

## LEARNING THEORIES AND SKILLS IN ONLINE SECOND LANGUAGE TEACHING AND LEARNING: DILEMMAS AND CHALLENGES

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**Abstract:** *For decades foreign and second language teachers have taken advantage of the technology development and ensuing possibilities to use e-learning facilities for language training. Since the 1980s, the use of computer assisted language learning (CALL), Internet, web 2.0, and various kinds of e-learning technology has been developed and researched comprehensively to extend predominantly communicative language teaching approaches focusing on training language skills. While international, in the 2000s the use of web 2.0 technologies in particular has been introduced for developing reading and writing skills in Denmark with special attention towards the development of web-based materials for Danish pronunciation. This paper sets out to introduce differences between the international and Danish use of web-based language learning and teaching. Finally, dilemmas and challenges for the use of CALL, IT, and web 2.0 in L2 teaching and learning and in particular the teachers' key role in e-learning will be addressed.*

**Key words:** e-learning, education theory, language acquisition theory, behaviourist, cognitive and constructive approaches in e-learning, second language learning

### Introduction

Since the introduction of computers in the early 1960s, a particular focus in language teaching and language teacher education has centered on the fact that computers can assist language acquisition and learning. Over the years many computer-supported training programs for foreign and second language teaching have been developed. After the introduction of the Internet in the early 1980s, and IT-based language teaching in the 1990s, e-learning platforms, online language learning, and web 2.0 technologies developed quickly.

The fast development within information technology and the possibilities to inherently use online teaching and learning facilities including social media represent new challenges and demands facing researchers of language learning, teacher education and teachers (Chapelle, 2009; Thomas, 2009; Wang & Vásquez, 2012; Warschauer, 1996). Language education of Danish for adult

Speakers of Other Languages (DSOL) and teacher education is no exception. As outlined by a Danish researcher Meyer, "second and foreign language teaching and learning" is an area "strongly influenced by the processes of change within information technology" (Meyer, 2005, p. 155).

From the mid 1990s the first computer assisted training programmes and multi-media CD-ROMs were used in DSOL language teaching, and in the 2000s, the Internet has played an increasingly important role in second language teaching in Denmark. Most DSOL language providers in 2013 offer online based second language learning programmes to foreigners living in and outside Denmark (Ministeriet for Flygtninge, Indvandrere & Integration, 2004; Petersen, 2014; Rambøll, 2009).

Studies of some of the first online second language classrooms in Denmark from 2006 and 2007 indicate that on the one hand DSOL teachers in the transition phases from

traditional classroom to online second language teaching were very much concerned about establishing 'virtual' social communities in online language teaching. On the other hand, learners perceived online language teaching as merely individual (Petersen, 2006, 2007).

Studies of computer or Internet assisted learning furthermore show that students take advantage of virtual learning environments, but that the reason for this is not the medium, but the teaching and instructional strategies built into the learning materials. This is outlined by Ally (2004):

Meta-analysis studies on media research have shown that students gain significant learning benefits when learning from audio-visual or computer media, as opposed to conventional instruction; however, the same studies suggest that the reason for those benefits is not the medium of instruction, but the instructional strategies built into the learning materials. (p. 3)

Teacher educators and language teachers introducing online second language teaching are thus facing challenges with respect to design, tasks, and content.

This article sets out to introduce differences between the international and Danish use of web-based language learning and teaching and to address dilemmas and challenges for the use of CALL, IT, and web 2.0 in L2 teaching and learning.

### Notions and Definitions

In continuation of the terminology in international second language acquisition (SLA) research, I use the notion of first language (L1) to denote the language a person learns as his/her first language, usually referred to as mother tongue. In contrast, I use the term second language (L2) to describe the second, third, and other languages a person acquires after having learned his/her first language. Language students are usually

referred to as learners. The language use of L2 by learners who are about to learn and develop their second language is often referred to as an inter-language. The inter-language is, in continuation of SLA research, characterised by being limited but systematic and dynamic. Despite the fact that teaching and acquiring a second language has certain features in common with foreign language, I differentiate between second and foreign language teaching. Foreign language learning will usually take place in classroom environments where learners and teacher have the same first language (L1); this language is usually also spoken in the community/country in which learners and teacher live. In contrast, second language learning takes place in classroom environments where learners and teacher often speak different languages. While learners often speak many different languages beyond their mother tongue (L1) and furthermore are about to learn the language spoken in the community/country in which they live is defined as their second language (L2), the teacher's first language (L1) often is the target language to be learned in the second language classroom. That is the learners' second language (L2), and the language spoken in the community/country (e.g. Ellis, 1994; Gass & Selinker, 2008; Mitchell & Myles, 2002).

