

Ten Strategies for

BUILDING COMMUNITY WITH TECHNOLOGY

*A Handbook for Instructional Designers
and Program Developers*



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**A Handbook for Instructional Designers
and Program Developers**

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14 15 16 17 18 5 4 3 2 1

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Brush Education Inc.
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Editorial: Meaghan Craven, William Thorsen
Interior design: Carol Dragich, Dragich Design
Cover: Dean Pickup; Cover image created by Dean Pickup using ID34157463 © Orfeev, Dreamstime and ID167376104 © Getvitamin, Dreamstime

Printed and manufactured in Canada
Ebook edition available at brusheducation.ca, iBookstore, Kobo, Amazon and other e-retailers.

Library and Archives Canada Cataloguing in Publication

Potvin, Bernie L. (Bernie Lawrence), 1950-, author
Ten strategies for building community with technology : a handbook for instructional designers and program developers / Bernie Potvin, PhD, Nicki Rehn, EdD (Candidate), David Peat, PhD.

Includes bibliographical references.
Issued in print and electronic formats.

ISBN 978-1-55059-552-9 (pbk.).— ISBN 978-1-55059-554-3 (mobi).—
ISBN 978-1-55059-555-0 (epub)

1. Distance education—Computer-assisted instruction. 2. Distance education—Social aspects. 3. Educational technology—Social aspects. 4. Teaching—Aids and devices.
I. Peat, David William, 1954-, author II. Rehn, Nicki, 1975-, author III. Title.

LC5800.P68 2014 371.35'8 C2013-908314-6 C2013-908315-4

Produced with the assistance of the Government of Alberta, Alberta Media Fund. We also acknowledge the financial support of the Government of Canada through the Canada Book Fund for our publishing activities.

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Foreword

The essential idea of this book is that learning requires community, and learners need to experience community in order to learn. Community in courses does not happen by accident, particularly in courses and programs designed with technology to either deliver or support learning. When learners feel that they are in and part of a real and transformative learning community, it is because their instructors have consciously designed the learning conditions and environment to ensure that students experience that sense of community. This “big idea” is supported by a secondary one, that thinking is socially constructed; knowledge is a social construction. To intentionally design conditions in a course so learners form a community in which to think and know is therefore important. And this is equally true in courses and programs that are supported by technology.

There are clearly new demands on today’s learners. Creativity, critical thinking, collaborative skills, and knowledge generation are showing up in the policy and program aims from ministries of education as well as the goals school divisions have identified as most important for their schools and staff to accomplish. If we are to believe the written statements in provinces and states across North America and around the world, indeed there just might be a 21st-century learner. Everywhere we have worked around the world, we have read that the policies of governments, as well as the aims of courses and programs, no longer emphasize learning as just some elaborate form of trivial pursuit for credit (Myers, 1995). Learning is making connections, the act of constructing meaning in community. Learning is active, strategic, and personal. The best educators design learning experiences accordingly.

We also believe that technology is pervasive and disruptive (Christensen, Johnson, & Horn, 2008). If courses and programs utilizing technology are to build community, they need to be designed and implemented with intentionality; otherwise, the medium will become the message, and teachers and students will come to believe that education must be all about the technology. Indeed, we have learned through our own teaching experience—over 30 years of collective online and technology-supported design and teaching—that certain conditions of learning, and not others, are required to be designed for if learning is to occur. In addition, all of us who teach know that technology can be and often is disruptive. We all know that technology is changing the landscape of teaching and learning and schools, as well as affecting program design and

implementation across businesses and governmental and not-for-profit agencies. Ubiquitous, disruptive technology is here to stay.

Teachers need to become “architects of learning experiences,” designing courses and programs that build community. There are numerous ways to do this; in fact, in this text we will show that there are at least 10 ways to do so, and probably many, many more. For example, there is more than one way to design courses that emphasize direct instruction through the transmission of information and yet build community, even in online courses and courses richly supported with technology. And there is more than one way to design online and technology-supported courses and programs that emphasize inquiry, projects and their development, insight-generating, case-study use, and more.

Finally, we are well aware of failed experiments in the use of technology to support learning. The April 7, 2012, issue of *The Economist* reported one such failure. Peru adopted a “tablet for every child” approach, but later concluded that the experiment had failed. The reasons for the failure were of no surprise to us, and they would not be to the experienced educator. There were three main reasons given for the failure. First, there was a lack of teacher training in the use of technology to support learning. Second, teachers were untrained regarding program and course design. Finally, teachers did not understand principles and practices of good pedagogy. We intend to thoroughly address each of these issues. This book is a journey into that complex yet exciting landscape of teaching and learning using technology, where readers will find ways to build community among learners and teachers.

You know what the difference is between education and experience? Education is when you read the fine print; experience is when you don't.

—Pete Seeger

Preface

The purpose and content of the book

In this book we address one question asked by teachers who teach using technology (including those who teach in online learning environments): “How can I build community among my learners?” This book provides an answer; in fact, it provides 10 possible answers, in the form of 10 models for teachers to use to build community. Each model has been tried and tested over 30 years of author-collected post-secondary experience designing and teaching multiple online courses at institutions in Canada. Community can be built in courses designed to use technology. In fact, it may surprise you that community can be built best in courses and programs designed to be implemented in whole or in part in online learning environments.

Each model offers unique approaches regarding how to develop community among learners and teachers in a course. The tacit notion hidden within and throughout each model is that courses that develop community, and good pedagogic relationships among learners and teachers, are those that are intentionally designed to do so. If designed thus, courses and programs using technology will develop community in ways that face-to-face courses cannot possibly achieve. Each model described in this book includes a unique structure of ideas, a rationale for the model’s use, and some strong theoretical support. Each model is a particular expression of the general concept of constructivism, that thinking is socially constructed and knowledge a social construction. When intentionally designed to do so, an online class activity of socially constructing some project or collaborating to design a scenario can lead to the development of sound pedagogical relationships. The premise in this book is that community development in courses must be designed and intentionally built into the architecture of a course.

Community

Community is a particular way of being in the world that comes about through right relationships. When we are in the world in particular ways, we bring about right relationships, and then community. When power is exercised so as to bring about psychological control over a learner, right relationships are not brought about. When forgiveness for a mistake is asked for by a teacher, and in turn offered by an offended student, a right relationship is brought about. As learners in a course recognize a

teacher's request for forgiveness, community develops. Particular ways of being in the world (e.g., offering and receiving forgiveness, dignifying each person's answers, and truth-telling, to name a few) and many other right and good attributes in both teacher and learner are created in healthy community and in turn create healthy community, one that comes to be characterized by good pedagogic relationships. Community is essentially *dialectical*, a word whose essence is right relationships. Community is sustained by particular attributes and not others. This conceptualization of community, while subtle, is the important basis for this book and our presentation of the 10 models for online-course design and teaching.

This book draws from anthropology, psychology, and sociology—how theorists in each discipline propose that community is best developed and nurtured. It draws heavily from best practices in education in North America. The ideas within each model are also drawn from our analyses of student feedback of over 30 course evaluations. Finally, the evidence this book draws from includes learning theory and what is known today about how people learn in community and through relationships.

The instructional designer with limited teaching experience may need to suspend disbelief regarding a model, to interrogate the methodology within each model until he or she tries and tests it in the heat of instructional battle. Each model will ring true for the experienced educator. Both the experienced educator and experienced designer of instruction will be able to give that “experiential nod” to what is presented in each model, and they will know why each model as proposed can develop community among learners. Experienced teachers know not to waste time when teaching. They will recognize that each model offers much promise for building community among learners and teachers in online courses.

Why did we choose these 10 models?

We chose these particular 10 models because they are commonly used in instruction. The models are the ones that we have observed our teacher colleagues most often drawing from and using to design learning experiences. The 10 “chosen ones” are by no means the only models that instructors know about and use. For example, we have observed teachers draw from action learning models, ones designed around groups formally and systematically solving problems. We have observed teachers drawing from experiential-learning models (e.g., field trips). We have also observed them drawing from and using “brain-based” models (approaches that attend to how brain and behaviour are related). There is an impressive lineup of instructional models now beginning to emerge in the professional practice of teachers; these serve as sources for some

of the best, most innovative designs of learning experiences possible and include co-operative games approaches, as well as gaming and coding models. We have observed instructors draw from informal or situational learning models with high success. (We will have to wait until our next book to describe these and other models. There is only so much that can be written about in one book!)

Finally, our choice of terms and definitions is somewhat arbitrary. For example, case study is a model described in this book. Professional educators often use case studies in different ways than we do. We have observed teachers use them as a way to motivate students, or as a strategy to present models of virtue and character for students to emulate. Case studies can also be used as assessment tools, a means by which to gather information about student learning so as to make an evaluation-based decision. We also present inquiry as a model in this book. Good teachers have always used inquiry as a tactic to motivate students, as a strategy to draw learners into meaningful and personally relevant learning experiences, and, of course, as a specific procedure in science that students should perform if they want to learn how to be systematic in doing science as opposed to just reading about science. We chose to “model-up” guided discovery as well, to be released from the confines we see when good teachers use it as good teachers have always used it—as a way, through questioning, to guide learners to understand the meaning of some phenomenon in a personally constructed way.

