Creating an Effective Learning Environment

For a Secondary Photography Course

By Jean Kloppenburg

Vancouver Island University

Chapter 2

Literature Review

In the fast-paced, ever-changing world of today, a major emphasis on learning has taken the educational and political spotlight. Major changes, such as economies shifting from industrial to knowledge based and rapid advances in development of Information and Communication Technology (ICT) are directly impacting what education and learning will look like in the future (Dumont and Istance, 2010). Schleicher asserts "Schools have to, not only rethink their design and approach to teaching and learning, but also prepare students for jobs that have not yet been created, technologies that have not yet been invented and problems that are not yet known will arise" (2011, p.43). He goes on to argue that what students learn, how they learn it and how they are being taught is changing and these changes have powerful implications for schools, universities, as well as for life-long learning (2011). How can educators foster motivated, engaged and dedicated learners to prepare them for the unknown challenges that await them?   Crucial to the search for this answer is the focus of 21st century learning environments and the attempts by educators to try new and innovative approaches to implement 21st century skills in their teaching.

Teaching with 21st century skills in mind has taken a central role in schools districts across the world. Are today's schools addressing and facing up to the 21st century demands, or are they still operating on the pedagogic model aimed at preparing students for an industrial economy? Schleicher reiterates that it is without question that state-of-the-art skills in any discipline will always be extremely important, but educational success is no longer about reproducing content knowledge, but about "extrapolating from what we know and applying that knowledge to novel situations" (2011, p.42). Lower–order thinking skills such as memorization, repetition, and basic comprehension were at one time useful, but are insufficient when compared to the higher-order skills, such as critical and creative thinking, elaboration, and evaluation (Gunn and Hollingsworth, 2013). Gunn and Hollingsworth note that school-aged students of today are "rapid processors of information and communication and demand more expedient methods of

instructions and communication" (2013, p.202). Furthermore, Gunn and Hollingsworth declare it "is essential that teachers and administrators be trained and informed of the benefits of information and communication technology, not only as instructional tools, but also as a means of engaging learners academically, emotionally, and socially" (2013, p.202).

This major project involves the creation of an online photography course as the direct result of searching for ways to increase student engagement by creating a 21st century learning environment where students are the centre of their learning, take ownership of their learning and are actively engaged in their learning. The exploration of how to increase student engagement has led to an investigation into current research on learning, potential benefits of online learning and the design of effective learning environments.

"Learning is the process whereby knowledge is created through the transformation of experience."

(Kolb, 1984, p.38)

In the beginning of the 20th century, the scientific study of learning began in earnest (de Corte, 2010). The major theories of learning over that century were: behaviourism, Gestalt psychology, cognitive psychology, constructivism, and socio-constructivism (Ally, 2004). Seimens (2004) insisted a new theory was needed to guide the design of online learning materials which he called connectivism (Ally, 2004). The behaviorist school of thought, influenced by Thorndike (1913), Pavlov (1927), and Skinner (1974), believed that learning is a change in observable behaviour caused by external stimuli in the environment (Ally, 2004). The Gestalt psychology is expressed in the German word "gestalt" which means "configuration"- an organised whole as opposed to a collection of parts (de Corte, 2011, p. 38). The most noteworthy contribution of the Gestalt psychology was the study of insight: learning consists of "gaining insight, discovering structure, and hence, of acquiring information" (de Corte, 2010, p.38). Cognitive psychology claims that learning involves the use of memory, motivation, and thinking, and that reflection plays an important part in learning (Ally, 2004). The constructivism theory situates learners in actively constructing their own knowledge and skills through interaction with the environment. According to

constructivist learning theories, how we construct knowledge will depend on what is already known. What we know depends on the kinds of experiences that we have had and how we have come to organize these into existing knowledge structures (Kanuka & Anderson, 1998). Resnick (1989) argued that "Learning happens not by recording information but by interpreting it" (p.2). Although many versions of constructivism exist, the common thread in each perspective is the leaner-centered approach where the teacher becomes a guide to student learning instead of a knowledge transmitter (de Corte, 2010). An offshoot to the constructivist theory is the socio-constructivism understanding of learning which is seen as "participation" or "social negotiation".   By all standards, De Corte points out that all of these learning theories brought high expectations concerning the potential to improve educational practise (2010).

