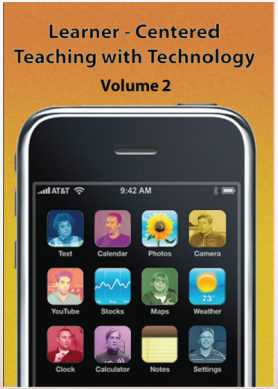
# Learner-centered E-Teaching


MEMORIAL UNIVERSITY

Newfoundland & Labrador, Canada

KILLICK CENTRE FOR E-LEARNING RESEARCH

A COMMUNITY-UNIVERSITY RESEARCH ALLIANCE

www.killickcentre.ca

Created by:
Elizabeth Murphy
&
Kate Scarth
2009

The texts contained in this booklet feature the voices of urban high-school teachers in Newfoundland, Canada. Their voices were captured during discussions in December, 2007. The discussions focused on learner-centered e-teaching (LET) in the high-school classroom. The teachers' perspectives on LET were subsequently analyzed and coded in relation to the four dimensions of the research-validated learner-centered principles of the American Psychological Association (APA, 1993). They were then placed in a three-volume video set.

This booklet features the voices of teachers grouped according to the following headings:

1. Cognitive and metacognitive factors

2. Motivational and affective factors

3. Developmental, social, and individual differences factors

The voices are the same as those in the videos. The booklet also includes a copy of APA's learner-centered principles.

The videos are available at http://www.youtube.com/user/elizmurphy.

# Questions for Reflection

The multiple perspectives presented in this booklet can be used by schools and teachers to support collaborative and individual reflection on how electronic technologies might be integrated into learning in ways that support a learner-centered approach.

The following questions are provided to support reflection:

1. For you, what is the main idea or theme in this perspective?
2. What do you do currently in your practice that reflects the perspective?
3. How might you change your practice to better reflect the perspective?
4. What barriers will you need to overcome to reflect that perspective in your practice?
5. What supports are already in place to help you reflect the perspective?

# Contact

Elizabeth Murphy, Ph.D.
Associate Professor
Faculty of Education
Memorial University
St. John's, Newfoundland,
Canada
A1B 3X8
Voice: (709) 737-7634
Fax: (709) 737-2345

# Learner-Centered Principles

## Cognitive and Metacognitive Factors

APA Task Force on Psychology in Education. (1993). *Learner-centered psychological principles: Guidelines for school redesign and reform*. Washington, D.C.: American Psychological Association and Mid-Continent Regional Educational Laboratory.

## *1. Nature of the learning process.*

*The learning of complex subject matter is most effective when it is an intentional process of constructing meaning from information and experience.*

There are different types of learning processes, for example, habit formation in motor learning; and learning that involves the generation of knowledge, or cognitive skills and learning strategies. Learning in schools emphasizes the use of intentional processes that students can use to construct meaning from information, experiences, and their own thoughts and beliefs. Successful learners are active, goal-directed, self-regulating, and assume personal responsibility for contributing to their own learning. The principles set forth in this document focus on this type of learning.

## *2. Goals of the learning process.*

*The successful learner, over time and with support and instructional guidance, can create meaningful, coherent representations of knowledge.*

The strategic nature of learning requires students to be goal directed. To construct useful representations of knowledge and to acquire the thinking and learning strategies necessary for continued learning success across the life span, students must generate and pursue personally relevant goals. Initially, students' short-term goals and learning may be sketchy in an area, but over time their understanding can be refined by filling gaps, resolving inconsistencies, and deepening their understanding of the subject matter so that they can reach longer-term goals. Educators can assist learners in creating meaningful learning goals that are consistent with both personal and educational aspirations and interests.

## *3. Construction of knowledge.*

*The successful learner can link new information with existing knowledge in meaningful ways.*

Knowledge widens and deepens as students continue to build links between new information and experiences and their existing knowledge base. The nature of these links can take a variety of forms, such as adding to, modifying, or reorganizing existing knowledge or skills. How these links are made or develop may vary in different subject areas, and among students with varying talents, interests, and abilities. However, unless new knowledge becomes integrated with the learner's prior knowledge and understanding, this new knowledge remains isolated, cannot be used most effectively in new tasks, and does not transfer readily to new situations. Educators can assist learners in acquiring and integrating knowledge by a number of strategies that have been shown to be effective with learners of varying abilities, such as concept mapping and thematic organization or categorizing.