In DSOL adult language teaching for example, most teachers speak Danish as their first language, while the adult learners in the class rooms speak various other languages. In 1996 it was noted by a Danish linguist that about 100 languages were spoken in Denmark (Stensig, 1996). In second language classrooms, both online and face-to-face classrooms, learners and teachers may not have any common language. Not all foreigners in Denmark have learned English; accordingly, English cannot always be used as a so-called lingua franca, e.g. a common foreign language in the second language classroom (Gass & Selinker, 2008).

As mentioned in the introduction computers and Internet have been used in both foreign and second teaching for several decades. Computer assisted instruction was first used in the 1960s. Computer assisted language learning (CALL) has been disseminated to a wider audience in the 1990s (Levy 1997; Warschauer 1996). CALL is defined as “the search for and study of applications of the computer in language teaching and learning” (Levy, 1997, p. 1). With the introduction of the Internet, the concept of blended learning rose. Elliot (2009) defined blended learning as “a form of learning which balances face-to-face contact between trainer and trainee with Internet-based input delivery and interaction” (p. 439). Many DSOL language schools in Denmark provide either blended or merely online language learning. Ally (2004) defined online learning as the use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience (p. 4).

In many online second language platforms a range of web 2.0 technologies are being used. In accordance with Thomas (2009), Wang and Vásquez (2012), and Warschauer (2009), I use the notions of Web 2.0 and Web 2.0 technologies as referring to a perceived second generation of web development and design that facilitates communication, secure information sharing, interoperability, and collaboration on the Internet (Wang & Vásquez, 2012, p. 413).

Well known web 2.0 technologies are weblogs, video- and audio-blogs, wikis, second-life facilities as well as social media like Facebook, Twitter, and collaboration facilities like Google docs and others.

The possibilities to use various computer and Internet based facilities in second language teaching are thus comprehensive and to some degree may even be confusing. The question arising out of this is: how can teachers

meeting the new so-called ‘digital natives’ generation who grew up with computers, Internet, mobiles, and other electronic devices, choose and design good and useful online or blended second language learning facilities (Pegrum, 2009).

### **Education Theory and Second Language Acquisition Theories in Computer Assisted and Online Teaching**

The historical development of education theories and the development of theories about second language acquisition evidence similarities. Ally (2004) introduced three approaches in education and learning theories: behaviorist, cognitivist, and constructivist. In comparison, Chapelle (2009), Gass and Selinker (2008), Wang and Vásquez (2013), and Warschauer (1996, 2009) and others outline how behaviorist, cognitivist, and sociocultural (constructivist) approaches have influenced theories and research with respect to second language acquisition and development. Education researchers, second language researchers, and educators agree upon the fact that various theoretical points of view influence approach, design, tasks, and content of particular online education programmes.

### **Behaviorist Approaches**

The behaviorist approach or ‘school’ in education and second language acquisition emphasizes the importance of behavior, while understanding the “mind as a ‘black box’ in the sense that a response to a stimulus can be observed quantitatively” (Ally, 2004, p. 8). Behaviorist approaches often ignore cognitive aspects of learning or what Ally mentions as “the effect of thought processes occurring in the mind” (p. 8). Important in a behaviorist approach is what can be immediately “observed and measured as indicators of learning” (Ally, p. 8). In second language learning theories, the influence of behaviorist approaches, in particular Skinner’s work from 1957 on “verbal behavior” has been comprehensive (see Gass & Selinker, 2008).

As pointed out by Warschauer (1996), the first computer programs to assist language learning were developed in continuation of behaviorist language learning approaches as drill and practice tasks. Warschauer, hence, named the first period of computer assisted language learning “behaviorist CALL”. Essential in behaviorist CALL is the understanding that repeated exposure to the same material is beneficial or even essential to learning; the computer is ideal for carrying out repeated drills, since the machine does not get bored with presenting the same material and since it can provide immediate non-judgmental feedback (Warschauer, p. 1).

