, obeys the dynamics of cooperative participation, where relationships arise organically to meet mutual need and last only as long as that need remains. As Bauwens explains, P2P is not anti-hierarchical or anti-authority, but it mediates against *fixed*-hierarchies and authoritarianism. The hierarchy that arises in P2P is natural and flexible, and is based on quality of contribution and communal consensus. Both models can and do co-exist.

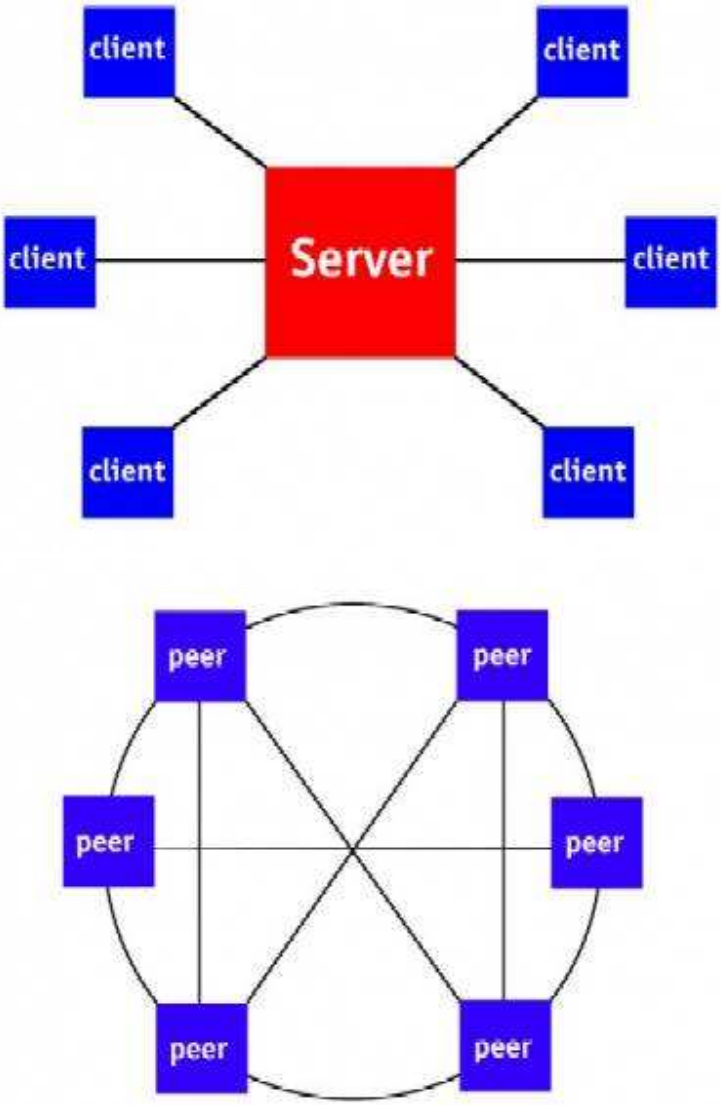

Figure 1. Structured Hierarchy mode: http://dekita.org/gallery/wiaoc/slides/sc1.png and Distributed Peer to Peer mode: http://dekita.org/gallery/thumbs/141-peertwopeer2.png

Historically, the structure of our educational systems has been overwhelmingly of the client/server type, reflecting an industrial capitalist model of production. A rigid administrative and instructional hierarchy (the server) was set to deliver standardized knowledge to its students (clients) on a mass scale to meet the demands of society at large. Opportunities for P2P forms of interaction have been limited. The Internet, however, presents us with unique opportunities to practice P2P in more formal educational settings.

To better understand how a peer-centered approach can benefit language learners, it is helpful to examine more closely the teacher-student dynamics of the traditional model. In many

institutions, classes are usually large, while time to implement the syllabus is limited, resulting in minimal communication between teachers and students on subjects other than those prescribed by the syllabus. Interaction in the target language generally occurs through classroom simulations, while listening and reading material is selected and presented by the teacher. Very little, if any, interaction occurs with people outside this closed environment. Therefore, students exposed to the target language through contacts at home or work, or those who can afford to travel abroad, are miles ahead of those who have to rely solely on the classroom.