Each of the models, as we refer to them, could quite readily be written about as a strategy, a tactic, a perspective, a methodology, or logistics. We have chosen to craft the book and the terms we have chosen for a variety of reasons. To do so is heuristically useful; it provides a user-friendly framework and guide for teachers to use in their design of learning experiences. In addition, the term “model” seems to fit nicely with how we present and describe each of the models: a structure of ideas that explains and encompasses some phenomenon and from which professional practice can develop.

The task of the modern educator is not to cut down jungles but to irrigate deserts.

—C.S. Lewis, *The Abolition of Man*

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Introduction

Psychology's contribution to the book

Each model presented in this book includes at least one core idea taken from the discipline of psychology. Each idea was chosen because it is supported in the social-psychology literature. Each idea contributes something essential to each model and effective teaching and learning in technology-supported and online learning environments generally, and to the formation and nurturance of relationships specifically in an online environment. For example, one idea developed in this book is that community is built when people gather around a great idea (Palmer, 1998). Despite claims to the contrary, genuinely positive and empowering relationships can be built in an online environment, especially when teachers and students gather around a great idea, an idea that “lives in the world” and has implications for real problems, real questions, and real issues. The psychological implication (Weiner, 1986) is that learners are most likely to engage in a task when there is at least a 50/50 chance of success and learners have a subjective sense of the importance of the topic and acknowledge the significance of the investigation.

Adult learners are motivated by significant inquiry into real issues, ones that live somewhere in their real world. For example, in a graduate-level learning-theory course at the University of Calgary, school leaders identify a real issue to be that of meaningful professional development. They value the opportunity to inquire into and develop relevant professional development programs for their teachers. In addition, school leaders comment regularly regarding the value of feedback from other school leaders in the course. Many school leaders claim that the course highlight was the learning activity of inquiring into and developing a meaningful and relevant teacher-development program for eventual use in a school. The course evaluation comments submitted to the instructor refer directly to the value of the intentionally designed, relationship-building, online activities (e.g., conversations, feedback given and received) of gathering around the perceived great idea of teacher development.

Learning theory's contribution to the book

Each model includes at least one core idea taken from the field of learning theory. For example, one important idea for course designers—often neglected in face-to-face learning environments—is that the more

cognitively active a learner is immediately before, during, and closely following a teaching activity, the more likely it is that the learner will gain some form of understanding from the activity, provided other conditions that support learning (e.g., time on task, feedback, and freedom from the fear of failure) are in place. Despite the common criticism of online courses that they are no more than an expensive and elaborate system of brokering in abstractions, strategic and intentional course designers can build courses in which learners are cognitively active. For example, a course can include a component or activity in which students write their first response to readings (e.g., “What idea in the reading most engaged your interest?”), to be followed by a week’s-end response regarding the same initial response, and, after reflection, on some research, best practices, or concept.

Best practices in teaching’s contribution to the book

Each model includes at least one indicator of effective teaching, taken from the research on effective teaching and learning. For example, the establishment of reciprocity and co-operation among students is one indicator of effective teaching (Chickering & Gamson, 1991). The online environment offers opportunities for reciprocity and co-operation not always afforded in face-to-face formats. Time is favoured by the online environment. Reciprocity develops in community; community develops in and over time; and time is afforded to learners—a gift, as it were, in online courses.

This book is intended for educators who see themselves as architects of learning experiences in courses that are in whole or in part intended for technology-supported and online learning environments.

If I had asked people what they wanted, they would have said faster horses.

—Henry Ford

Outline of the Book

Section I: Description of the 10 Models Proposed for Designing Courses and Programs

Section I of the book provides a detailed description of the 10 models. Each model is a structure of ideas organized around the model's main idea. For example, the main idea of insight-generating is that insight lies compacted, amorphous within a learner, waiting to unfold in the presence of certain teaching conditions and not others. When a teacher draws a learner's attention to both the facts and truthfulness of some phenomenon, like world population, then guides the learner to understand the difference between what is a fact (e.g., the actual number of people on the planet) and what is true about that fact (e.g., Is it true that the world is overpopulated?), the teacher has initiated the possibility of insight being generated. The generating of insight continues in the hands of a competent teacher who knows and teaches that facts and truth are distinct but not separate, that insightfulness requires critical judgment and application of ideas, in addition to attention and understanding. In our example of world population and the question of whether or not we all live in an overcrowded world, an insight-generating teacher would shuffle the data of a phenomenon into a different constellation to promote judgment and action. For example, the entire population of the world could fit comfortably in the province of Alberta (or any other province west of Nova Scotia, for that matter). Therefore, is the world overcrowded, or is the real issue one of distribution of resources? Or is the issue deeper yet, one of justice, perhaps, or the deep human need to build community and share the world's resources? Insight can and does emerge for learners under the guidance of a prepared teacher who understands how to promote judgment and action.

Section I encompasses the methodology, the theoretical constructs undergirding the book. A description of each model included in this book is presented and includes ideas drawn from psychology, learning theory, and best practices in teaching. Each description is, in a sense, an argument for the model and its ideas, to be drawn from by teachers when they design courses and programs supported in whole or in part by technology. When designing an online course, a teacher becomes an architect of learning experiences, a designer of conditions and environments, a guide to activities and resources that will lead students to be engaged cognitively, emotionally, and physically. We provide a

variety of ideas for professional practice in the design of online learning experiences.

Section II: Case Studies and Examples of Technology-supported Courses and Programs

Section II of the book provides case studies with examples for teachers to use in their design of technology-supported learning experiences. This second section is the strategy section. Teachers will find each case to be full of tried-and-true ideas about how to design and use learning environments, scaffolding techniques, resources, and approaches to assessment and evaluation. Teachers will find use for the strategies in their design of a one-time, online, designed learning experience. Teachers will also find use for the strategies when they are designing entire courses. For example, the inquiry template in **Section II** could be used by the teacher to design a first-time, inquiry-based learning experience, one supported by technology. The case study and examples for inquiry provide a detailed strategy for how best to create the technological conditions that would encourage and promote the best features of inquiry in an online or blended learning environment. Think of this strategy section as the provision of patterns that both novice and experienced teachers can draw from and follow before they put a course into an architecturally sound format.

Section III: Suggestions for How to Design and Implement a Model's Learning Experiences

Section III of this book provides a number and variety of ways (examples of activities to be used in lesson plans) to actually deploy or use the model, software, application, or program. This section is all about pedagogy and andragogy—the art and science of design and implementation of learning experiences—both online and when using technology to support learning in face-to-face settings. This is the tactics section. **Section III** provides the tried-and-true tactics teachers use in their design and implementation of technology-supported courses and programs, including online courses. We have connected tactics to the instructional models. For example, when illustrating project-based learning, we describe when and how Tumblr blogs can be used to organize the digital documentation of a group of students' conversations around a great idea.

Section IV: Questions to Guide Design of Technology-enhanced Learning Environments

Section IV includes questions typically posed by people new to using technology to support learning; it also includes our answers to those

questions. This fourth section is the logistics section and indicates particular programs, software, or applications that can be used—and when and how—in an online course. We have identified those programs, software, and applications that have the best fit with our models. Each is described in detail, including information on where to download it, how to access it, and how to apply it to the design of a course.

If you think education is expensive, try ignorance.

—Derek Bok

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How to Use This Book

If you are a teacher . . .

This book is the shopping mall of teaching ideas for teachers who want to use technology to support learning. A teacher need not look beyond this book to get ideas regarding designing and implementing learning experiences, particularly if he or she has just begun trying to integrate technology into learning experiences. For the advanced teacher, the expert in using technology to support learning, this book is still for you but should be read much like one would read an encyclopedia: to gather specific answers to specific questions, address specific problems, and find new ways to address specific issues that invariably arise when trying to design learning experiences supported by technology. For the sceptic, the idealist who has turned the corner and has headed back from the online environment toward the classroom as the only place to design and implement learning experiences, we invite you to take a sober second look, a careful review of the core ideas in this book, particularly the theoretical support offered in [Section I](#), where we demonstrate that community and good relationships can be built in technology-supported learning environments.

If you are a university student studying to be a teacher . . .

This book is your primer, your *Dick and Jane* resource regarding the applications, programs, and software we propose in [Section IV](#). You could have written this section, no doubt. However, this book is also your opportunity to engage in deep and comprehensive ways in that professional activity of considering how theory can and does inform practice. [Section I](#), in particular, is for you because in this section you will need to make personal sense of the “why” question, the rationale for designing different types of learning experiences, from direct instruction–based to inquiry-oriented ones.

If you are a learning leader in a school division or business . . .

This book is a good source of ideas, practical ones, tried and true, that you can use in your design of workshops, programs, and teacher and colleague professional development. This book provides educational leaders with both theory and legitimate and best practices in the field of teaching and learning. Educational leaders are welcome to steal

liberally from the stories, the examples, the definitions . . . we call this collaboration.

If you are a home schooler . . .