## 4. *Strategic thinking.*

*The successful learner can create and use a repertoire of thinking and reasoning strategies to achieve complex learning goals.*

Successful learners use strategic thinking in their approach to learning, reasoning, problem solving, and concept learning. They understand and can use a variety of strategies to help them reach learning and performance goals, and to apply their knowledge in novel situations. They also continue to expand their repertoire of strategies by reflecting on the methods they use to see which work well for them, by receiving guided instruction and feedback, and by observing or interacting with appropriate models. Learning outcomes can be enhanced if educators assist learners in developing, applying, and assessing their strategic learning skills.

## *5. Thinking about thinking.*

*Higher order strategies for selecting and monitoring mental operations facilitate creative and critical thinking.*

Successful learners can reflect on how they think and learn, set reasonable learning or performance goals, select potentially appropriate learning strategies or methods, and monitor their progress toward these goals. In addition, successful learners know what to do if a problem occurs or if they are not making sufficient or timely progress toward a goal. They can generate alternative methods to reach their goal (or reassess the appropriateness and utility of the goal). Instructional methods that focus on helping learners develop these higher order (metacognitive) strategies can enhance student learning and personal responsibility for learning.

## *6. Context of learning.*

*Learning is influenced by environmental factors, including culture, technology, and instructional practices.*

Learning does not occur in a vacuum. Teachers play a major interactive role with both the learner and the learning environment. Cultural or group influences on students can impact many educationally relevant variables, such as motivation, orientation toward learning, and ways of thinking. Technologies and instructional practices must be appropriate for learners' level of prior knowledge, cognitive abilities, and their learning and thinking strategies. The classroom environment, particularly the degree to which it is nurturing or not, can also have significant impacts on student learning.


# Learner-Centered Principles

## Motivational and Affective Factors

APA Task Force on Psychology in Education. (1993). *Learner-centered psychological principles: Guidelines for school redesign and reform*. Washington, D.C.: American Psychological Association and Mid-Continent Regional Educational Laboratory.

# *7. Motivational and emotional influences on learning.*

*What and how much is learned is influenced by the learner's motivation. Motivation to learn, in turn, is influenced by the individual's emotional states, beliefs, interests and goals, and habits of thinking.*

The rich internal world of thoughts, beliefs, goals, and expectations for success or failure can enhance or interfere with the learner's quality of thinking and information processing. Students' beliefs about themselves as learners and the nature of learning have a marked influence on motivation. Motivational and emotional factors also influence both the quality of thinking and information processing as well as an individual's motivation to learn. Positive emotions, such as curiosity, generally enhance motivation and facilitate learning and performance. Mild anxiety can also enhance learning and performance by focusing the learner's attention on a particular task. However, intense negative emotions (e.g., anxiety, panic, rage, insecurity) and related thoughts (e.g., worrying about competence, ruminating about failure, fearing punishment, ridicule, or stigmatizing labels) generally detract from motivation, interfere with learning, and contribute to low performance.

## 8. *Intrinsic motivation to learn.*

*The learner's creativity, higher order thinking, and natural curiosity all contribute to motivation to learn. Intrinsic motivation is stimulated by tasks of optimal novelty and difficulty, relevant to personal interests, and providing for personal choice and control.*

Curiosity, flexible and insightful thinking, and creativity are major indicators of the learners' intrinsic motivation to learn, which is in large part a function of meeting basic needs to be competent and to exercise personal control. Intrinsic motivation is facilitated on tasks that learners perceive as interesting and personally relevant and meaningful, appropriate in complexity and difficulty to the learners' abilities, and on which they believe they can succeed. Intrinsic motivation is also facilitated on tasks that are comparable to real-world situations and meet needs for choice and control. Educators can encourage and support learners' natural curiosity and motivation to learn by attending to individual differences in learners' perceptions of optimal novelty and difficulty, relevance, and personal choice and control.