### **Cognitivist Approaches**

In contrast, cognitivist approaches in both education theory and second language acquisition theories emphasize the importance of thought processes in learning. Learning, including language learning, is seen as a process involving memory, thinking, reflection, abstraction, and metacognition. Important in cognitive language learning processes is that input is first transformed to intake and then may be transferred from the short-term memory to long-term memory. Learners’ possibilities to make their own hypotheses about language and individual learner strategies are seen to be essential in cognitivist approaches (Ally, 2004; Mitchell & Myles, 2002). In contrast to behaviorist approaches, computer or Internet based cognitive approaches do not judge and evaluate everything the students do nor reward them with congratulatory messages, lights, or bells (Warschauer, 1996). What is important is how learning content and tasks can be presented in various ways in the online environment in order to subsequently be stored in the learner’s long-term memory. As a consequence different online strategies and many various types of tasks enhancing input processing should be developed for online second language teaching based on cognitivist approaches.

### **Constructivist or Socio-cultural Approaches**

In constructivist and socio-cultural approaches in second language learning theories, firstly the possibility for learners to construct their own knowledge is seen as essential. Secondly, social contexts of learning is regarded important and as a precondition for all kinds of learning. “Constructivists see learners as being active rather than passive. Knowledge is not received from the outside or from someone else; rather, it is the individual learner’s interpretation and processing of what is received through the senses that creates knowledge.... A major emphasis of constructivists is situated learning, which sees learning as contextual” (Ally, 2004, p. 18). Similarly socio-cultural second language acquisition theories emphasize both language knowledge construction and the importance of social contexts as preconditions for learning a language. As a consequence, learners in online second language learning environments should be allowed to construct knowledge rather than being given knowledge through instruction. Furthermore, learners should be given the possibilities to interact with both online teacher and other online learners (Ally, 2004; Chapelle, 2009; Thomas, 2009).

### **Developing the Four Language Skills**

Since the 1960s, international computer-assisted language learning (CALL) was developed under the influence of approaches in second and foreign language teaching: firstly based on behaviorist approaches and since the 1980s on cognitive communicative language teaching approaches. In the 1990s, the multimedia phase in international CALL mainly used communicative teaching approaches based primarily on cognitive learning theories and the intentions of developing the four language skills (Wang & Vásquez, 2012; Warschauer, 1996). Newby

(2006) stated that the communicative approaches in language teaching are reflected in terms the four skills of reading, writing, speaking, and listening .... Seeing language in these terms ... has been largely uncontroversial throughout the thirty-year history of communicative language teaching (CLT), and it is this category that feeds into what is generally described as communicative methodology. (p. 19)

In the beginning of the 2000s when Web 2.0 technologies were increasingly used in foreign and second language teaching, research reviews indicated that the new technologies have been primarily investigated and used for developing language skills such as reading, listening, and writing skills (Lui, Moore, Graham, & Lee, 2003; Stockwell 2007; Wang & Vásquez 2012). "The scope of inquiry on technology and language learning" was "historically focusing on the traditional four language skills" (Wang & Vásquez, p. 417), and "in the period after 2005, L2 writing represents the most investigated area" (p. 418). Wang & Vásquez outlined that the "paradigm shift in SLA research since the 1990s with second language learning and acquisition research moving from a cognitive orientation to a social orientation ... from an acquisition metaphor to a participation metaphor ... seem to be in alignment with many of the attributes of Web 2.0 technology (such as ease of participation, communication, information sharing, and collaboration)" (Wang & Vásquez, p. 413). Since 2005 most of the SLA research was framed along sociocultural and sociocognitive dimensions such as sociocultural theory, "activity theory, socio-constructivism, community of practice, social cognitive theory" (Wang & Vásquez, 2012, p. 420). With respect to the use of computer and online language teaching, this development implicates an increased focus on the social dimensions in communicative language teaching approaches, viewing online education, and "the computer as a tool that

mediates interactions between language learners and other humans. ... Interaction-based learning is a cornerstone of many socially oriented approaches to L2 learning" (Wang & Vásquez, p. 420).