When it comes to implementing technology in such institutions, the pedagogical approach often does not change. Language learning software is purchased, integrated into the curriculum, and delivered to students. Learning management systems are designed to replicate the conventional top-down, controlled transmission of the traditional classroom mode, where learners perform simulated, structured activities in a passive/receptive mode. The use of the Internet in such a model results in materials that are downloaded to complement the textbook or other classroom activities. Real-life participation in authentic modes of communication is rarely attempted, and therefore the communicative and expressive potential of the Web is diminished.

Our world – physical and virtual – is not homogeneous, structured, and standardized; but rather it is complex, diverse, heterogeneous, fluid, and unpredictable. Learners have varying abilities, different skills, and unique personal goals, and yet in the traditional classroom, they are rarely encouraged to show their talents, create their own content, take control over their own learning, and reflect on the process to gain further insight. Deep learning occurs when they put their knowledge and skills into action, when they utilize their creativity and inventiveness, and when they learn from one another through cooperation, striving to gain new insight, knowledge, and skills. Instead of forcing standardized knowledge upon learners in a strict curriculum, how can we guide our students to acquire what they need so they can express their thoughts, share them with others, and negotiate meaning in self-directed ways? How do we move from dependence towards greater independence and inter-dependence? How do we adopt a more process-oriented approach and interact in a more open and decentralized fashion which allows for self-directed participation, informal communication, inter-cultural and inter-linguistic development? Although there are no simple answers available, we can gain insight into possible solutions by examining the concept of learning ecologies.

Learning Ecologies

In the biological world, the field of ecology concerns itself with the study of the patterns of interrelationships between organisms and the environment in which they live. Ecology is a holistic science, and one of its fundamental principles is that of interconnectedness in complexity. No one given organism or environmental factor can ever be isolated and treated as if existing apart from the ecological system, since what happens to that organism affects the ecosystem, and vice versa. Relationships in an ecology are never fixed, but rather self organizing and fluid, shifting in response to ever changing environmental factors. A healthy

ecosystem is one in which balance is maintained in the face of these changes. Maximum adaptability and flexibility are keys to its survival and ability to thrive. The structure of a biological ecosystem is not unlike that of the P2P structure of network architecture as described above, which hinges upon the free cooperation of unique participants in a fluid network. What arises then, in a P2P model of online interaction, is an Internet-based ecosystem, which in an educational context, results in learning following an ecological model.

In his talk “Learning, Working & Playing in the Digital Age," John Seely Brown (2000) offers some guidance on how to best learn in an environment supported by technology. Instead of isolating learners in artificial and rigidly structured courses in which the teacher and selected print media are the main source of knowledge, we should guide our learners towards more fluid and dynamic “learning ecologies” in which “navigation, experiential learning and judgment all come into play *in situ*,” where they can learn through discovery and experimentation, creating and sharing their own content. George Siemens (2005) adds that in these environments “learners can forage for knowledge, information and derive meaning … acquiring and exploring areas based on self-selected objectives”, while Martin Terre Blanche (2005) suggests “transitional ecologies that ease learners’ entry into the 'real world', ecologies where seasoned practitioners work and learn.” Learning ecologies are "a collection of overlapping communities of interest, cross pollinating with each other, constantly evolving, and largely self organizing." (Siemens 2003)

The advent of the Internet with its open networks of cooperating users and an increasing number of tools and platforms has brought new opportunities for educators to guide learners into such learning ecologies and put them in touch with other speakers of English, so as to develop their communicative competence through authentic interaction.

In order to decide which tools to use and how to best use them, we should first examine where we stand between the extremes of hierarchical structure of traditional institutions and the fluid, *ad-hoc* learning ecologies. We should then look for ways to bring peer-centered approaches and tools into the curriculum to complement the learning goals. When adopting a tool, we should consider the larger purpose it should serve: how its nature can best support the learners’ diverse needs. Some learners need more guidance, while others will need to be encouraged to leave their comfort zones and experience the open spaces before them.

Pedagogy

In EFL/ESL, a peer-centered approach guides learners in a situation where they can use and improve their language skills in self-directed ways while conversing with peers. It gives them access to a distributed network and familiarizes them with the available tools. It also requires teachers to provide assistance: technical, educational and moral.