## *9. Effects of motivation on effort.*

*Acquisition of complex knowledge and skills requires extended learner effort and guided practice. Without learners' motivation to learn, the willingness to exert this effort is unlikely without coercion.*

Effort is another major indicator of motivation to learn. The acquisition of complex knowledge and skills demands the investment of considerable learner energy and strategic effort, along with persistence over time. Educators need to be concerned with facilitating motivation by strategies that enhance learner effort and commitment to learning and to achieving high standards of comprehension and understanding. Effective strategies include purposeful learning activities, guided by practices that enhance positive emotions and intrinsic motivation to learn, and methods that increase learners' perceptions that a task is interesting and personally relevant.

# Learner-Centered Principles

## Developmental & Social Factors

APA Task Force on Psychology in Education. (1993). *Learner-centered psychological principles: Guidelines for school redesign and reform*. Washington, D.C.: American Psychological Association and Mid-Continent Regional Educational Laboratory.

## *10. Developmental influences on learning.*

*As individuals develop, there are different opportunities and constraints for learning. Learning is most effective when differential development within and across physical, intellectual, emotional, and social domains is taken into account.*

Individuals learn best when material is appropriate to their developmental level and is presented in an enjoyable and interesting way. Because individual development varies across intellectual, social, emotional, and physical domains, achievement in different instructional domains may also vary. Overemphasis on one type of developmental readiness--such as reading readiness, for example--may preclude learners from demonstrating that they are more capable in other areas of performance....

## *10. Developmental influences on learning. (Cont'd)*

*As individuals develop, there are different opportunities and constraints for learning. Learning is most effective when differential development within and across physical, intellectual, emotional, and social domains is taken into account.*

....The cognitive, emotional, and social development of individual learners and how they interpret life experiences are affected by prior schooling, home, culture, and community factors. Early and continuing parental involvement in schooling, and the quality of language interactions and two-way communications between adults and children can influence these developmental areas. Awareness and understanding of developmental differences among children with and without emotional, physical, or intellectual disabilities, can facilitate the creation of optimal learning contexts.

# *11. Social influences on learning.*

*Learning is influenced by social interactions, interpersonal relations, and communication with others.*

Learning can be enhanced when the learner has an opportunity to interact and to collaborate with others on instructional tasks. Learning settings that allow for social interactions, and that respect diversity, encourage flexible thinking and social competence. In interactive and collaborative instructional contexts, individuals have an opportunity for perspective taking and reflective thinking that may lead to higher levels of cognitive, social, and moral development, as well as self-esteem. Quality personal relationships that provide stability, trust, and caring can increase learners' sense of belonging, self-respect and self-acceptance, and provide a positive climate for learning....

## *11. Social influences on learning. (Cont'd)*

*Learning is influenced by social interactions, interpersonal relations, and communication with others.*

....Family influences, positive interpersonal support and instruction in self-motivation strategies can offset factors that interfere with optimal learning such as negative beliefs about competence in a particular subject, high levels of test anxiety, negative sex role expectations, and undue pressure to perform well. Positive learning climates can also help to establish the context for healthier levels of thinking, feeling, and behaving. Such contexts help learners feel safe to share ideas, actively participate in the learning process, and create a learning community.

# Learner-Centered Principles

## Individual Differences Factors

APA Task Force on Psychology in Education. (1993). *Learner-centered psychological principles: Guidelines for school redesign and reform*. Washington, D.C.: American Psychological Association and Mid-Continent Regional Educational Laboratory.

## *12. Individual differences in learning.*

*Learners have different strategies, approaches, and capabilities for learning that are a function of prior experience and heredity.*

Individuals are born with and develop their own capabilities and talents. In addition, through learning and social acculturation, they have acquired their own preferences for how they like to learn and the pace at which they learn. However, these preferences are not always useful in helping learners reach their learning goals. Educators need to help students examine their learning preferences and expand or modify them, if necessary. The interaction between learner differences and curricular and environmental conditions is another key factor affecting learning outcomes. Educators need to be sensitive to individual differences, in general. They also need to attend to learner perceptions of the degree to which these differences are accepted and adapted to by varying instructional methods and materials.