The constructivist view of learning has become the "common ground" among educational psychologists (de Corte, 2010). De Corte states that constructivism and social constructivism are active concepts of learning that explore what takes place within the individual's mind and also encompass the interaction between learners and their contextual situation (2010). De Corte believes "the current understanding of learning aimed at 21st century or "adaptive" competence is characterized as "CSSC Learning" (2010, p.35). De Corte describes CSSC Learning as: "constructive", as learners actively construct their knowledge and skills; "self-regulated", with people actively using strategies to learn; "situated", best understood in context rather than abstracted from the environment; "collaborative", not a solo activity (2010, p. 35). "Adaptive competence" is seen as the ability to apply meaningfully learned knowledge and skills flexibly and creatively in different situations (Bransford et. al 2006). De Corte emphasizes that "an important component of adaptive competence consists of skills in self-regulating one's own learning and thinking and it is obvious that teacher-directed or guided learning is not the appropriate way to achieve it" (2010, p.47).

Even though the theory of CSSC Learning has received support, the constructivist approach has been under fire. Kirschner, Sweller and Clark (2006) argue that heavily relying on constructivist approaches with students experiencing discovery learning provide minimal guidance for students. Mayer claims that

"Pure discovery—even when it involves lots of hands-on activity and large amounts of group discussion—may fail to promote the first cognitive process, namely, selecting relevant incoming information"(2004, p. 17). Mayer bluntly states,

> In short, when students have too much freedom, they may fail to come into contact with the to-be-learned material. There is nothing magical to insure that simply working on a problem or simply discussing a problem will lead to discovering its solution. If the learner fails to come into contact with the to-be-learned material, no amount of activity or discussion will be able to help the learner make sense of it.   (2004, p. 17)

Mayer concludes that until "there is a reasoned, evidence-based argument for pure discovery, the best course for constructivist-oriented educators is to focus on techniques that guide students' cognitive processing during learning and that focus on clearly specified educational goals" (2004, p. 17). De Corte counter argues that "learning is an active and constructive process and does not imply that students should not be guided, or that they are not being guided through appropriate modelling, coaching and scaffolding by teachers, peers and educational media" (2010, p. 53).

   One of the characteristics of CSSC Learning is "self-regulated", with people actively using strategies to learn (de Corte, 2010). Schunk (2005) sees the current surge of interest in self-regulation among educators stemming from the work of Paul R. Pintrich. The Pintrich model and research support the hypothesized links between learning, motivation, and self-regulation (Pintrich & Schrauben, 1992). Self-regulated learning, or self-regulation, is "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment" (Pintrich, 2000, p. 453). Schunk's general conclusion is that students who display more adaptive self-regulatory strategies demonstrate better learning and high motivation for learning (2005).

   If students who display strategies for self-regulation demonstrate better learning, it follows that students will have a preference for which type of learning environment they prefer. Clayton, Blumberg

and Auld's study (2010) involving one hundred thirty-two post-secondary students viewed how student's achievement goals, self-efficacy and learning strategies influenced their choice of an online, blended or traditional learning environment. Most participants in the study preferred a traditional classroom environment over any component of online learning. Students who selected traditional environments for learning tended to be mastery oriented and committed to investing a great deal of effort in the learning process. Students who preferred non-traditional learning environments displayed a higher degree of self-efficacy that they would be successful in an online course. The findings from this study clearly highlight the importance of self-efficacy in learning. The study also derived from students' input that learners want "engaging learning environments that promote 'direct interaction with professor(s) and students', 'spontaneity', 'immediate feedback' and 'relationships with faculty and students'" (Clayton et al., 2010, p. 362). Considerations of these student-driven criteria, in keeping with students' motivations and learning strategies will inform and impact the design of effective learning environments for all students whether online or offline.