What are the building blocks of such an interactive process? Brian Alger (2002) mentions people, places, and things as three primary sources of design for learning and puts narrative, interactivity, and mobility at the core of the learning process.

Narrative offers students the opportunity to record their observations, talk about themselves, their interests, and events that that have marked their lives, and reflect on how this experience has changed them. Storytelling is creative self-discovery. It develops awareness and encourages them to voice their experience and ideas. It provides a realistic context for communication and interaction, facilitates language practice, develops fluency, and stimulates imagination. Adding voice, photos, and video to the text is a powerful and creative way to illustrate these personal stories and bring them to life.

Language is social and a meaning-making activity. It is through language that we reflect our thoughts, identities and selves. In the dialogical exchange with others and with ourselves we interpret, gain insights, and modify our perspectives constructing meaning and understanding, in different contexts, at different times. Our culture and background (past-me), our project and perspectives (present - I), and the projection of ourselves (future-you) come into play when we connect to people, places and things and act in the world of which we are a part. And it is through this interaction, unfolding and intertwining of processes together with the friction that results from it, that we become more aware of our ambiguities and question our assumptions while learning a foreign language experientially.

If language learning happens in different contexts, with different people at different times, educators should not confine it to the classroom alone. The world outside does not speak the language of the classroom so we must venture outside its walls. Guiding learners into uncharted territory (learning situations over which neither teachers nor students have complete control) gives them exposure. Letting them interact with whoever they choose according to their interests and needs will allow them to own the words though which they express their identity and voice their thoughts, thus relating the language to their individual selves.

Narrative, interaction and mobility will help learners "develop ecological and interpersonal perceptions in the language, on the basis of which they can construct trans-lingual and trans-cultural selves" (van Lier, 2004).

As for the role of the teacher, Kramsch says (1993, p. 31), "a dialogic pedagogy is unlike traditional pedagogy – it sets new goals for teachers – poetic, psychological, political goals that…do not constitute any easy to follow method…such a pedagogy should be better described, not as a blueprint for how to teach foreign languages but as another way of being a language teacher."

Tools

A range of new different web-publishing and social networking tools nowadays allows people to improve the quality of their learning experiences and help them become more self-directed learners. Among these tools are weblogs (also known simply as 'blogs'), which due to their ease of use and low barrier to participation have made it possible for individuals not only to voice their points of view, keep a record of their learning process, and share their personal reflections with others, but also to engage in conversation with peers and tutors worldwide on topics of mutual interest. While broadening their perspectives and negotiating new meanings,

learners also monitor their individual performance and verbalize their intentions with increasingly greater fluency. Besides supporting multiple modes of interaction (text, audio, photos, video), these tools enable a truly peer-centered form of communication to arise.

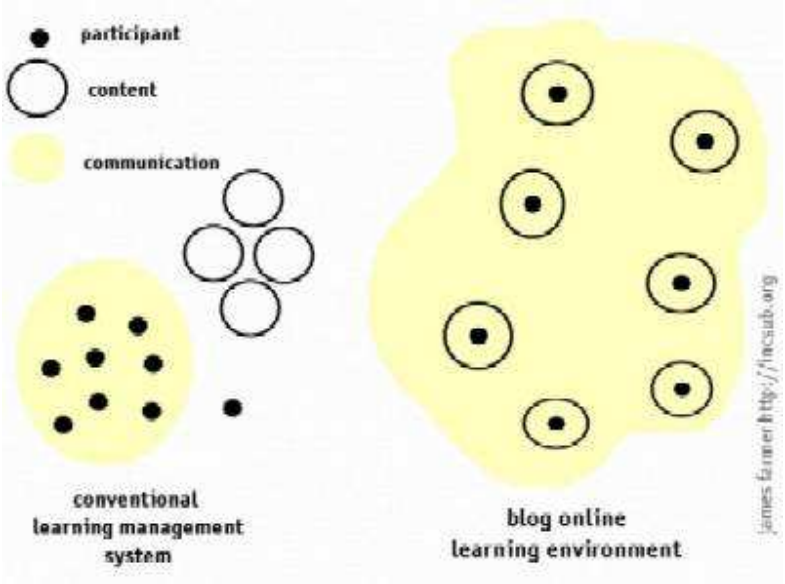

Figure 2. Conventional LMSs and blogging systems (after Farmer, 2005, retrieved from http://dekita.org/gallery/wiaoc/slides/blogenvironment.png).