This book will be a good reference guide, a practical source of ideas for how to design lesson plans that build community and use technology to support learning. We suggest beginning with [Section II](#); then, once you feel comfortable with the strategies proposed there (i.e., the back-room planning approaches), spend most of your time referring to [Section III](#). In this section you will find a practical lesson-plan format and a variety of examples that show how to use your lesson plan across the 10 models, thereby guiding you to become an architect of learning experiences for those you teach.

If you are one of the tens of thousands of teachers who are getting ready to use technology to support the learning experiences of your students . . .

This book is for you. You will refer to this book for everything to do with designing and implementing learning experiences, both in dedicated online formats and in blended or distributed formats, in which you blend face-to-face experiences with an online component. Keep in mind the central premise of this book: community can be built for and designed to be the lived experience of students in technology-supported learning environments. At first you may be overwhelmed when you integrate your computer, iPad, or other tablet into your lesson-planning process. Trust this book and trust your good instincts as a teacher. Start at the beginning, read the sections through to the end, and then use the book as you would any teacher's guide, any resource that you would refer to for help in designing lesson plans.

Human history becomes more and more a race between
education and catastrophe.

—H.G. Wells

Description of the 10 Models Proposed for Designing Courses and Programs

Suggestions for Reading This Section

- Start with the section titled “Why used.” The starting point for any designer of learning experiences is to find the purpose for the model’s use.
 - Read the subheadings; each serves as an advanced organizer to alert you, the reader, to what is to come in the section.
 - Suspend your disbelief, at least temporarily, section by section, as you engage with the theoretical ideas proposed.
 - Check each model for credibility and trustworthiness, and do so against your understandings of the theoretical supports provided in each section. Ask yourself, “How does what I read here confirm what I already know about teaching, learning, and design of learning experiences? How does what I know call into question what I read in each section?” By doing the interpretive work first, before jumping to conclusions about the credibility of each section and its model, you will already be intellectually engaged and therefore able to take up each new idea with fullness of thought.
 - Write questions, problems, and issues down; determine to find out answers to these somewhere in the following sections of this resource.
-

Never trust an experimental result until it has been confirmed by a theory.

–Sir Arthur Eddington

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Transmission/Direct Instruction

Time matters

Transmission is the presentation of content (information) to learners. Implicit in this perspective is that there exists a stable body of knowledge that can be “accurately and efficiently” (Apps, 1991, p. 40) delivered, or directly instructed, to learners. The emphases are on the teacher and the content to be transmitted, and on the efficiency of the teacher as an “architect” of learning experiences. What is uniquely afforded to both teacher and learner in transmission-based design of online courses—because time serves the best interests of both teacher and learner—is the opportunity to develop deep, meaningful, and pedagogically sound relationships.

A learner needs time to engage meaningfully in a teacher’s designed learning activities. Time is the online environment’s greatest inherent advantage. Time matters for learners who want to develop a deep and personally meaningful understanding of an idea or insight into a concept. The teacher’s normal desire for learners to have enough time to engage meaningfully with information is beautifully served in technology-supported and online learning environments, particularly when transmission of information is the teacher’s goal. The learner’s interest in time, to engage meaningfully with any transmitted information (e.g., text, pictures, video), is also served efficaciously in technology-supported and online learning environments.

Relationships

Communication may be understood as a transactional activity between and among individuals. Learning is also transactional because it involves communication in relationships that exist in overlapping and yet different settings (online environments used by teacher and student). Unlike linear models of communication (as in a telephone conversation or

lecture in a live classroom), transactions in online environments presume that immediate encoding is neither reality nor even necessarily desirable; processing time is expected (Adler et al., 2008). Relationships online are experienced as active (as opposed to passive), constantly in development, and never finished, and they contribute to the transactions that go on in the online environment (Adler et al., 2008). Transmission of information face to face can be transactional, but often it isn't. In an online environment, such transmission can readily be transactional; technology-supported and online learning environments are uniquely suited to transaction-based relationships.

Learning theory and application

There is general agreement among cognitive psychologists that multiple cognitive processes exist before, during, and closely after the time a learner draws inferences from written and online text (Ashcraft, 1976). For example, in the psycholinguistic guessing game called reading, a good reader and learner will make a prediction and use several self-regulatory strategies to read for comprehension.

A good reader would make meaning of this paragraph by asking if the words used mean the same as she or he has come to understand them. This reader would likely unpack the meaning of a word used in the section (perhaps the word “cognitive”), as well as pour meaning into that word, all somewhat simultaneously in that workroom of her or his mind sometimes referred to as the active or working memory. In brief, online learning environments provide learners with a decided cognitive advantage: time to enter the workroom of their minds and deploy a variety of reading strategies to make information have personal meaning.

The same advantages are not always afforded to learners in face-to-face learning environments. Better thinking, reading, and problem-solving are possible in online environments, largely because the online environment permits good thinking. The environment shifts the learning emphasis from simultaneous consideration of lots of information, in face-to-face classrooms, to self-regulation of cognitive processes, such as inference-making, abstracting, and elaborating on information—each a cognitive activity known to enhance long-term memory (Anderson, 1983). Good thinking in courses is always a good idea.

The cognitive-based learning advantages are overwhelmingly in favour of online learning and technology-supported learning environments. Here are just a few more possible advantages. First, inference-makers in an online environment can use several well-known, comprehending references when drawing inferences (Adler et al., 2008). They can use syntactical and semantic cues (e.g., gendered-pronoun use directs us to what we need to retrieve from our active memory); retrieve information that needs to be kept in active memory, made available for the

connection-making or inference-generating that must occur; and regulate how meaning is integrated (e.g., knowing that the masculine use of a pronoun does not preclude the feminine). Online transmission of text or other information permits increased self-regulation of inference-making, in large part because time and opportunity exist for self-regulated inference-making of text messages. Ironically, face-to-face teaching environments are not inherently advantageous, and should in fact simulate the advantages of online learning to provide adequate time to process and organize information using the above mentioned and many more cognitive processes. Unfortunately, many face-to-face teaching environments do not allow for adequate cognitive processing time, and learners simply do not learn much in these “cover the material efficiently” types of teaching environments; in face-to-face learning environments, information almost always flows like a fast-moving river under the bridge of a student’s comprehension. Learners are neither hard wired nor soft wired to process and interpret information that is transmitted in most face-to-face learning environments, particularly in the context of lectures (transmission/direct instruction). The critique of transmission methods of teaching continues to be well earned and richly deserved. Transmission of information in face-to-face teaching environments is far too often a waste of everyone’s time.

Online teaching environments, however, are not a waste of anyone’s time. Learning time is quite often well spent because the student has time and opportunity to use multiple cognitive processes.

Indicators of effective teaching

Good teaching is recognized as such by learners, particularly adult learners, when several conditions for learning are intentionally designed for and put into operation by the teacher. Here are just a few. Good teaching happens when teachers affirm that concepts can be constructed by the learner and not merely memorized from the course materials (Ramsden, 2003). Good teaching for adults is rarely valued when it is about some elaborate form of trivial pursuit for credit (Myers, 1995). Good teaching need not lead to and stop at emphasizing only the most basic cognitive activity of recall (Bloom, 1956). We have found that adult learners are rarely won over by teachers who emphasize recall of facts over the meaning of those facts. Most learners, particularly adult learners, sooner or later want more. They want to make meaning of the language they negotiate online—in a text or in a classroom—and above all to pour meaning into language informed by, and in turn used to inform, their lived experiences. While younger learners may downshift in schools (Caine & Caine, 1994) but stay in their classrooms and try to memorize the trivia they are told is important for them, adult learners vote with their feet.

Adult learners want to learn more about what they live, find meaning in the context of their real problems, real issues, and real questions. They want to learn what lives in the real world. Online learning environments provide learners with time to engage with real problems, questions, and issues. The teacher's task is to design the course so that students actually do engage with information, so that information is not the end but the means to solving real problems, addressing real issues, answering real questions.

The most important things in life (i.e., real problems, issues, and questions, such as how to have a good marriage, raise a responsible child, or solve world hunger) hardly stand up to long consideration under the weight of mere memorization of abstractions alone. Adult learners in particular want more; for the adult learner, to learn is to make meaning, to develop insight through engaging cognitively with information. Meaning-making is important for learners (Scott & Scott, 2010); older learners in particular want to experience learning that is full of opportunities for meaning-making. They want learning experiences in which information provided in language-based transmission formats (e.g., a posted article that is the basis for a threaded discussion) is taken up cognitively in a form of shared praxis (Groome, 1981). A posted article comes alive as learners relate to it in a set of pedagogic movements that begin with identification of the learners' own "article-related" behaviours in their own professional practices, and the assumptions that give rise to those actions. In fact, there is ample evidence that, when shared with others, praxis is an important way of coming to know (Groome, 1981). Also, adult learners want more than to experience teaching that merely "covers the material"; rather, they want teaching that intentionally and deliberately attends to addressing their misconceptions. Why? Because adult learners highly value the process of making meaning with others. Real problems, real issues, and real questions call for online-course design and teaching that is about the actual professional life of the adult learner.