Granted, as Clatyon et al. (2010) discovered, students want engaging learning environments, but what do students find engaging in an online learning environment? Dixson (2010) wanted to know which activities and interaction channels would lead to highly engaged students in an online setting. Current research into effective online learning lead Dixson to begin her study based on three conclusions: 1. online instruction can be as effective as traditional instruction; 2) to do so, online courses need cooperative/collaborative (active) learning and 3) must have strong instructor presence. The results of Dixson's study were that "no one particular activity will automatically help students to be more engaged in online classes" (2010, p. 1). But, Dixson (2010) did find that multiple communication channels relate to higher engagement and student-student and instructor-student communication are strongly tied to higher student engagement with the course. A necessary component to an effective online learning environment is collaborative and interactive activities. Instructors need to consider learning activities that engage students with content and with each other. Multiple ways of interacting with students must be created by instructors to create their own social presence. The active involvement in the learning of their

students is paramount for instructors. Dixson claims "it is not about the type of activity/assignment but about multiple ways of creating meaningful communication between students and with their instructor – it's all about connections" (2010, p. 8).

   Not every researcher, like Dixson, believes the common conclusion that online instruction can be as effective as traditional instruction. Jaggars and Edgecombe (2013) report that the CCRC (Community College Research Center) research indicates that students perform more poorly in online courses than they do in face-to-face courses. This research highlights the weaknesses of online learning and provides evidence that online courses may not be providing the range and intensity of supports that students need to perform online. Interestingly enough, students and instructors differed on their expectations and responsibilities in online courses. Instructors held a belief that the online students were independent learners who were all self-motivated and skilled in time management. On the other hand, students had an expectation that the instructors would guide them with time management and would motivate them through active engagement in the learning process. Paying close attention to teacher and student expectations and how they might differ might make online courses more effective and satisfying for students and instructors. Jaggars and Edgecombe (2013) state that by improving student preparation and support, course quality and design, and faculty professional development would maximize the effectiveness of online courses.

   Friedman and Friedman counter the argument that students are not interested in taking fully online courses in their review of several studies relating to student engagement in online courses.   According to the Sloan Consortium study conducted in 2010, nearly 30% of college students were taking online courses (Allen and Seaman, 2010). According to the Babson Survey Research Group 2011 study, approximately 31% of college students were taking at least one online course (Allen & Seaman, 2011). Online course have come a long way from their beginnings as correspondence courses in the 19th century. They have evolved to incorporate 21st century pedagogies in which communication, interaction, and student engagement, active learning, and assessment are of critical importance (Friedmann, 2013). Means et al.

(2009) did a meta-analysis of more than 1,000 studies published from 1996 to 2008 comparing online

with traditional classroom teaching. Their results were that online learning offers many advantages over

traditional classroom learning. Better yet, Means et al. (2009) discovered that students who take courses

that are either completely or partially online will perform better than students taking traditional, face-to-

face courses. The best of all delivery models was the hybrid courses that combine classroom learning with

online learning.   Friedman argues:

> the best of online learning, much like the best of FTF learning, requires
>
> active engagement on the part of the student. Rather than being passive
>
> recipients of transmitted knowledge, students are active participants in the
>
> learning process; they are engaged. Students – not only the instructor –
>
> help to create the learning environment.   (2013, p.11)

Selingo (2012) feels that "despite resistance to the idea from academics," the evidence is there that online

education has the ability to lower costs and improve the quality of education. William E. Kirwan,

chancellor of the University System of Maryland, believes that, in the future, the typical college class will

be a "hybrid of in-person and online elements" (Friedmann, 2013, p. 17). Hybrid classes may be on the

horizon for both college and secondary schools.

   If hybrid classes are predicted to be the norm for future classrooms, educators are going to need to

adjust their teaching philosophy and adopt principles for online pedagogy. Bill Pelz, recipient of the 2003

Sloan-C award for Excellence in Online Teaching, turned his philosophy of teaching around realizing "the

learner is, for the most part, in charge of what gets learned (2010, p. 103)." Pelz learned the more

'quality' time students spend engaged in content, the more of that content they learned. Pelz began

teaching with the 'I talk–you listen' style and soon realized students listening to an enthusiastic lecturer is

not the 'quality' time on task students need to learn. "A lecture is the best way to get information from the

professor's notebook into the student's notebook without passing through either brain." (Pelz, 2010, p.

103). Pelz began to put together principles for learning that would put his students in charge of their own learning.

Pelz's Online Pedagogy:

> **Principle #1**   Let students do most of the work: student led discussions; students find and discuss web resources; students help each other learn; students evaluate their own work.