### **CALL and Online Teaching in Danish Second Language Teaching and Learning: Focus on Pronunciation**

In comparison with the international trend, the Danish development in relation to an extensive use of computers, Internet, and Web 2.0 technologies in second language teaching has occurred primarily in the education of adult language learners. Similarly to the international development, the use of computers and Internet in DSOL in both the 1990s and 2000s has followed predominantly communicative cognitive language teaching approaches focusing on the four language skills (Petersen, 2014). While in international L2 teaching and research, the use of computers and Internet technologies for developing reading and writing skills in L2 has been dominant, in DSOL education a particular attention on developing computer and Internet based programmes for Danish pronunciation has been evidenced (Petersen). In a review report from 2009 on selected computer and Internet based training materials for DSOL education financially supported by the Danish Ministry of Education in the period from 2006 to 2009, one third of the programmes were particularly developed for pronunciation training for adult learners (Rambøll, 2009, pp. 6-7). Since the beginning of the 2000s, various training programmes for pronunciation have been developed both by private enterprises, language schools and teachers.

Various reasons for the extensive use of computer and Internet technology for pronunciation training programmes could be mentioned. Danish researchers and linguists highlight that pronunciation and an extensive



vowel system may create difficulties for adult learners of Danish (Jørgensen, 1999; Kirk & Jørgensen, 2006). Adult learning of pronunciation of a new language appears to occur differently than children's learning, and pronunciation differs from other aspects of language learning, by not only requiring cognitive but also physiological skills (Jørgensen, 1999, p. 107).

Another reason may be found in the governmental support. In 2006, on behalf of the Ministry of Refugee, Immigration and Integration Affairs, responsible for adult DSOL education in Denmark, a report named "Towards an effective pronunciation teaching" was published (Kirk & Jørgensen, 2006). In the report, it was evidenced that DSOL language teachers give lower priority to the teaching of pronunciation: a statement that was confirmed in a report by Rambøll (2009). Here it is outlined that "pronunciation in [DSOL] language teaching is often an Achilles heel for language teachers," and many teachers "are uncertain about how to teach pronunciation" (Rambøll, p. 16). In 2008 a comprehensive training manual in Danish pronunciation for DSOL teachers was published by the ministry responsible for DSOL education in Denmark (Ministeriet for Flygtninge, Indvandrere og Integration, 2008). As a result, since 2006 governmental financial support has been given to the development of computer and Internet based pronunciation programmes for DSOL (Rambøll, 2009).

A further reason for focusing on the development of computer supported pronunciation programmes in the 2000s may however be found in what researchers have described as "a relative reluctance" among native speakers of Danish to tolerate different spoken Danish (Jørgensen, 1999). Jørgensen emphasized:

The most urgent task with respect to Danish pronunciation [ is ] not the teaching of adult DSOL learners, but the education of native speaking Danes. We must learn to understand Danish is

pronounced with a much wider range of variation than the one we have so far been experiencing with primarily regional varieties (Jørgensen, p. 114: translation into English by Karen Bjerg Petersen).

Various reasons may therefore explain the particular emphasis and development of computer and Internet based pronunciation training programmes for DSOL education in Denmark compared to the international focus on reading and writing.

### **Dilemmas and Challenges for the Use of CALL, IT, and Web 2.0 in L2 Teaching and Learning**

Richard & Rodgers (2001) suggested that L2 teaching has been influenced in part by three ideas: (a) linguistic theory and language learning theory (approach), (b) curriculum design and syllabus (design), and (c) language teaching itself (procedure). These ideas have inspired the understanding of both face-to-face second language teaching and created impetus for reflections about computer and online-based language teaching internationally and in Denmark (see e.g. Bo-Kristensen, 2005; Hampel, 2006; Lund, 1999). Hampel (2006) suggested to rethink task design for the digital age in continuation of Richard & Rodgers' discussions about approach, design, and procedure in terms of "factors that depend on the specific materiality of the resources and on the affordances of the modes available also have to be factored in when designing and implementing tasks for an online classroom" (p. 119).

A number of studies point to the fact that a combination of media, including various kinds of Web 2.0 technologies, may enhance the possibilities of working with language skills such as reading and writing (Chapelle, 2009; Hampel, 2006; Wang & Vásquez, 2012). Clearly evidenced effects of computer and Internet assisted language teaching on

learners' language development compared with face-to-face second and foreign language teaching still need further research (Thomas, 2009; Wang & Vásquez, 2012).

An American report on the use of computers and internet in primary and secondary education emphasized that educators making decisions about online learning need rigorous research examining the effectiveness of online learning for different types of students and subject matter as well as studies of the relative effectiveness of different online learning practices (U.S. Department of Education 2010, p. 54). A meta-analysis from the USA, further indicated that blended learning seemed to be an appropriate way for learners to develop their language and other skills (University of Colorado Boulder, 2012).