## *13. Learning and diversity.*

*Learning is most effective when differences in learners' linguistic, cultural, and social backgrounds are taken into account.*

The same basic principles of learning, motivation, and effective instruction apply to all learners. However, language, ethnicity, race, beliefs, and socioeconomic status all can influence learning. Careful attention to these factors in the instructional setting enhances the possibilities for designing and implementing appropriate learning environments. When learners perceive that their individual differences in abilities, backgrounds, cultures, and experiences are valued, respected, and accommodated in learning tasks and contexts, levels of motivation and achievement are enhanced.

## *14. Standards and assessment.*

*Setting appropriately high and challenging standards and assessing the learner as well as learning progress -- including diagnostic, process, and outcome assessment -- are integral parts of the learning process.*

Assessment provides important information to both the learner and teacher at all stages of the learning process. Effective learning takes place when learners feel challenged to work towards appropriately high goals; therefore, appraisal of the learner's cognitive strengths and weaknesses, as well as current knowledge and skills, is important for the selection of instructional materials of an optimal degree of difficulty. Ongoing assessment of the learner's understanding of the curricular material can provide valuable feedback to both learners and teachers about progress toward the learning goals....

## *14. Standards and assessment. (Cont'd)*

*Setting appropriately high and challenging standards and assessing the learner as well as learning progress -- including diagnostic, process, and outcome assessment -- are integral parts of the learning process.*

....Standardized assessment of learner progress and outcomes assessment provides one type of information about achievement levels both within and across individuals that can inform various types of programmatic decisions. Performance assessments can provide other sources of information about the attainment of learning outcomes. Self-assessments of learning progress can also improve students self appraisal skills and enhance motivation and self-directed learning.

# Cognitive and Metacognitive Factors

We’re all products of our time. Teachers in the past could only deal with the tools they had at their disposal. They saw their responsibility as translating the content as directly as possible through a lecture, through note-taking, scripting, or drawing to get it into kids’ minds. It was very much a transmissive model.

There is so much out there and students aren't sure that everything they read is 100% correct. Is it scientific? There's so much opinion. There's so much misuse of knowledge. Your role as a teacher is to guide the students into opening their minds and asking why. So if they see a statistic: who made the study? who commissioned the study? what is the study about? is the interpretation of statistics the right thing? When they can graduate from this school, as long as they can answer the question or ask why, then you've achieved your goal.

The students will walk through our doors eventually and what allows them to carry on? If you can allow them to have the skills to let them answer their own questions as they move on, that's probably the greatest gift that you can give, because you're not always going to be there. If they always relied on the teacher giving the information, that's not going to cut it when they leave and you really haven't given them something that they can hang on to. Technology allows that when you give them the chance to explore and give them the skills to be able to use it properly.

Kids today are visual. They're brought up on videos. They're brought up on TV. They don't read the newspapers. They have no idea what's going on out there and you've got to try to find a program or a video on the issue that you're talking about. Then they can see it and then, oftentimes, you'll get comments back from them: 'I didn't realize it was like that or I didn't know that before. That really happened, did it?'

With so much information out there, the problem for students is trying to see what's good and what's bad. That's the role of the classroom teacher. For instance, on Wikipedia, a lot of students don't know that anyone can edit anything. So, you always tell the students that Wikipedia is a starting point, but not to be used as a reference point. Most encyclopaedias are online now. Reference books in the library are not being used because everything is newer and more current and immediate on the Internet.

A concern is when the technology is used for the very same reasons that you would use paper and pencil. Even though you're using expensive, fancy, cool technology, you're not actually getting any benefit or actually meeting the outcomes. You're not getting into higher-order thinking skills or paying attention to Bloom's taxonomy. You need to look at your curriculum and say, 'ok how do I get them to think more deeply about this, evaluate or synthesize this,' as opposed to just doing a little drill and practice on the computer, which is great, but it doesn't really promote higher thinking. So, before you even think about technology, you have to make sure that your curriculum and your planning have the capability to encourage higher-order thinking skills.