Transmission of information in asynchronous ways (e.g., projects, student-led inquiries, or activities in online learning-management systems that are static and that students access on their own time) can include intentional and designed strategies such as misconception checks (Angelo & Cross, 1993), through which a learner can safely yet deliberately disaffirm a conception.

Course design: Transmission

In the case-study courses in the University of Calgary's Master of Teaching program, students are to read information presented in the form of cases, to unpack the meaning of each case and pour personal meaning

into each case, using guiding questions and teacher-designed tasks to do both. A surprising and unintended outcome for me, Bernie Potvin, as an instructor in the program was finding out how much time learners devoted to engaging in the main designed learning activity of each case: identifying their initial response for each case (what they paid most attention to in the case); engaging in a class discussion that included each class learner's initial response; and then, over a week, identifying and stating a considered response, a reflection-based, personal summary of their conclusions regarding the case, course design, teaching approaches called for, and interests of learners. An even more surprising outcome for me was discovering the relationships that were nurtured within the class community, learner to learner and learner to teacher. For students, a dignity-producing effect characterized the classes and course. Online-course design lends itself beautifully to the use of initial and considered responses, and to the development of relationships.

An initial response is a person's initial, personal response to a chapter, passage, or section in a book, article, or media-based presentation. It is an individually relevant and meaningful first response to a small piece of something. A useful instructional design (ID) approach is to formally ask for an initial response to be posted at the beginning of each week (13 initial responses for 13 weeks of course work). A helpful ID approach is to pose two questions, each written into your course outline. They are:

- What did you find yourself paying attention to in the chapter?
- Why? What assumptions, values, theories, or beliefs do you believe caused you to pay attention to this information in particular?

A considered response is also a person's response to the chapter, section, or media-based presentation. However, it is "considered" because that person has engaged in a week's reflection on the information presented in the online discussions, the commentary from classmates in chat-room-type settings, and in the invariable and lingering insight generated in those curious non-classroom/non-online settings (e.g., when out for a run). Like an initial response, a considered response is also individually meaningful and personally relevant. A useful considered-response approach is to ask for such a response at the end of each week (13 responses at the end of 13 weeks). A helpful ID guide is to pose three considered-response questions, each written into your course outline. They are:

- How did each week's conversation confirm your initial response?
- How did each week's conversation call into question your initial response?
- What new behaviour regarding the week's topic does your considered response call from you?

Why used

An approach requiring an initial response followed by a considered one increases affective engagement; it draws the person into the text in an emotionally laden way. Each person has a vested interest in reading and seeking confirmation of an initial response, while being hesitantly open to having an initial response called into question. In addition, the initial response serves as an advanced organizer that alerts learners to what they need to use (e.g., a piece of declarative information they have schematized or conceptualized) to make sense of the information to come in the week's readings or conversations.

Enhancement of relationships

The response approach in instructional design opens up the possibility that one's learning can be meaningful, personally relevant, and valid. It is a social construction of a knowledge-based way of learning and, as such, engenders in learners dependency on the ideas of others, where a person looks intently into the ideas of classmates, authors, and self. Above all, its use is a dignity-producer, an enhancer of self-efficacy, and an approach truly valued by learners.

Where best designed

The initial and considered approach is best designed in courses that include formal readings. The instructional-design use of initial and considered responses can be integrated into readings or viewings, and formalized into week-by-week responses that are posted in a thread or online forum.

Knowledge will bring you the opportunity to make a difference.

—Claire Fagin

Nurturing

Self-efficacy matters

Self-efficacy is a learner's confidence that she or he has the skill or competence to perform a task (Bandura, 1986). Self-efficacy is often mistaken for competency (self-efficacy is a consequence of competency) and confidence (confidence is a consequence of competency). Quite often adult learners' most characteristic learning attribute is low self-efficacy. The most significant contributor to increases in adult efficacy in the online environment is well-developed competency: the ability or capacity to complete a specific task (e.g., give a public presentation) and do so successfully. Competency precedes confidence. Competency precedes efficacy (Eisenberger, 1992). Words of encouragement, praise, affirmation, and nurturing may contribute little to an adult learner's development of self-efficacy; in fact, these well-worn teacher practices may actually undermine it, causing the adult learner to lower task performance to bring encouragement more in line with what they are comfortable receiving. Nurturing involves more than offering praise.

The online environment is ideally suited to competency development; it offers a form of psychological safety not afforded in face-to-face environments. Competency development, the basis for self-efficacy (Bandura, 1986)—the belief in one's abilities to execute an action and be successful—is uniquely provided for in the online environment because a risk-taking response can be rehearsed, practiced in the silent and safe company of one's computer, before being put out in a forum or online post. The online environment permits adults to choose moderately difficult yet personally challenging goals, master a task on their own terms and time, and attribute success or failure (Weiner, 1986) to their effort and skill rather than to chance, luck, or a teacher's poor communication skills (such attributions are characteristic of adult learners with external and sometimes quite stable yet undermining loci of control) (Weiner, 1986).

In this context, to nurture is to direct learning activities to the inner world of a learner. Such activities must be wisely designed and intentionally and carefully woven into courses. For example, adult learners find feedback highly nurturing. However, not all feedback is created equal. Timing and the choice of words and tone with which any comments are delivered all influence the effect of feedback. Skype-based conversations are best for providing feedback to learners taking online courses in which there is a live or synchronous session, or in which there are chat rooms. As most teachers know, e-mailed or written feedback can be misinterpreted. To nurture is to focus on some psychological need of the learner, such as self-efficacy. A personal communication rich in appreciation, truthfulness, and intentional patience, not to mention care for the learner's well-being, can serve to nurture a learner.

Scenario development is one example of an intentional activity that can be woven into a course design. Scenarios are descriptions of ideal practices proposed for a workplace, church, home, or school, developed by teachers and students working together. Scenarios include descriptions of ideal strategies, tactics, logistics, or relationships (Shoemaker, 2006). It is useful to employ scenarios when working with students who require nurturing to encourage self-efficacy. Why? Scenarios are best designed in partnership or collaborative work with one other person, and less confident students can suspend their low confidence for a time, particularly if they are working online with a more confident and nurturing student. In online courses generally, and in the process of scenario development specifically, teachers have time to read between the lines, recognize need, and determine an appropriate response, for both confident and less-confident students. The strategically designed collaboration (teachers place confident students with less-confident ones), coupled with feedback that leads toward the design of a scenario, results in improvements in a student's self-efficacy. Most students enjoy imagining new possibilities, or scenarios, and, more important, they benefit in terms of their self-efficacy. Virtually every adult student we have worked with in technology-supported learning environments can successfully design scenarios and quite enjoys doing so.

Relationships

When people gather around a great idea, community is built (Palmer, 1998), and that activity of gathering around an idea also builds relationships. It is possible to nurture one's sense of self-efficacy when participating in an activity that creates alternatives to current systems, solves big problems, addresses real issues, and answers real questions. In this context, relationships are formed in part when people value each other's responses, appreciate each other's contributions (Cooperrider,

1986), and deliberately integrate each person's ideas into the scenario-development framework.

Learning theory and application

As people work together to construct a meaningful new answer, solution, or way to address an issue or scenario, they spread their learning task across many minds, distribute their thinking among other students (Bereiter, 1990), and draw on multiple knowledge bases and ideas (Ormrod, 2008). The support for distributed cognition remains strong (Rogoff, 1990; Ormrod, 2008) and for good reason. Co-operative approaches in online learning may allow students to practice important, transferable, cognitive competencies (Ormrod, 2008). Learners can safely clarify ideas; elaborate on what they already know; identify misconceptions; discover how different cultural groups may view a topic, question, issue, or problem; widen their epistemology; learn a new self-regulatory approach; arrive at consensus without compromising deeply held ideals; and bring expert knowledge into the development of new ideas (Ormrod, 2008, p. 429).

Scenario-building allows for the above and other important and necessary cognitive activities that have implications for learning (Anderson, 1983). The online environment gives learners the opportunity to safely take up others' ideas, to choose when to respond and to whom. Above all, the online environment provides more than one opportunity, in fact many opportunities, for learners to self-regulate their work and learning in a course. Many students in our courses have commented in course evaluations that they have learned more from their colleagues and classmates than they have from their instructor. From course evaluations we have read, the reason for this appears to be the opportunities supplied for learners to engage in personally developed, self-regulatory strategies for learning. We have read scenarios submitted by learners and thought, "Where did this or that good idea come from?" Clearly, learners in our courses have taken the opportunities provided to sit back, as it were, and enter into more than one conversation, engage in more than one idea and more than one possibility for a scenario.

Indicators of effective teaching

Good teaching is characterized by respect for all viewpoints and diverse talents, including diverse ways of learning (Scott & Scott, 2010). Effective teachers design learning experiences so that multiple entry points into a learning activity are possible. Scenario-building activities afford each learner one or more entry points into a learning activity. How? First, a proposed scenario may include identification of potential problems in

the scenario itself, as well as analyses of what might be the core or essential “problem in the problem.” Analytical thinkers will enter readily into this kind of activity. Second, a proposed scenario may also include identification of what might be worth preserving from the original scenario proposal to carry over into a revised scenario. Future-oriented, speculative, and elaboration-oriented thinkers will readily enter into this kind of activity. Third, some proposed scenarios may include reconstructing originally conceived scenarios into new ones, and accommodation-oriented thinkers will enter the process by means of this activity. The complexity of scenario-building activities offers learners multiple opportunities to use their preferred learning approaches.