### **Other Factors Influencing the Design of Computer and Internet Supported L2 Learning**

Several second language researchers highlight the potential of incorporating a plurality of modalities and affordances that the Internet offers for second language teaching (Chapelle, 2009; Gruba & Hinkelman, 2012; Pegrum, 2009; Thomas, 2009; Wang & Vásquez, 2012). Hampel (2006) outlined that teachers have to ensure that tasks are appropriate to the medium used and that they develop tasks that take into account the affordances (i.e. the constraints and possibilities for making meaning) of the modes available (p. 111). Gruba and Hinkelman (2012) emphasized that the integration of technologies is best achieved "if it is purposeful, appropriate, multimodal and sustainable" (p. xv). Siragusa, Dixon and Dixon (2007) from Australia discussed how e-learning designers apart from considering learning also need to take into account external factors such as instructional design processes, formative and summative evaluations, the actual learner's knowledge, and the teachers' digital knowledge. Siragusa et al. further point to the important role the

teacher or lecturer play in e-learning. They emphasised that although

in an ideal world, educators, instructional designers, e-learning media developers and graphic designers work together to create pedagogically effective learning environments that are grounded in sound learning theories, in most cases however, the teacher or lecturer often is left without his team support and resources (Siragusa et al., p. 924).

### **L2 Teachers' Vital Role in the Integration of IT in Teaching and Learning**

Most researchers have emphasized the key role of teachers and teachers' instructions for efficient computer and Internet supported e-learning, second language teaching, and e-learning. Pegrum (2009) stressed that teachers should be trained in the use of Web 2.0 technologies, and teachers and developers must understand that online education and L2 based e-learning is not automatically behaviorist, cognitivist, or constructivist, or even pedagogically progressive. According to Pegrum, requirements for efficiency, speed, flexibility, and saving money as reasons for introducing computers and Internet in second language teaching and learning may easily lead to 'poor' content systems. The development of a good design for online education is time-consuming not only in the development process but also in the implementation of IT-based L2 teaching:

While learning about the advantages of Web 2.0, teachers must equally come to understand that e-learning is not, in and of itself, automatically constructivist or pedagogically progressive, and demands for speed, flexibility and cost saving can easily lead to impoverished content delivery systems. As suggested earlier, some creativity is needed to work within the constraints of rigid syllabi or assessments. As rewarding as IT may be, well designed online learning will normally require a heavy investment of

time and energy by both staff and students. (Pegrum, p. 32)

Pegrum continues that there is also a danger that “technology users will lose the ability to focus clearly as well as the will to occasionally power down their multifarious communication channels and make time for reflection – a crucial part of education – may be downsized” (p. 32).

Siragusa et al. (2007) pointed to several issues of importance about the teachers’ role in e-learning. Factors that influence the online environment are the teachers’ availability in the online environment either as regularly scheduled meeting times or based on students’ requests; the teachers’ own perception of the importance of online learning; and the teachers’ “knowledge and abilities of online technologies” which “may influence how they utilize the class website to enhance their students’ learning” (p. 926). Also teachers’ desires to further develop their own skills in teaching online classes is of importance to students’ learning. According to Siragusa et al., teacher educators “need to be aware of the labour intensive nature of online learning and the resources available to assist with the development of effective online instruction” (p. 926). Teacher education should provide for “professional development for teachers’ effective teaching and learning strategies for enhancing student online learning” (p. 926).

### Conclusion

In online second language education it is important to be aware of both education and

second language acquisition theories, and the teacher’s role in order to enhance students’ learning. Ally (2004) stated

Behaviorist, cognitivist and constructivist theories have contributed in different ways to the design of online materials.... Behaviorist strategies can be used to teach the facts (what); cognitivist strategies to teach the principles and processes (how); and constructivist strategies to teach the real-life and personal applications and contextual learning. (p. 24)

In second language teaching and learning, ways of meeting the challenges of ‘digital natives’ is not only to educate technically skilled teachers, but rather to help teachers and learners understand that teaching a second language in online or computer assisted environments demands a comprehensive theoretical understanding of not only second language learning theories but also education theories. Teachers play a crucial role in designing effective online learning. Pegrum (2009) asserted “as has been widely argued in the literature about online learning, and in line with social constructivist pedagogical models, teachers must be prepared to play a central organizing, guiding and mentoring role” (p. 24). Researchers and teacher educators could be similarly aware of supporting teachers in their striving to be effective second language e-learning teachers.

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