The difference for the student between chalk diagrams or whiteboard drawings and the Internet is that the Internet's real. This is what is happening either yesterday or this is the forecast for tomorrow or this is a live shot. This is live or the latest image from the Hubble telescope or the latest image from the GEO satellite. This is now. This is real. This is the next best thing to actually being in a hurricane, being in the thunderstorm. This is the closest we can get. This is what it looks like. If you were on the ground where the photographer is, this is what you'd be seeing.

Students are so involved in this Internet world and they're so comfortable in it. We come in as the teachers and this is not our nature, whereas they have grown up with it and they have an ownership there, a place in it. Once you bring it to that level, then it really becomes a genuine experience for them, because they can relate to it in their school environment, in their studies, and it is something that they can bring to their outside world. So they may have a blog, but that might become something that lives outside of the classroom and it's no longer for the sole purpose of evaluation. It takes on a life of its own and they look forward to it. They enjoy it, and it becomes an experience for them outside of academics.

As teachers we should be models. We should reflect the behaviours we value, not just the moral behaviours, but the learning behaviours. If we want kids to be curious and enquiring, if we want kids to learn how to synthesize, to be critical, to be collaborative, we need to demonstrate those things in front of them. What better way to do that, than to be part of the world they're living in, in the sense that they're dealing with technology and so are we?

The difference between a student today versus a student 40, 30, or 20 years ago is the prevalence of technology and the sheer volume of technology available to students. It's not outside of them. It is them. So when we do our lessons using chalk, notes, overheads, we are now outside of them. The technology -- iPods, cell phones, the Internet, YouTube, Facebook, as examples of Internet applications, movies -- that is their world. So for them, they don't find it so much that it's a motivating thing as it is a defining thing. It's what they do on a daily basis.

Years ago, basically, if you wanted more information, the teacher was your only source, besides an encyclopaedia, that was it. Now, the teacher is just one of a myriad of sources that students can go to. And there's a difference in perception of what the teacher is. The teacher becomes then more of a guide in the knowledge process. The teacher will guide the students' learning more than provide them with everything they need to know.

The big highlight for using computers and technology in the classroom is that the world is at your fingertips, whether it's a video presentation from YouTube or whether it's animations that will help show different processes that are very hard to describe. If you're looking at the seasons, for example, it's endless what you can show with animations versus explaining it. The websites, the pictures support everything in the curriculum. It's all there.

In the past, the opportunities for a child to go different places in a body of content were limited. They were limited to what the text had, perhaps the experience or the background of the teacher, and perhaps the nature of information access in their community. These days, the world is much more open. The classroom has to be much more open. The instruction is not simply a lecture or one book only, because the world is impacting on those children. No teacher can ignore that. What that brings with it, along with other technologies like software, web, other things that might be course specific, is that you can give children opportunities to find their own way.

The web has provided a sort of unlimited learning. It's like having an encyclopaedia at your fingertips, but the whole world is your fingertips. That's exciting. That certainly wasn't there 20 years ago. 20 years ago, the one encyclopaedia that you had in your library -- the Britannica encyclopaedia -- was what you had. If you were lucky, you had the World Book and that was all you had access to.

There’s a lot more emphasis on students finding the knowledge. So you pose a question, but instead of you providing the answer, you ask them: ‘ok now, go find the answer,’ and technology allows them to do that.

The more you look at the textbooks, the more limiting they are. They're one person's perspective, one diagram, etc., whereas, when you look at the Internet, it's open, wide open, and there's so much that they can look at it. That just makes a much better learning environment.

Virtual labs, particularly the very well-constructed ones that allow for the manipulation of variables, give students a risk-free environment in which they can answer the what-if questions: ‘What if I change this variable? What will be the effect? What if I alter this particular variable? What will be the effect?’ A structured lab within an one-hour or an one-and-a-half-hour time period in the school environment does not necessarily offer students that opportunity to explore. It’s not a risk-free environment.

The change in the technology for mathematics teachers is that now there's software out there in a hand-held device that will allow them to create a truly mathematical environment in the palm of their hands. The difference is that it's just not something that can turn lights on for different values and show you a picture. It allows investigating a relationship geometrically, grabbing values from it dynamically like on the fly, in a spreadsheet, watching a scattered fly of one quantity against another unfold in front of your eyes documented with notes pages as you go. So it's going to fundamentally change how teachers create learning experiences for students, because the ability to do those things hasn't existed before.