Course design: Nurturing

As previously mentioned, scenarios are descriptions of ideal practices in a workplace, church, home, or school that are best designed in partnership or in collaboration with one other person. Scenarios can also be descriptions of ideal strategies, tactics, logistics, or relationships (Shoemaker, 2006). A scenario can be developed in series of five movements, best designed over the 13 weeks of a course. A useful ID approach is to describe the content of each movement in the course outline and to include a date for the submission of the finalized scenario. The five movements are:

- Movement 1: A paragraph describing the ideal scenario, the best-possible imagined practice within the context of the proposed scenario.
- Movement 2: A one-page description of the problems inherent in the ideal scenario, the systemic and relational problems each partner knows from lived experience will likely prevent the scenario from succeeding. In this description the partners should also identify the “problem in the problem” in the proposed scenario, as well as the core issue in each problem identified.
- Movement 3: A one-page description of contextually appropriate solutions to each problem identified in Movement 2; ideally, the problem in the problem will be addressed in contextually appropriate ways.
- Movement 4: A one-page description of what must be kept in the scenario for the next movement, the revised scenario.
- Movement 5: A one-page description of the new, revised scenario or the finalized scenario.

Why used

The scenario-building approach is uniquely designed for learners to not only gather around a great idea, as Parker Palmer (1998) suggests, but also to cultivate relationship-developing attributes in the activity of creating the scenario. Learners practice active listening, avoidance of pathologizing the ideas of others, and dialectical thinking skills, as they together modify their scenario and deliberately work toward envisioning that scenario being enacted in a real context. Scenarios are great ideas developed with others, and, in turn, develop the ability to develop great ideas.

Scenario-planning: Enhancement of thinking

Scenario-building approaches in instructional design affirm creativity and imagination. Scenario-building approaches are clear illustrations of constructionism, a form of constructivism that allows for thinking to be socially constructed, for knowledge to be a social construction. As such, the act of building scenarios simulates actual, day-to-day, lived experiences in homes (e.g., in decision-making), educational institutions (e.g., committee work), and in much learning in groups (e.g., informal and formal strategic-planning sessions).

Where best designed

The scenario-building approach is best designed in group/partner projects, assignments that are due at or near the end of a course. The description of scenario-building should be explicit within the assignment as found in the course outline. Learners should include each movement's deliverable in the final submitted assignment.

Out beyond ideas of wrongdoing and rightdoing, there
is a field. I will meet you there.

—Rumi

Guided Discovery

Teaching the unfamiliar from the familiar matters

Guided discovery is the teacher-led, systematic scaffolding of learners' attempts at a response, guesses at solutions to problems, applications of strategies, and understandings of ideas. A teacher uses guided discovery when he or she is trying to lead students to find some idea, principle, notion, or concept on their own. Scaffolding (Vygotsky, 1983) includes a variety of activities that collectively help students complete certain tasks endemic to a course. The variety of activities can include helping students map out an approach to learning, modelling, enhancing attention of students through creating anomalies or unusual events, bringing students back to the purposes of learning, and providing an approximation of a desired terminal behaviour (e.g., a bounce is allowed in the game of volleyball) and allowing that approximation to serve as a legitimate response (Ormrod, 2008, p. 335). The prevailing view is that scaffolding is best mediated socially; students need deliberately planned, co-operative-based learning activities through which they can access "cues, reminders, breaking a problem down into steps, provision of exemplars . . . anything that allows learners to grow in independence as a learner" (Woolfolk, 2009, p. 45). The online environment supports provision for the learning and development of higher-level problem-solving skills because teachers can build scaffolding into the course, using that most important of all support systems, appropriate language (Vygotsky, 1983).

Learners' prior understandings (propositions, frames, scripts, concepts, schemata, and worldviews) influence what they will be able to perceive and understand regarding new learning experiences (Anderson, 1983). The influence of learners' prior understandings can be positive or negative. Misconceptions (prior but incorrect or inadequate understandings) influence learning. Ask a newly married person if his or her misconceptions about marriage were influential, and how, when

embarking on married life. However, the influence of misconceptions on new learning, whether positive or negative, may actually turn out to be quite an important catalyst in learning for meaning in the online environment. When a teacher identifies but does not elaborate on a learner's misconception (i.e., draw undue or excessive attention to it), that learner can be alerted to pay attention to antecedents and consequences of inappropriate or wrong previous understandings. In this way, a teacher can lead learners to “want to want” to form accurate concepts to be used in interpreting new experiences, including ideas presented in the online course and in learners' professional practices. Again, ask a newly married person if they “wanted to want” to develop more accurate conceptions of marriage and all its joys and challenges.

In some cases learners may undergeneralize (exclude exemplars) or overgeneralize (include non-exemplars) (Joyce & Weil, 2005). In both cases of misconception representation, teaching opportunities are rich. For example, a teacher may expect children to sit still and upright because to do so is polite and required for learning. This expectation is based on several misconceptions (undergeneralization). Children at the age of six have about 50 per cent of the muscle fibre of an adult; their muscle fibre is watery and underdeveloped. Children get tired holding themselves upright as a consequence and therefore need to move, shift, and find new positions. Adults who understand the accurate concept (children's muscle make-up) quite readily engage in a new set of interpretations and, more important, behaviours based on new conceptions.

Relationships

Community is built when people work interdependently in a discovery-based activity guided by a teacher. Time on task and proximity (i.e., online proximity, available by simply turning on one's computer and entering into the course online) leads to relationship-building. In addition, in co-operative and collaborative learning, the activities of elaborating, explaining, and debating—all integral to co-operative and collaborative activities designed for groups in the online environment—also enhance relationships (Webb, 1989).

People are drawn to look to others to provide alternate ways to address complex issues in real situations—to draw from competent people in the group to expand their list of possible solutions. In the context of guided discovery, we can comfortably align ourselves with those we view as most competent, attractive intellectually, and human. Co-learners reveal all of their qualities in anonymity in guided-discovery learning activities in an online environment.

Learning theory and application

Facts are best understood in a conceptual framework, from a concept that pours meanings into a fact. A concept is an ordered rule each person has that determines where something (e.g., a fact, an action, a thing) fits and what it means. Concepts share similarities (Ormrod, 2008), and whether abstract (beauty, justice, intelligence) or concrete (dogs, fruits, teachers), concepts help us make sense of the world. Without concepts, nothing would be meaningful. With concepts, everything can be meaningful because we make sense of the world through our concepts. Some people “learn” concepts by first engaging in specific instances of it. For example, dogs bark, can bite, and shed hair. Encounters with these instances of “dog” can therefore lead one to recognize a dog. Given that concepts develop over time, may change, and are learned based on features and rules, as well as hypothesis-testing and active experimentation in many cases, guided discovery permits identification of numerous and varied positive instances of a concept (Ormrod, 2008, p. 260). Once again, the online environment is ideally designed for learners to negotiate their understanding of the dynamic relationship between facts and concepts, as they consider, through reflection in quiet companionship with their computers, how their practices and the lingering effects of their experiences (i.e., memories) inform and, in turn, are informed by the concepts being considered.

Indicators of effective teaching

Effective teachers allow for adequate time on task (Scott & Scott, 2010). Students need time to learn management of organizational skills, and teachers operating in both online and face-to-face environments can build structures into courses that allow for guided discovery. Courses and learning activities in online environments can be designed with more than one scaffold present; these are helpful aids to accommodate different learning predispositions. Online learning environments permit course designers to place concepts into a permanent and heuristically useful place (e.g., a permanent forum), so learners can revisit them to rethink and reframe the unique relationships among facts and concepts. In this manner, learners can engage in conceptual analyses over time, as new topics are taken up.

At the beginning of my (Bernie Potvin’s) graduate-level learning-theory course, I pose the question, “Why do we know a lot more about learning and how young people actually learn than we ever apply to teaching?” During this course, I guide learners through several learning theories, from behaviourism to social cognitive-learning theory, brain and behaviour, and on into motivational theory. The answers

the learners in the course have in response to that initial question are almost invariably quite different from the answers they provide to the same question after 13 weeks of guided discovery. The online environment has provided them opportunities to engage in conceptual analyses in a systematic and guided way.