There are a number of different weblogging services and tools available (see the comparative chart at http://writing.berkeley.edu/tesl-ej/ej35/m1.html). Free hosted services such Blogger and Wordpress (see list of URL's at end of article) count among the most widely used and least challenging to novice users. Experienced users who are familiar with Web technology might prefer a self-hosted application that gives them more control over their weblog.

In addition to weblogs, social networking sites can help foster interaction and communication between students. Sites such as 43 Things, 43 Places, and Flickr allow learners to move beyond their classroom, express their interests and share their experiences while connecting with people from around the world. The use of such tools complements the blogging process nicely, helping students to build personal contacts and construct a personal learning network through social networking features like profiles and tagging.

Tagging is an open-ended labeling process (see Folksonomy at http://en.wikipedia.org/wiki/Folksonomy) which enables users to categorize content through freely chosen labels (tags). For example, 43 Things brings people together who share the same goals, which are represented in various ways: in tag clouds that correlate a tag's fonts size to its popularity (the more popular the bigger), that can be sorted alphabetically, represented in proximity to related tags, etc.

Who does not draw a list of resolutions hoping to achieve them in the short, mid or long run? Students choose goals from the home page list or add their own. They can then describe or

justify goals to be accomplished and give advice to others about the ones they have attained while making use of tags to find and skim the goals and profiles of other people, engaging them in conversation using the available commenting features. Making public one's passions, goals, and interests, and discussing them with other people, is much more engaging than learning from a disembodied character in a language textbook.

Figure 3. Front page of 43 Things showing most popular tags for what you want to do with your life. From http://dekita.org/gallery/wiaoc/slides/43thingsb.png

Similarly, at 43 Places, students can describe their hometowns, talk about places they have visited, and share the destinations they would like to visit in the future. They can also provide travel recommendations and encourage people to explore new places. Through its system of tags and photos, they can also find the most popular spots other people have visited, ask locals for suggestions, or interact with people who want to go to the same places that they do. In this way, students can broaden their horizons by visiting places around the world and interacting with people from different cultures.

Digital cameras and mobile phones have broadened the reach of digital photography. Through photography, we tell stories and talk about previous experiences, many of them personally meaningful. In the process of sharing, we also discover different perspectives, alternative views of the world, unique glimpses of a culture, and insights into humanity through everyday scenes.

Flickr is a social networking site based on photo sharing. Its users post photos to a "photostream" that displays these photos, blog-fashion, in reverse chronological order. Every photo receives its own archival page with a blog-style comment form, and comments can be inscribed below the images and right into the images themselves using "notes". In addition,

Flickr offers very sophisticated tools for sorting and classifying photos, including sets and tags.

Flickr can be used with learners of any level who can start by filling information about themselves in the profile section. Then they search for others who share the same interests by clicking on the tags of their choice. After viewing the photos, they can add contacts. Three levels of privacy are offered: contacts, friends and family.

Flickr users can recognize each other as "contacts" and will have their contacts' most recent photo uploads referenced as "thumbnails" on their personal homepage whenever they log in to the site. Each of these photos, of course, is an invitation to comment, an activity Flickr users avidly engage in. The site's conversational nature is further underscored by the Group feature, the ability of every user to start a group about any topic, and have fellow users either contribute photos to a common group pool or discuss the group's topic on a bulletin board.

Flickr is a good example of a visually rich, participatory, and socially engaging environment that can be successfully used in a language learning context. Reading the comments other people have made helps learners put together a list of expressions they can later adapt and replicate. For low level or intermediate level learners, tagging their own photos with appropriate key words, adding titles, notes, and short descriptions are the first steps to starting conversations in writing (http://www.flickr.com/photos/17345667@N00/116329924/). A photo or set of images can serve further as an anchor for personal narratives and story telling or be associated to quotations or poems learners look for on the net and later discuss.