For teachers who are close to finishing their careers, or who may not be so computer friendly, the students can lead the way. The teacher introduces something and then students will say, 'oh, that's on YouTube.  I'll bring it in for you.  I can download that from the internet for you.' So there's a kind of reverse education happening there, a shared learning where the teacher brings up the material and the students find the technology to enhance it and that allows them to participate in learning more than when the teacher is the sole deliverer of the learning.


# Motivational and Affective Factors


Technology is coming out yearly and students embrace it wholeheartedly. The more complex, the more challenging it is, they love it. They can't wait to get the iPod phone. The iPod phone can do ten million things. They can't wait to get it and figure out every single one of them. That's their attitude. They will spend hours and countless hours sitting down at a technology game or item of technology. They will spend hours and countless hours, perfecting and playing. It's one thing that that they don't seem to have a tolerance level for. They will just do it endlessly. If you can somehow tie what you're teaching into their enthusiasm for technology, if you can find a way to meld the two, you will have their undivided attention, and, for many of them, their undivided energy. It doesn't matter, they will work weekends, after-schools, lunchtimes, it doesn't matter.


They're not walking in and walking out changed academically, but they're changed in their heart. They're excited about things. They have a desire to come to class and to learn things. And that's not the teacher doing that. It's the tinder. It's the extra stuff that's put in the classroom for them. Any teacher can do that, can bring in those little bits to appeal to that particular group, that particular student. You'll say, 'it could be too much trouble, it could be this, it could be that.' These are kids: it's not that big of trouble. You might have a little bit of trouble at first but get someone to show you. It won't take that long, and you'll soon find this thing takes on a life of its own.


When you try to increase your integration of technology, there is that initial period where you do have to learn a few more things. It may be a little bit more difficult for the teacher. The workload may increase a little bit. But when you come out on the other end and you have these three or four new programs that you now understand how to use, the benefit you'll see in the classroom far outweighs the extra time or effort that you had to put in at the beginning. The students will appreciate the effort that you've put in to try to understand a bit of what they consider to be a little piece of their world or their understanding or what they relate to. You may think it goes unnoticed but they notice these things and they really appreciate it, and you'll see the effort you put in comes back tenfold on the students' side.


Kids who would normally be sitting down, doing very little in the classroom, very hard to motivate, you put them in front of a computer and all of a sudden, they're in there and it's just a matter of tweaking and managing to keep them in line, giving them something fairly definite, a goal of what to search for. In many cases, a lot of students will find a tremendous amount of information that you're not even aware of. They have the time: they're not having to go home and having to cook, to clean and do everything else adults are doing. So a lot of them will go in and spend hours just digging deeper and deeper into topics. It's quite amazing a lot of times when they come back to the classroom and some of the things that they actually bring up.


Teachers, who are not terribly computer literate, sometimes feel at a disadvantage or feel overwhelmed by the amount of technology that is coming at them and the speed at which it is coming at them. There's a tendency to resist it, because you can't cope with all that. You can relax about it and maybe open it up to the students because that's the students' expertise, finding things on the technology and using it. The projector swings into your room and you say, 'students, set it up, get it all ready. Does anybody know how to download music?' If you need a particular song, you ask if somebody can find it for you, if somebody can download it. If you've heard that on YouTube there may be something relevant to your course, you ask if somebody can look and find it for you. They'll download it and bring it in. So if you open it up to students, students are more than willing and quite enthusiastic to help the technology-challenged teacher who doesn't know how to do it.


Once students enter the web, it is individually driven where they want to go, and anytime a teacher can tap into that with a student, the student is a lot more motivated to find out more. So you're not telling them that, in today's class, everyone is going to take the calendar for the College of the North Atlantic. It may not be of interest to 10 or 12. They may do the assignment, but you're not getting real learning. But once you open up assignments in terms of the Internet, and you say, 'this is very broad. You can pursue and go along here and branch off,' students will find that they never knew that this was a field and branch off. You're really allowing that person to create their own learning for themselves, which as an individual source, like a textbook, you just can't possibly do.