Course design: Guided discovery

When employing guided discovery in an online or face-to-face learning environment, teachers need to be aware of learner misconceptions and how they might affect the discovery process. A useful instructional design approach to misconception-checking is in formative assessment and assessment-for-learning activities. In the first case, formative assessment, the teacher designs a way of gathering information about learning, not to evaluate the information gathered in order to assign a grade but to provide both the person being assessed and the teacher with information that can be used to inform and modify an existing concept, or modify a misconception. Four misconception-check approaches (Angelo & Cross, 1993) are:

- **One-minute Paper:** Ask students to submit a one-minute paper in which they identify the main idea of a previous section of a reading, transmitted message, or media presentation; their main conclusion regarding that main idea; and what remains fuzzy for them. Collect and, during a break online, quickly review. The misconceptions clearly become evident in the third section of the one-minute paper and can be addressed before the end of the online session.
- **Triangle, Square, Circle:** Ask students to draw the three shapes. Using the triangle, the students should identify the three main points of the previous section; using the square, they should identify ways in which the previous section's information "squares" with what they believe or know; and using the circle, they should comment on where they feel their thinking is going around in circles.
- **Warehouse Grid:** Ask students to place information in a grid, as one would place objects on a shelf in a warehouse. Identify the features (shelves) of the presentation and ask learners to sort the information they have learned onto the shelves. For example, in a session on parenting, the shelves might be parenting opportunities and challenges; or the shelves might be "outcomes" of parenting considered to be most important/least important, most satisfying/least satisfying to accomplish.
- **Application Paper:** Ask students to take two minutes to write a "so what?" paper, an application paper asking for the one place or

time in daily activities when the main idea of a presentation can be applied.

- Q/A: Invite students to pose questions, with the condition that there are no dumb questions.

Why used

Guided discovery is most useful when a teacher is leading students into some sort of discovery, finding some idea or principle, notion or concept on their own. For example, guided discovery can be used by a teacher to intellectually engage students when they are learning a physical skill or performing a psychomotor activity: stroking a tennis ball, pointing a shoulder to a wall before hitting a backhand in squash, or using a bent-arm pull when swimming the front crawl instead of using a straight-arm pull. When students discover experientially that their front crawl is more efficient when they use bent arms, they not only become better swimmers, they've also understood something of the physics of levers and forces, and gained that knowledge on a level deeper than that gained when reading a textbook.

Enhancement of relationships

Trust is engendered between teacher and student as a consequence of a student having discovered a skill or a more accurate concept. The student, we have found, will suspend what is often well-earned mistrust of a teacher in the presence of and within the experience of learning from that teacher. The teacher who can and does clearly and effectively teach a more effective skill or more accurate concept will earn the trust of a student. On the other hand, the teacher will trust the student's openness to learn in what is often seen as a time-consuming approach to teaching. The teacher will feed off the success of the teaching event and be motivated to help the student into other and more accurate concepts and effective physical skills.

Where best designed

Misconception checks work best in face-to-face classroom settings and in real-time online discussions, rather than in one-on-one interactions with learners. Misconception checks can also be part of an instructor's summative assessment or examination approaches in a course.

By seeking and blundering we learn.

–Johann Wolfgang von Goethe

Projects

Deep knowing matters

Projects are student-led investigations into a topic. Projects lead learners into the territory of deep knowledge. As they work on projects, learners are in charge of the procedures used in their investigations. The purpose of projects is for students to experientially understand that there are solutions to problems, answers to questions, and better and worse ways to address issues. The outcome of projects is deeper understanding and a broader knowledge base regarding a topic. Projects encourage students to use a coordinated set of skills (including inquiry, problem-solving, and presentation) to build a base of knowledge about an issue, question, or problem. The best-designed and executed projects include research into “living cases,” real situations, or an actual problem. Online courses are uniquely designed to permit project work because time, opportunity to reflect, communication that is transactional not linear, and informed access to relevant project information are all possible in an online environment.

Relationships

Relationships are built, group identity forms, and community develops when people are joined together to be “over and against” some issue, idea, person, or system. For example, of necessity it appears, the formation of identity in a school staff includes being over and against authority. Community also develops when adult learners give something to the group (work on a piece of a group project), give something up for the group (spend time with another group of learners in a course), and have created some symbolic representation of the group (a group name) (Rohr, 1994). In workplaces, sport teams, and families, individuals often form closeness and community through some or all of the above. Often, relationships are best formed though a consequence of being over and

against another team, coach, boss, or colleague. Healthy or not, relationships are formed and identities forged in the conversational activity of being over and against some idea, person, system, or issue. Online conversations, particularly threaded ones that involve many conversations, draw people together.

Learning theory and application

Cognitive dissonance or disequilibrium can lead to change because conceptual change is most likely to occur when learners “encounter evidence that blatantly contradicts what they currently believe” (Ormrod, 2008, p. 274). As students compare and contrast their current theories, beliefs, assumptions, and values with differing ones, teachers should guide students to deliberately shed or revise some original concept. Projects provide opportunities for students to deal with or accommodate conceptions of new information, as well as to be engaged with texts (Ormrod, 2008) in which ideas that go against a concept are deliberately presented then refuted, discarded to serve as an “inoculation” to future counter-arguments. In online environments any possible embarrassment experienced in the face of a refutational text is minimized if not entirely removed. No one sees another person blush or stammer while communicating a refutational idea in an online course.

Indicators of effective teaching

Good teaching is indicated when students are active when learning. When we say “active,” we mean engaged in activity that includes real-time communication. For many learners, clarity of ideas comes through communicating them, not necessarily or generally before communicating them. Online environments provide learners with clarity-producing opportunities to engage through writing, discussing, and applying themselves in simulations or finding real-life solutions to problems inherent in a project, again with time, safety, and feedback all readily available.

Course design: Projects

Self-efficacy is a person’s confidence in having the competency required to be effective and even succeed at a particular task. Competencies develop over time, in and through frequent, short, dispersed (i.e., nested in other activities, such as reading or drawing), and independently managed, self-governed learning activities. Projects therefore are ideally suited and designed to facilitate the development of competencies, because they can be designed for students to spend as little or as much time on them as students require. Project-based teaching activities allow for and promote the practice of skills in frequent, dispersed, and shorter time periods.

Why used

Teachers have ample opportunities to assess and reinforce learners, to alert learners to the presence or absence of their competencies, and, in the safety of technology-supported learning environments, to do so in ways that preserve dignity and promote risk-taking. Projects often help learners to develop competencies they might not necessarily feel psychologically safe enough to develop when quick and on-the-spot answers are required, as is the case in face-to-face learning environments.

Enhancement of relationships

Projects are a teacher's most effective firewall between a learner's fear of failure and failure in a learning experience. Learners' fear of failure is expressed in many ways, from downshifting (Caine & Caine, 1994) to withdrawing, from acting out to quitting. Often the contexts we teachers put learners into create anything but freedom from the fear of failure. We expect students to know the criteria on which they will be evaluated but do not provide them with rubrics or criteria that would make clear the basis for assessment and evaluation. We permit others (including the teacher) to observe the learning of new and complex skills; we put students into presentations and performances before complex skills have been fully mastered (e.g., public speaking); and we create an atmosphere in our classrooms and sometimes online where learning is experienced as a walk on a tightrope (e.g., trivial pursuit of some arcane and totally decontextualized abstraction like a definition without a larger conceptual framework in which the defined term would make any real sense) as opposed to a walk in the park (e.g., meanings are constructed, always contextual and necessarily requiring a conceptual framework). There are many other fear-inducing conditions that a good teacher tries to avoid and that are most readily avoided in technology-supported and online learning experiences.

Where best designed

A project is best produced and then implemented in the actual workplace or home of a learner. Projects that are not assessed by teachers are not likely to succeed, that is, achieve the intended learning outcomes identified for the project's completion. However, feedback from an instructor, or another person brought in from outside the course, can legitimize the reason for the course and the project assignment. The best project assignments are designed to include the following components:

- Identification of the core issue, problem, or question inherent in the place (workplace, family, church) the project is addressing;
- Creation of perceived need: casting the problem, issue, or question in a way that engages the learner's awareness (e.g., in a course on

teaching and learning in the church, the statement, “A lot more is known about learning than what is ever applied to teaching,” could be followed by the question, “Why?”).

- Provision of a way for the project to be implemented, realistically. As well, description of how the project will be assessed should be attached to the implementation of the program.

Projects work best as a course’s major assignment.

All of us must cross the line between ignorance and insight many times before we truly understand.

–David Hawkins

Insight-generating

Communication matters

Successful communication is accomplished when we hear exactly what another person is saying. In order to hear this precisely, we must practice active listening, or listen to what is beyond and behind the words—listen for the issues in the issue, the meaning in the words, the intent in the question (Adler et al., 2008). In the online environment we have unique opportunities to hear the adult learner and attend by way of response to what she or he means through the words used, in large part because the online environment permits conversations to take place in a variety of ways: in a café, through forums, over Skype, and in other synchronous ways.

Insight-generating is the deepening awareness of the importance of one's commitment to choosing actions consistent with one's real life (Lonergan, 1972), arrived at through engagement with the data of one's life, understanding what that data means, and choosing ethical actions accordingly. Communication is essential to insight formation; the online environment is essential to more than one form of communication.

