



# Tapping into students' digital literacy and designing negotiated learning to promote learner autonomy



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## ABSTRACT

Students of today are digital natives. They acquire their digital literacy autonomously and are adept at using various Information and Communication Technology (ICT) tools to enrich their daily leisure life. Although prior research has addressed such phenomenon and its relation to school learning, the focus was mostly on students' adoption of ICT tools to facilitate their learning. This study takes a further step by relating students' digital literacy to their school curriculum and using the pedagogy of negotiated learning to improve their learning autonomy. The proposed negotiated learning design is to scaffold students along the authenticity–generalizability continuum; from operation-oriented knowledge and experience of ICT tools to the theory and technique of tools development and operation. It is expected that, by relating the school learning to students' digital literacy, the way of students' autonomously acquiring their digital literacy outside school may help them develop autonomy in school learning. For validating the proposal, an experiment with 36 university students studying the engineering course of multimedia technology has been implemented and evaluated. The qualitative results showed that participants developed their autonomy to exercise their digital literacy to resolve the difficulties they faced during Web exploration and data collection for their school learning. The quantitative data also evidenced their improvement of learning autonomy. The findings and the way how the learning practice is designed and implemented should offer teachers a different perspective of connecting school learning with students' digital literacy acquired outside schools. Moreover, under the trend of youngsters' digital literacy development, the findings provide a positive perspective on students' digital literacy.

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## 1. Introduction

Students of today are digital natives. They are fluent in the digital language of computers and the Web (Prensky, 2005). Digital natives often engage themselves in the use of information and communication technology (ICT) tools and in accessing, creating, and sharing text and videos on the Web in their leisure life (Junco, 2012). The ability of digital natives to embrace ICT suggests that they possess a certain level of digital literacy (Ng, 2012). While the term *literacy* has traditionally referred to the ability to read and write, it more generally suggests competence or knowledge in a specific area. Because of the development of computers and the Internet, the knowledge and skills used in the digital world have been addressed and named *digital literacy*. Digital (ICT) literacy has been defined as the use of digital technology, communication tools, and networks to access, manage, integrate, evaluate, and create information to function in a knowledge society (ICT Literacy Panel, 2002). Appel (2012) defined digital literacy as the ability to find and analyze information by using computers and the Web. Hatlevik and Christophersen (2013) used the term *digital competence* to describe

the acquisition and processing of digital information and the ability to produce digital information. Clearly, digital literacy is a broad concept encompassing different aspects, and its development follows a continuum from the acquisition of instrumental skills to that of productive and strategic competence and cognitive skills (Calvani, Fini, Ranieri, & Picci, 2012).

In terms of the ways in which digital literacy is acquired, adolescents, in particular, engage in a broad range of computerized activities, including doing homework, searching and gathering information on the Internet, using social media networks to communicate with friends, watching videos on YouTube, or playing first-person shooter video games (Appel, 2012). In general, the digital literacy these youngsters possess refers to the skills and knowledge in using computer and Internet technology and navigating in a hypermedia environment. For both computers and the Internet, research has shown that the amount of experience and current usage are associated with greater skills and knowledge (van Deursen, van Dijk, & Peters, 2011). Related ICT tools might be a word processor, Web search engine, social media network, video editing software, or e-mail (John & Sutherland, 2005). Diverse ICT tools exist for various purposes. For some tools, especially for those intended for entertainment purposes, students are often more skilled and adept at using them than their teachers, such as when the tools

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are used to edit videos and upload them to Facebook or Youtube (Gu, Zhu, & Guo, 2013).

This type of digital literacy is acquired by digital natives without any request from their parents or school. They are motivated by their need for personal entertainment and social life. That is, students autonomously learn the instrumental skills and knowledge of computers and the Internet outside formal education (Eynon & Malmberg, 2011; Junco, 2012; Ng, 2012). In addition, because students are raised in such a networked digital environment, their patterns of thinking and communication, notions of learning, needs for control, and even their personal and social values have also been shaped by this environment (Gu et al., 2013). In recent years, there has been an increasing interest in the ways that young people are using the Internet and other new technologies in their everyday lives and how such use may enhance informal and formal learning opportunities (Eynon & Malmberg, 2011; Lim, Zhao, Tondeur, Chai, & Tsai, 2013). Given the digital natives' autonomy in developing this kind of digital literacy, the attitude aspect of autonomy and skill aspect of digital literacy should be explored for their educational potential as more and more ICT tools are available to them.