As soon as you tell students that there's a real audience, their writing changes. Sometimes, it becomes a little less open, because when they think that other people are going to read it, they become a little bit more protective of their ideas or what they want to say. But, also, having a real audience helps them think that now they have a purpose for writing, they have an audience so they have to be a little bit more clear. They have to be thinking a little bit more. They just can't slap it down. They're so used to the teacher being their only audience that sometimes when you have a blog or you have even an Internet audience or a cyber audience, it does make a difference for their writing.


A learner now is not necessarily the one who sits back and passively writes notes and that's it and memorizes them and that is their only participation in their learning process. Now they are quite willing to go out and access knowledge and find out for themselves. So the teacher instead of imbibing all the knowledge to them will tell them to go find it and then come back and tell the teacher what they found. Then the teacher and student will discuss that and see what they think of that and they'll share it with the other people in the class. So there still is the teacher/learner but the roles are different. The teacher now is becoming more of a facilitator, more of a guide, less of an imparter of knowledge. The learners are still learners, but their role is less passive and more active.


Change is not the issue. The issue is whether you want to change. If you want kids to be active and involved and all those sorts of things and you want them to be enquiring, you've got to demonstrate those skills in the classroom. You can't always separate your lives as adults where you learn and you're active and then all of a sudden you don't demonstrate that. You absolutely need to see the connections, because kids see them and so that's a big part of keeping your teaching inspiring.


Something that is really important to remember to help capture students' interest and motivation relies on teachers looking at their own lives and how they learn and how they enjoy and what experiences online or what experiences in life that they enjoy the most. It's like when you were a child and when you were immersed in play, time disappeared and you blinked and it was lunchtime. The experiences that as adults you have like that, what you should do as teachers is capture some of the elements of that that really brought you to that place where time disappears. If you can identity those things -- although they're individual to you -- and bring them to your teaching whether it involves the web or some other technology or some other interactive event, then that's really one thing that will inspire kids or allow your teaching to begin to inspire kids.


The use of technology in the classroom should not be viewed as simply a lateral move from chalk to overhead to PowerPoint. It's so much more than that. It's so much more vibrant. It's tangible. It's its own entity. It hits on things that kids experience on a daily basis when they go home. When they come back to the classroom, if teachers could tap into that, that would be a wonderful way for teaching.


Two things come about by students developing their own website or if it could ever come to pass that they could develop their own CD or tutorial. You learn so much more by preparing that particular topic and delivering it and not only do you learn it, it's permanent. It stays with you. It's not something that's memorized and you forget trying to get through a test. You will remember that when you're sixty. You might not remember anything else but that particular topic is with you. Students pay attention to students and understand students so much better than they would a textbook or a teacher or one of those terrible 1960s videos with the monotone guy in the background doing all the science.


For French-language teachers in second-language classrooms, one of the ideas that could be used to motivate students in a more real-life context would be to tap into their love of using chat rooms, blogs, and that type of thing by requiring them to respond to postings in the target language in a particular blog or chat room type of environment, letting them know that everybody's postings will be visible to everybody else, that they will be visible to the teacher, that they must be in the target language. Knowing that others are looking at this, perhaps they take a little bit more ownership of and care in the use of the language.


Students are very comfortable as the digital natives in this area of Facebook and YouTube and are very motivated to watch videos, movies, talk to each other, communicate, albeit in a less conventional way than we would like them to: not using capitals, not using punctuation, using shorthand. As immigrants to this new environment, teachers have to start changing the way they think and take what they've already been doing that is creative and that is higher order and bring it into this new environment. The kids would be more motivated.


If they're only doing the assignment to get the marks, they may do it but the learning is very shallow and it's forgotten when they go through the doors and that's not anything anyone wants. But if you actually look at what they view as fun, pursuing something that they find really interesting and personally relevant to them then that's the thing that will hold them. That's the power that technology can allow us.