Relationships

Social psychologists refer to the centrality of relationships in the formation of identity (Erikson, 1968; Marcia, 1966). One's identity is a powerful contributor to whether or not one succeeds in occupations that demand social engagement, as well as other relationships demanding pro-social skills (i.e., marriage). Relationships allow one insight into one's identity, which helps determine the quality of one's relationships. Online courses allow learners to partake in additional autonomous research regarding the meaning of their lives; such courses also provide circumstances, challenges, and opportunities necessary for learners to make choices or take ethical action in a carefully measured and informed way. More than one student has commented to me, Bernie

Potvin, on how my feedback helped them understand better who they are as a male, an athlete, a friend, a bully, a person of value, and more. It is gratifying to know that feedback from me can lead learners toward some insight into their identities: who they perceive they are in relationship to others. I believe this outcome from feedback can be attributed to the unique contribution of the online learning environment to identity formation. Learners can consider exemplars, defining attributes, and prototypes (Woolfolk, 2009) and do so in self-regulated and carefully measured ways. In other words, they can “learn to learn” about their self-identity and do so safely.

Learning theory and application

Bias leads to confirmations not always consistent with the presentation of facts. Adult learners lean toward bias regarding their self-concept (Adler et al., 2008). Often, learners in graduate courses are self-deprecating to a fault. As such, they communicate a self that is false (not bad, just not true). Rarely, a learner projects more of a positive self-concept by the end of the course. Learners will, however, communicate that they have come to a clearer understanding of who they really are, of their true selves, through the learning activities designed for them in my online courses. Online teaching and learning allows students the safety and time to work through their biases. Perhaps the positive outcome students express at the end of the course is the result of the number of weeks they’ve been with their fellow learners and me, giving their ideas affirmation. Perhaps online learning permits a gradual bracketing and negotiating of prior self-deprecating understandings. Professors reading this book will no doubt refer to evidence in their own course evaluations: fallacies, ones that are often present and debilitating in face-to-face encounters and teaching, can be more deliberately and anonymously discussed in online courses. In an online environment, professors, as well as K–12 teachers, can quietly address fallacies of (learned) helplessness, causation, overgeneralization, and “perfection” and self-worth being dependent on others’ approval (Adler et al., 2008). In addition to the important cognitive process of confirmation bias, learners try to maintain their self-perceptions, or self-concepts, to keep their worlds predictable and controllable. Learners tend to seek stabilization; in other words, they maintain a chronic view of the self (Adler et al., 2008). Online courses may offer only a small solution to what sometimes appears to be an epidemic of fuzzy self-concepts among child, adolescent, and, surprisingly, adult learners.

In online learning environments, learners may have the benefit of ignoring clues or triggers (e.g., mood, body language, subliminal factors, and schemata) that sometimes in face-to-face environments set off or catalyze a bias. The relational distance or interpersonal space experienced

by an online learner may actually work to reduce bias, and prevent quick and automatic judgments. In other words, learners in the online environment may come to expect and therefore experience positive relationships and develop affirmative self-concept.

Indicators of effective teaching

Good teaching is portended when a course designed intentionally allows for attention to a real purpose for the course, where the topics “live in the world,” including the learner’s personal world. Insight into the nature of important questions—regarding one’s true identity, for example—is an indicator of effective teaching. In the online environment, in a “place” designated for that purpose (e.g., a café), learners can post an emerging insight, a developing “aha” that becomes one of the shared, community-building pieces for the class. Unlike the flow-paper type of recording of emerging insights (where the flow paper often disappears into the “round file cabinet” in the corner of the room at the end of the class, and learners wonder how important, exactly, their insights were), the online insight remains up and open for feedback and thoughtful, hopefully appreciative, commentary.

Course design: Insight-generating

Insight-generating is best used when the intended outcome of a session, course, or program is insight that leads to engagement in new, more redemptive ways (e.g., parenting children). Insight leads to a deep awareness of the causes or motivations of one’s actions. The notion of coming to insight has been written about by Bernard Lonergan, the Catholic philosopher and theologian, in his books *Insight* (1957) and *Method in Theology* (1972). The notion of coming to insight is one small part of a larger theological method espoused by Lonergan. In coming to insight, the rational, affective, and cognitive elements of knowing are taken up. In Lonergan’s method, there are four movements or methods in the pedagogy or andragogy (adult learning). According to Lonergan, insight lies compacted and amorphous within a person, requiring the necessary conditions to unfold; the necessary conditions are the following methods:

- Paying attention to the data of one’s life. For example, what are the conditions of my marriage that undermine or strengthen the marriage?
- Understanding the meaning of the data. What is the purpose of the conditions, that is, what agenda or end—mine or another’s—is being served by these conditions? What do I know to be true about these conditions, and what is unclear about these conditions?
- Judging the value, place, role, and efficaciousness of the data. Shall I carry on business as usual? What is the likely outcome if I do?

- Choosing action as a consequence of paying attention—understanding and judging the data of one’s life.

Why used

Insight-generating deepens one’s commitment to choosing actions consistent with one’s real life, that is, the lived experiences encountered and lived at home, in the community, and in the world. For this reason alone, this model should be drawn from far more often in adult learning contexts.

Enhancement of relationships

In the context of an online course, the outcome of insight-generating is both the cause of a deepening relationship with one or two others, or the effect of a deep relationship with others. The journey through the movements, together in collaboration with fellow students and teacher, is a powerful relationship-builder. And further, as the teacher convinces the student of the transcendent nature of some impending insight, that they (student and teacher) are co-journeymen toward some insight, relationships are deepened. In courses on marriage, for example, the teacher who creates an ethos in the class or online environment of a shared (teacher and student) journey toward something transcendent not only guides toward insight but also creates meaningful relationships with students (e.g., marriage is more than a contractual arrangement to permit safe and consistent sexual activity; it is a covenant and a profound mystery of two people “doing life together” for each other’s greater good, and we married people are all in this thing together).

Where best designed

Blogs and chat rooms are the best contexts for insight-generating. The teacher can describe Lonergan’s method in theology and, in particular, coming to insight as described above, either in the course background description or in a separate e-mail to students. The assignment most suitable for this method, in accommodating the four steps in the pedagogy, is a mission statement, philosophy statement, life-plan statement, or some document that codifies the decisions made in the course, through interaction in blogs or chat rooms. In courses where students might have opportunities to design practices and interpersonal-based actions (e.g., counselling, preaching), the students may provide a report after the course has been completed officially, describing the outcomes of using insight-generating approaches with others.

I am not a teacher, but an awakener.

—Robert Frost

Training

Competency matters

Training is the systematic shaping of observable behaviours through the planned use of reinforcers. Implicit in this method is that people may act their way into new ways of valuing and thinking (Palmer, 1998). The online environment provides teachers with a unique opportunity to shape at least three important behaviours: writing with clarity, responding to classmates in appreciative yet truthful ways, and professionally negotiating accommodations to timetables, assignments, and schedules.

Relationships

Reinforcement, if genuine, specific to a task, appreciatively presented, and scientifically applied can deepen trust and enhance relationships between student and teacher. Students are quick to dismiss perfunctory comments in an online environment (e.g., “Good post”). Students are also equally quick to be drawn into meaningful and truthful feedback that would direct them to alternative ways of thinking or completing an activity.

Learning theory and application

Behaviourism remains psychology’s only real success story in the empirical world (Gerow, 1995). Reinforcement has been proven to work. However, because something works does not necessarily make it good or right. The science and art of applying the principles of behaviourism—the judicious and intentional application of its guiding ideas—is what makes it right and good. In the online environment, reinforcers and their use can be managed and regulated in ways not always available in face-to-face environments. In online environments, both teachers and learners can pay careful attention to the science and art of the application of reinforcers. For example, because shaping behaviours involves reinforcing

successive approximations of a desired terminal behaviour (e.g., commenting appreciatively with information-laden commentary when “catching” a learner offering an appreciative comment to another learner’s post), a teacher can schedule the timing, ratio, and quality of language used to offer the reinforcers. Applying the science of reinforcer use is hardly ever as possible in most face-to-face learning environments, unless deliberately planned.

Indicators of effective teaching

An indicator of effective teaching in this context is the provision of informed, thoughtful, and high-quality information regarding a student’s work, feedback that is directed to a task but also gives evidence of thoughtful and wise interpretation of that work.

Course design: Training

Training approaches are most useful in courses where skill development is a requirement and clearly identified as an intended learning outcome. Despite many people’s misgivings and opposition to training, the systemic shaping of behaviours through the use of reinforcement (behaviourism) remains psychology’s flagship notion. Reinforcement works to shape behaviours (Gerow, 1995). Training through the use of reinforcers (both positive and negative) is so persuasive and omnipresent that instructors may be misguided in attempting to avoid it. In addition, the misconceptions regarding reinforcement use and behaviourism are common. For example, virtually everything you and I do today will be a consequence of some previous or current reinforcement; intrinsic motivation is the long-standing myth in education and parenting. We erroneously believe that we are intrinsically motivated to work out, eat properly, serve the Lord, be kind, and show up at our workplace, all this and more for intrinsic motivation. Remove the good feeling or weight loss, increase your 10-kilometre time, and you would not run. We stay with our marriages because we are extrinsically motivated; we pursue true ways of being as opposed to false ways of being because we are extrinsically motivated. If my premises are correct and reinforcers are central to life, we instructors do well to design instruction to accommodate them. The best reinforcement:

- Is designed to shape behaviours toward a desired terminal end, a recognizable and specific intended outcome;
- Has an appreciative as opposed to a non-appreciative focus—identifies what is working well toward achieving the desired terminal behaviour and reinforcing that behaviour;

- Is part of a schedule of reinforcers that is scientific (e.g., it reinforces new behaviours on a regular schedule) and uses intermittent reinforcers when a behaviour is fairly well learned (to avoid habituation or being “used to” the reinforcer); and
- Employs feedback as the main reinforcer. Praise is avoided unless it is genuine and specific to a specific behaviour.