For an ICT-related course taught at a college, institute, or university, teaching is usually topic-based. This kind of instruction involves theoretical introduction and explanation concerning mostly the structure of the domain field in regards to further learning. The reason for this type of teaching is that the goal of school education is to provide students with coherent logic for generalizability, and to build up their knowledge for generic situations (Bereiter, 1997). However, students in general lack motivation for this type of learning because they perceive the abstract subject content as unrelated to their personal lives. Moreover, most students have already acquired their digital literacy for the practical application of ICT tools in their leisure life. The ICT-related course content and students' digital literacy seem to be at opposite ends of the continuum of authenticity and generalizability proposed by Chen and Hung (2002). Authenticity refers to the use of ICT tools, which becomes students' digital literacy. Generalizability, on the other hand, refers to the technical knowledge and theories concerning ICT tools, which are the focus of the school courses.

To ensure better learning, students should be supported along this continuum so that they can gain richer and deeper understanding of the subject content. Thereafter, the learning and the process can be personally meaningful as well as academically accountable. It is necessary to bridge what teachers intend to deliver and what students are interested in. Negotiated learning seems to give clear recognition to this and can serve as a feasible instructional design because students can discuss with teachers and peers about the goals, content and methods of learning. During the negotiation process, teachers, with better understanding of students' background knowledge and their learning goals, may find the way to scaffold them along the continuum. Meanwhile, students may appreciate and find interest in the course content suggested by teachers with the realization of its relationship with their digital literacy.

During the negotiated learning process, students need to make decisions about their own learning and perceive themselves as being in control, which is an essential aspect of learners' autonomy. Meanwhile, teachers should support students' autonomous engagement, to allow their progressive knowledge development (Dam, 1990). This study investigates methods that enable students to develop their autonomy in school learning. In light of the autonomous attitude and the acquired skills during students' digital literacy development, this study proposes applying the pedagogy of negotiated learning to tap into this literacy to foster learning autonomy in ICT-related school courses.

## 2. Negotiated learning

The concept of negotiated learning stems from the idea that students must be supported in making choices and selection decisions with

reference to curricular objectives, contents of the subject matter, in and out classroom activities, methodology, resources, materials, and means of assessment (Yuksel, 2010). To do so, students should be involved in the decision-making process of curriculum development. The teacher and the learners work together to make decisions on much of the curriculum design, making it a 'dynamic' and 'negotiated' syllabus rather than a 'static' and 'imposed' one (Rajae Nia, Abbaspour, & Zare, 2013). As students are more involved in shaping the syllabus, they will have a stronger motivation and commitment to the course (Nation & Macalister, 2010). Studies found that negotiated learning would preserve and promote autonomy among learners by granting them a role in decision-making processes and asking them to take on greater responsibility for their own learning (Ma & Gao, 2010; Rajae Nia et al., 2013).

In negotiated learning, students are required to have the confidence and ability to take personal control over the demands of the learning task. In prior literature, negotiated learning has been mainly addressed in two subject contents, foreign language learning (Felix, 2002; Lo, Tsang, & Wong, 2000) and physical education (Ennis, 1995; Wright, Macdonald, & Burrows, 2004). Related studies showed that students should have some experiences and/or knowledge about the subject, and have certain learning goals to negotiate. Topic-related experience and knowledge as well as preexisting learning goals are asserted to support and enable students to negotiate the curriculum with teachers and peers.

Moreover, in negotiated learning, not the entire curriculum is to be jointly decided by both students and teacher; some parts or aspects are to be decided upon by the teacher. For example, as the teacher is responsible for leading students toward the overarching learning goal of a course, he needs to arrange the curriculum according to the topics selected by students. Meanwhile, the topics proposed by students help teacher understand students' expectations and existing knowledge of the course, and teacher may illustrate how those topics are related to the course or provide better alternatives. It also needs to be stressed that negotiated syllabi focus on the skills and processes involved in learning and the learning experiences themselves rather than on the end products of these processes (Ma & Gao, 2010). That is, negotiated syllabi are concerned with how the subject content is learned and how this learning is integrated with learners' experiences.

## 3. Learner autonomy

Learner autonomy is the ability to assume responsibility for one's own affairs, and the ability to act in situation where the learner is totally responsible for all the decisions concerned with his learning and the implementations of the decisions (Boud, 1988; Joshi, 2011). Joshi (2011) defines an autonomous person as one who has the capacity to make and carry out the choices which govern his or her actions independently. Autonomous learners perceive themselves as being in control, they are intrinsically motivated and have confidence in themselves, and they have a capacity for active and independent learning (Arnold, 2006).

Learner autonomy is exercised at least in the following four ways: situations in which learners study entirely on their own; a set of skills which can be learned and applied in the self-directed learning; the exercise of learners' responsibility for their own learning; and the right of learners to determine the direction of their own learning (Benson & Voller, 1997; Joshi, 2011). In higher education, autonomy has been associated with freedom, choice, decision-making and with the idea that students should assume responsibility for their own learning. This is especially important today with competitiveness depending much on innovation and creativity which, in turn, values the ability to manage one's own learning, alongside specialist and technical knowledge (Wright et al., 2004). As learners have greater access to proliferating information channels and sources, for example, the Web, they should be endowed with greater learning autonomy.

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