



# How social media changes our thinking and learning

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Social media are already having a drastic effect on the way we communicate and interact with each other, but how are they affecting our learning and thinking processes? Research suggests that the processes happening in our brains due to interaction with technology are rapidly changing. This plenary will discuss the ways in which social media, in particular, are transforming how we find and process information and the implications this has for the language learner. It will also review the ways in which using social media can facilitate the language learning process both for students and educators.

ソーシャルメディアは、すでに、我々のコミュニケーション方法に劇的な影響力を持ちつつある。しかし、我々の学習や思考のプロセスにはどのような影響を与えているのだろうか。研究によれば、テクノロジーとの相互作用により我々の脳の中における（思考の）プロセスが急速に変化しつつあると言われている。この基調講演では、特にソーシャルメディアが、我々が情報を見つけ処理する方法をいかに変えつつあるかについて、また、このことが語学学習者に与える意味について、議論する。また、ソーシャルメディアを活用し、学生と教師の両方の語学学習のプロセスに役立てる方法についても再検討する。

## Brain research

The increasing reliance on, and interaction with, a digital interface—be it the computer, a tablet, or a smart phone—is rewiring our brains. As we spend more time with computers, game consoles, tablets, and smart phones our brains change, which can be seen through research developed from functional MRIs. This new type of interaction is also impacting the modality through which we are best able to learn. In our current digitally-rich environment, we are used to seeing images and manipulating keyboards, game controllers, and interactive screens. By monitoring these types of interactions through brain scans, researchers can actually see the brain forming new neural connections as participants learn to play a video game for example. Because of this constant digital interaction, young people nowadays are much more likely to be visual or kinesthetic learners than auditory. About thirty

percent of the typical brain is devoted to visual processing, eight percent to touch, and three percent to sound. The brain can process visual images 60,000 times faster than it can process words. We are nine times more likely to remember new vocabulary when it is presented with a picture than when it is presented as text alone.

Brain imaging and other technologies are also helping us understand how our brains work differently when using a screen and when engaging with print. When researchers scanned eye movements as people read print, they noticed the eyes moved in a Z-pattern (George, Anwar, & Jeyasekhar, 2011). However, according to studies done by Nielsen (2006), when people read online, their eyes move in an F-pattern. This has implications for how material is written for the screen, as much information in the lower right corner of the display will be missed. Not only do we read differently in a physical way, we also read differently in a qualitative way when online versus print. People are better able to sustain their reading with print, and are better able to move information into their long-term memory. Studies suggest they are also less likely to be overwhelmed by the amount of input.

Although research suggests that such use of the Internet may cause problems for our ability to do extensive reading and engage deeply on a topic, the evidence is not that clear cut. Brain scans showed that the brains of people who were familiar with technology were the most active when they were reading online, and were more active than the brains of non-tech-savvy readers of print. This suggests that, even if we are reading differently online, our brains may not be less engaged; they may just be working in a different way.

Brain research also suggests why the use of digital technology, especially social media, can be so addictive. When we receive a small burst of information, such as a tweet or a status update, our brains release the same pleasure-producing chemical *dopamine* as is released when we eat chocolate, fall in love, or use cocaine. The use

of interactive technology is therefore constantly reinforced by our brain's own chemistry. This may explain, in part, why some users of social media become anxious or depressed when they are cut off.

As our brains become rewired to interact more effectively with digital technology, teachers should think about ways to incorporate such technology in a way that will benefit language learning.

### Social media and language learning

Social media can help engage students in learning English, allowing them to practice new language in a safe and interactive environment. Based on a study at the University of Minnesota (Greenhow, 2008), students who participated in lessons using social networking sites responded that they learned not only technology skills, but also communication skills and became more open to new or diverse views. The same study showed that students also improved relationships with family members.

Improvement in social relationships is suggested by other studies as well. Research shows that language learners are more likely to engage in the learning process and improve their skills when they have a network of classmates, friends, or family to talk to and practice with. Jacobsen and Forste (2011) used surveys and diaries to study the influence of social media on students' social lives. They found that social media were positively associated with face-to-face social interaction. For every additional hour spent on social networks, 10 to 15 more minutes were spent in real-life interactions. Access to social networking sites appears to give students greater access to social situations in general, facilitating different levels of relationships. Halvorsen (2009) conducted a study with English students in Japan using MySpace. He found that using MySpace encouraged student creativity and autonomy, as well as student collaboration both face-to-face in the classroom and on the social network, especially among mixed-ability language learners. Students showed increased support to classmates and even took on mentoring roles.

The use of social media can also increase critical thinking skills. Critical thinking is necessary for twenty-first century academic and professional success. As students engage more with social media, especially as part of language learning coursework, they can develop higher

order skills by making judgments about the credibility of sources of information. Research by Yang and Ahn (2007) suggests that synchronous online discussion promotes critical thinking. In this study, students who participated in an online discussion forum achieved higher scores on a critical thinking assessment than those who did not participate.

Multimodal instruction—that is, teaching that combines visual, auditory, and kinesthetic input—is the most effective way to stimulate classes of students with various learning styles. Social media provide input through a variety of modes such as text, visuals, graphic organizers, audio, and video. A recent review of a number of studies showed that basic skills and higher order skills improve with both interactive and non-interactive learning that uses a combination or variation of modes. Furthermore, if the experience is interactive and combines text with visuals, audio, and video, the students increase their higher-order thinking skills more dramatically. The results of the analysis suggest that technology, including social media, can help students address complex problems and think more critically.

When students can relate learning to their own lives and experiences, they are more likely to understand and remember. Linking the learners' social networks to coursework is one of the most meaningful ways to engage digital natives and other learners who engage regularly in social networking. Personalization lets students use new language in meaningful communication with people they already know and helps them develop new connections.

Research by Nguyen and Kellogg (2005) found that social media allow participants more flexibility than face-to-face interactions. When students communicate online, they don't face the same turn-taking constraints: opportunities to have the floor are balanced, and there is a visual record of language interaction that helps them negotiate meaning. The study also revealed that learners take on roles that they may be less likely to take on in other kinds of interactions. This suggests that choices made in online interactions may encourage future participation.

Although online "conversations" are different in some ways, social networks provide excellent models for how language is actually used. Students see authentic language ranging from casual conversation to academic discourse. Social media, in the form of tweets, posts, blogs or videos, provides an endless supply of real-life language.

As we learn more about how the use of technology affects the way we think and learn, we, as teachers, will need to accommodate our teaching to help our students learn in the best way possible.

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