If you asked the majority of your students, do they prefer if you use gadgets and technology or do they prefer sitting in your class and having you talk at them, without a doubt, they prefer the bells and whistles, whether that's a DVD or an online animation or them doing something with technology, they prefer it.


If they have an assignment to do and you give them a little bit of wiggle room -- they can create a video, they can create a podcast and listen to it in the classroom, they can create these different things digitally -- then it really does allow them that freedom to work within what they're comfortable with and it suddenly becomes exciting and engaging.


Teachers know their students, and they see what their students like, what motivates their students, and you can't miss the technology when students all come in with iPods and cell phones and are taking pictures. That is something a teacher would say automatically, 'I need to know' or 'I do know how I can use that'.


You've got to have a stake in the same things that they're experiencing. If you do that, then they'll respond to you. They'll see you as credible. They'll see you as interested. They'll see you as current. And, in this day and age, currency is everything. It really is everything, because everything in their life is current, whether it's having news feeds on their laptop or having sports scores on their cell phone. Children today don't see you as current even though they may still respect your knowledge. It's one extra piece of leverage in that relationship that is the collaboration between the teacher and the student.

# Developmental, Social, and Individual Differences Factors


Technology is creating more of a shared learning situation, more of a participatory learning system where you can still contribute the old material -- the poem or the novel or the story -- and the kids are then able to bring you in the new technology. They know how to find it out there, because they're out there all the time. And it gives them a sense of empowerment to say, 'I can do that' and they bring it in and share it. It creates a heightened interest in the material when they have that kind of new spin on things.


One of the most exciting things about technology is that it really does take what used to be sort of one teacher and thirty students and everybody's learning the same thing, the same way at the same time, and make it a lot more individualized. Every learner now has the opportunity to learn at a speed that's comfortable for them, to produce things at a level that's challenging enough for them or easy enough for them. Through that, it taps into things like their creativity and uses many of their different intelligences.


One of the ways that you can create magic is providing opportunities for the students to pursue what interests them.  Another important one is that they can collaborate with each other and then bring it back and present their ideas. That's the full picture.


You learn so much from students who are really weak or who struggle in school. You learn a lot from them when you see them use the Internet, for example, to follow a certain number of steps or to use an actual program that you haven't got any idea how to use and they have no trouble using. But then if you ask them to follow a series of steps on a page or on a book, they just sit there. So they engage, especially slow learners or learning-disabled students. Technology is a way to break down those barriers that keeps them from thinking that they can't learn something.


When you're using technology in any classroom setting, it's ideal to let the project or the assignment be as open-ended as possible. Open-ended means that you don't want to have a fixed starting point that it must be a 500-word essay or it must be a pencil sketch or it must be whatever. Let it be as open-ended as possible.


If you're strong in your curriculum and you understand what the outcomes are, what the students are supposed to show or what's supposed to be reflected, it's easy to evaluate the technology. If you're strong in your curriculum, and you understand it, it will be clear how the learning has taken place and how you would evaluate it.


When you're comparing the two forms -- the written form compared to a web-based or a PowerPoint assignment -- there are things that you're going to be missing: the structuring, word usage, diction. But you really have to look at the assignment and what percentage of your weighting of the assignment was based upon these things. Was your real outcome for the students to develop an understanding of the novel or whatever you're trying to evaluate and can that be expressed digitally, not in the traditional word on paper, be it printer or pencil? And that can be done in most cases. Sometimes, it may mean adapting a rubric but once you make that step and you bridge that gap, it becomes easier and the students will really appreciate that step you've taken towards them.


The technology provides an asynchronous method of students doing an assignment. They're not all doing it at the one time with the teacher leading the class. They're working at their pace and if there's a problem, the teacher can help them. Students also have access to the spell checker in the word processor, the search functions in a web browser or search engine, and they can focus on key words, as well. There are all kinds of applications that would apply in a History, French, Science, or Phys. Ed. class, whatever the subject.


A student came to a teacher and said that several of them had formed a group on Facebook to help support each other through an assignment, and the students wanted to know, was that ok? Because of the nature of the course, they went out of the ordinary, so that they could bring more people together at one time to work through questions that were challenging. Perfect use of modern technology to support learning.