> **Principle#2**: Interactivity is the heart and soul of effective asynchronous learning: students interact with one another, the teacher, the text, the internet, with the entire class or in small groups or teams, or with a partner. Students discuss the content and interact regarding assignment, problems to solve, and projects.

> **Principle#3: Strive for presence:** Research in the field of online learning suggests that discussion responses that add value to a discussion fall into one or more of three categories: Social Presence, Cognitive Presence, or Teaching Presence (Anderson, 2000). Social Presence is when participants create a community of learning by projecting their personal characteristics into the discussion — they present themselves as "real people."

> (Pelz, 2010, p. 103-111)

Pelz finds that online students bond earlier and 'better' than students sitting in the same classroom. There is an absence of appearance-based factors that can inhibit self-expression and create stereotypical expectations. Further, possibly because of the anonymity of the asynchronous mode, online students tend to self-disclose to a greater extent than those sitting face to face (2010).

> *"Learning results from what the student does and thinks and only from*

what the student does and thinks. The teacher can advance learning only

by influencing what the students does to learn.

Herbert Simon (n.d.)

Pelz's principles for an effective online learning environment are about "personalization" where students are at the centre of their learning, about" interactivity" where students discuss, problem solve and collaborate, and about a strong "presence" where all participants, including the teacher, create a community of learning. These same characteristics of an effective online environment can be applied to a 21st century learning environment with a few additions. Istance and Dumont summarize the current research on how one designs an effective learning environment for 21st Century learning and conclude it is one that:

- Makes learning central, encourages engagement, and in which learners come to understand themselves as learners.

- Is where learning is social and often collaborative.

- Is highly attuned to the learner's motivations.

- Is acutely sensitive to the individual differences, including prior knowledge.

- Is demanding for each learner, but without excessive overload.

- Uses assessment consistent with its aims, with strong emphasis on formative feedback.

- Promotes horizontal connectedness across activities and subjects, in- and - out of school.

(Istance, Dumont, 2010, p. 317)

Whether traditional, online or a hybrid, "the learning environment recognises that the learners in them are the core participants, because knowledge is always constructed by the learner" (Instance, Dumont,2010, p.319). The principles for an effective learning environment for both online and 21st century learning are about "personalization" where students are at the centre of their learning, take

ownership of their learning and are actively engaged in their learning. Istance and Dumont note, "If an effective learning environment makes the activity of learning central and reflects the rich diversity of individual differences, it needs to be information rich, especially for the learning professionals working within it" (2010, p. 329). A learning environment where the activity of learning is made central pays close attention to what is being done when learning is engaged; hence, it encourages students to be 'self-regulated learners' (Instance, Dumont 2010). Further noted by Istance and Dumont is the importance of knowledge management and the use of rich technologies to not only stimulate learning, but also manage information about learners (2010).   Effective learning is not a 'solo activity' but a 'distributed one', where individual knowledge construction occurs with the processes of interaction, negotiation, and co-operation (De Corte, 2010). But as Instance and Dumont point out, the importance of co-operative learning as a 21st century competency does not downgrade "autonomous work, personal research, and self-study" (2010, p. 321). "One benefit of adopting the learning environments perspective is to bring to the fore how effective learning will involve different pedagogies and modes of study over the course of a learning day, week, or month, not depend on a single approach" (Istance, Dumont 2010, p. 321).

The search for new and innovative approaches to implementing 21st century skills in teaching provides educators with extensive research on learning and designing effective learning environments that involve different pedagogies. Effective learning environments for the 21st century learners can be characterized as: learner centered but with a strong central role for teachers, structured with professionally designed learning environments that allow plenty of room for inquiry and autonomous learning, personalised in being sensitive to individual differences, and fundamentally social in nature (Istance and Dumont, 2010).

The creation of an online photography course to increase student engagement can be accomplished by adhering to these principles for an effective learning environment. Keeping in mind the crucial role of teachers as designers and orchestrators of the learning environment, "learning is not something that takes place just inside individuals but is about their structured interactions with content, with the learning professionals and with the resources, facilities and technologies" (Istance, Dumont 2010, p. 327) .

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