One possible educational use of Flickr is illustrated in a short project on the Dekita headers (http://dekita.org/weblog/rotating-headers) which involved two classes of EFL students from Brazil and Japan being introduced to the photographs of Josef Stuefer (http://www.flickr.com/photos/josefstuefer/), an Italian photographer who publishes his work on Flickr under the Creative Commons License (http://creativecommons.org/). The students chose the photos that should be used for Dekita's header graphics, justified their choices and participated in a conversation with the photographer and Dekita's designer (http://www.flickr.com/groups/dekita/discuss/49447/).

Figure 4. Example Dekita headers justification comment. Retrieved from: http://dekita.org/gallery/thumbs/140-impressions.png.

This voluntary, largely unplanned, experiential activity brought together people who shared a common interest. It arose organically and involved participants in an authentic exchange rather than a classroom simulation.

When participating in social networking sites such as 43 Things, 43 Places, and Flickr, students gain access to the English language as it is actually being used around the world. Instead of focusing on the language in the abstract, learners become aware of the subtleties of the "living language", of existing discourses and situational needs. As van Lier mentions (2000, p. 246), "from an ecological perspective, the learner is immersed in an environment full of potential meanings". Just as organisms in a biological ecology build relationships with other organisms, students build conversational relationships with other people, thus increasing their exposure to authentic uses of the language.

Cultivating open ecologies

Although the Internet holds great potential for connecting learners with conversational partners in an expressive, self-directed way, we should be aware that by working on the Internet and using its latest tools, we do not necessarily leave behind conventional pedagogy or traditional practices. As weblogs and other tools are slowly finding their way into language courses, teachers need to understand the advantages that peer-oriented uses of the technology can offer, so as not to hamper personal expression, self-directed learning, and the movement toward greater learner autonomy.

Ideally, weblogs give learners a place on the Web to call their own, allowing them to post their links and publish their thoughts, opinions, and feelings to a worldwide audience, thus permitting a wide range of authentic communicative interaction to occur. Yet learner blogs can be easily mishandled, as shut off from the world at large as is the conventional classroom. This usually happens when teachers fail to understand the kind of open ecologies weblogs thrive on and instead treat the medium as a vehicle for online homework submission.

Educators who ask their students to blog might wish to consider questions such as these: Do the posts originate from interests and passions intrinsic to each student, or are they responses to blanket assignments such as, "This week, please write a letter or story following the model we studied in class?" Is reading other blogs, linking, and the building of social networks encouraged? Can outsiders who do not know what happened in class read the weblog, participate, and feel included in the conversation?

In an excellent post on the basics of blogging, Anne Davis (2005) stresses that students need to learn by exploring what others have written, make connections, and strive for writing that matters, and she poses questions that will make a reader think and want to comment:

> Some of our best classroom discussions emerge from comments. We share together. We talk about ones that make us soar, ones that make us pause and rethink and we just enjoy sharing those delightful morsels of learning that occur. You can construct lessons around them. You get a chance to foster higher level thinking on the blogs. They read a comment. Then they may read a comment that comments on the comment. They get lots of short quick practices with writing that is directed to them and therein it is highly relevant. Then they have to construct a combined meaning that comes about from thinking about what has been written to them in response to what they wrote. It's such a good way to begin the process of teaching reflective thinking. (February 2, 2006)

In ascribing such a crucial role to comments, Davis implicitly highlights the central importance of learning ecologies. Educators should help language learners become part of such ecologies by taking a peer-centered approach when deciding how to structure learning activities. Once learners develop online relationships with people outside the classroom and become more proficient with the tools that enable them to do so, they are better positioned to attend to their own learning needs beyond the physical and temporal confines of the institution.

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- 43 Places - http://43places.com
- 43 Things - http://43things.com
- Blogger - http://www.blogger.com
- Flickr – http://www.flickr.com
- Wordpress - http://www.wordpress.com

Editor's notes

This presentation was made as a regular session at the Webheads in Action Online Convergence on November 19, 2005. The session took place in the Alado Webheads presentation room. Recordings were made and can be heard at http://www.digibridge.net/webheads/beeDekita1119.htm. The presentation transcripts and illustrating slides are located here:

- Aaron Campbell's - http://dekita.org/articles/the-p2p-concept
- Barbara Dieu's - http://dekita.org/articles/p2p-eflesl-pedagogy-and-technology
- Rudolf Amman's - http://dekita.org/articles/delicious-and-p2p-efl-esl-x

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