Parker Palmer’s (1998) notion that acting can change thinking may be the strongest support for adult learning experiences to include a training component.

Why used

Training through the use of reinforcers is best used to bring about successive approximations of a desired terminal behaviour. Its value resides in the patience and hard work of a teacher who is willing to shape less-than-ideal or poorly done work (e.g., writing assignments or strategic plans) successively into better, more ideal work. Why used? Because it works!

Where best designed

Reinforcement works best in one-on-one discussions online and, with caution, in public responses/feedback to learners’ work.

We do not act rightly because we have virtue or excellence but we rather have those because we have acted rightly.

–Aristotle

Shared Praxis

Relationships from design matter

The notion of relationship from design is borrowed from McTighe and Wiggins (2005), and their notion of understanding from design. “Relationships from design” means that opportunities to develop relationships are woven into a course’s learning activities. Relationships are not necessarily developed in the transmission of information, unless the transmission of information is designed intentionally to lead to the development of relationships. Participation in designed learning activities (e.g., developing scenarios) allows for opportunities for understandings to emerge regarding relationships and how they are formed. The online teacher has a very special opportunity to make explicit and draw learners’ attention to where relationships have been strengthened during a course and why a comment worked to build community.

Understanding from design was developed in part at Harvard (Project Zero) and popularized in K–12 educational practices. If a teacher decides to incorporate “relationships from design,” a term adapted and modified for the purposes of this book, in a course, she or he builds activities to nurture good relationships into the course’s learning activities, into what have typically been non-relationship-building activities, such as assignments, conversations, and threaded discussions in forums. In other words, through the learning activities designed intentionally to do so, relationships are developed and community is nurtured. For example, teachers can design a relationship-building assessment activity for each online session. Learners may be asked to identify at what time in the week’s discussions they were most engaged, least engaged, and most troubled; what idea or activity caused each response? In this activity, learners engage meaningfully with the week’s information, as well as with their own and others’ lived experiences. When designing for relationships in a class, the learning opportunities lie dormant, amorphous,

and designed, ready to unfold in the careful implementation of both time and application to do so.

“Shared praxis” means coming to know or understand something through deliberate reflection on one’s previous actions and behaviours, and then choosing ethical actions that are consistent with a new understanding reached through consideration of another person’s perspective. In this form of experiential learning, a student, through teacher-questioning, returns to a previously experienced action, and with a teacher’s careful guidance re-engages with that action by considering critically how some teacher-introduced, new information calls into question (or not) the student’s actions and reasons for the actions. What is produced is a way of knowing that the Greeks called *praxis*, a word that roughly means “knowing through reflecting critically back into some social engagement” (Groome, 1981).

Relationships

Community is formed and relationships nurtured as people enter into the particular way of being in the world that comes about through right relationships with others, self, the world (society/culture), and God/divinity. In turn, as people take up and practice the principles of right relationships (e.g., forgiveness, listening for the core issues), right relationships can result, as they do in a community that permits freedom and risk-taking in ongoing learning. Online courses and teaching organized around a shared-praxis model give learners the time needed to interpret messages and consider how to synthesize new ideas into current ones, to accommodate schemata to new information.

Learning theory and application

Thinking is socially constructed. Knowledge is a social construction. Shared-praxis approaches make intentional and deliberate the often taken-for-granted and implicit activities of learners as interpreters and synthesizers of information. The nature of relationships and community development, dialectical and verb based, is nurtured in the activity of socially constructing some meaning in the online activities of some assignment, discussion, or inquiry.

Indicators of effective teaching

Good teaching is indicated when teachers make the information being taught meaningful and relevant. Good teachers do not broker in abstractions as much as they situate the course’s information (or content) into the learner’s context, a place within the past, and current actions that typify the learner’s lived, daily experience. When information is situated

or contextualized into a learner's story and vision for the future, the information becomes purposeful.

Course design: Shared praxis

Shared praxis is most useful when the main goal of a course or program is ethical action: choosing ethical behaviours and actions for one's life. Praxis is the reflection on an action one engages in in order to come to an ethical action. The concept of coming to know through reflection informed by action, and action informed by reflection, first appeared in the writings of the Greeks. Currently, the notion has been used in workplace learning popularized in the writing of Donald Schon (1983) and others; in education, in the writings of William Pinar (1975); and in theology and theological education, in the writings of Thomas Groome (1981). In Groome's notion of shared praxis, there are six integrated movements. All movements together are a methodology, not a set of distinct methods. As such, the movements can be thought of as a theoretical construct or frame of reference, not a series of steps or methods, strategies or tactics. In shared praxis, learners move deliberately and intentionally with a teacher's guidance in two ways toward more ethical actions, first by considering their own actions and reasons for those actions, and second by considering the implications of the profession's best practices, research, and wisdom (the story and vision of the profession) and dialectically synthesizing current actions into newly chosen ethical actions.

A useful course-design approach is for shared praxis to be the conversational framework, the intentional design in a course's threaded discussions. The six movements of shared praxis, as drawn from the work of Thomas Groome (1981), are:

- Naming present action in the light of some topic (e.g., what do you do when praying? what do your prayers consist of—what is the language used, and are consistent forms deployed to pray?);
- Identifying reasons for current action (e.g., what are your hopes in maintaining current actions?);
- Presenting the profession's story and its vision (e.g., a piece of the story relevant to the topic at hand, presented for assessment and for learning);
- Considering how best practice and research regarding assessment affirm or disaffirm present action and its reasons (hermeneutical);
- Considering how one's present actions and reasons call forward more meaning regarding assessment, the models and theories we have in practice, and research regarding assessment; and

- Deciding what action, ethically chosen and consistent with current context, is now called for (dialectical).

Why used

Shared praxis honours individuals coming to know in a way that is personal and yet informed by the greater community, outside the person and yet deeply connected to the person. The relationship built with others in the course is by design, like that of an engaged couple recognizing that they will share in the happiness and sorrows, challenges and opportunities, of all those who have preceded them into marriage. The relationships extend horizontally to others in the course; each is coming to know in lived situations through shared experiences common to us all.

Enhancement of relationships

Shared praxis in instructional design affirms knowing that is contextual and situational. We best share the heartache and joy, the hope and fear of real life, almost always in stories and hardly ever in abstractions. Abstractions brokered in classrooms, particularly in the online environment, may be less persuasive and pervasive in relationships than we think. Ideas are not nearly so powerful stimuli in decisions than are values and actual experiences. However, narrative-based teaching and sharing of narratives offers a great deal to learners and teachers in terms of developing relationships. Listeners have a role to perform, as do storytellers, in narrative-based ways of teaching (Wilmot, 2011). Both open up windows into sharing what is acceptable. As learners engage in the collaborative act of overlapping narratives, they define and redefine their selves (Wilmot, 2011); this activity, performed in the safety of the online environment, is highly appealing to adult learners. Shared praxis pulls all learners together into a common place where narratives are safely shared. In shared praxis, the stories we tell become incarnational, or our inhabited ways of knowing. Shared praxis offers an unintentional learning outcome, a hidden curricular effect: a comforting and relationship-building ethos—we are all together in this thing called life.

Where best designed

Shared praxis is best designed in discussions. The teacher acknowledges present action and draws out learners' current actions and reasons for current actions in a series of questions posed in the online environment. Over the 13 weeks of a course, the teacher poses pieces of the profession's story and its vision, intentionally seeking the hermeneutic and dialectic outcomes described above. To capture and make legitimate the

new action described by a learner—the ethical action chosen at the end of a series of movements framed in questions—the teacher can assign a task that calls for an action plan, a mission statement, in which the learner perhaps describes the proposed ethical action chosen, the conditions for its practice, its strategies, tactics, logistics, and the relationships necessary for it to become real and applied in context.

Education does not mean teaching people what they do not know. It means teaching them to behave as they do not behave.

—John Ruskin

Apprenticeship

Transfer of learning matters

The problem of transfer of learning and transfer of training remains unresolved in learning situations where attention is not paid to the psychological conditions of the learner (e.g., readiness) and the sociological conditions in which the learning is to take place (new learning conditions) (Haskell, 2001). Apprenticeship models in online courses can address this need, if the outcome intended is for learners to develop mastery in procedural skills related to a value. In modified apprenticeships, students take up short-term mission or work trips, international work projects, and “outward bound” type activities. The context for modified apprenticeships is work in a challenging context, one unfamiliar to the student but in which the student recognizes opportunities to address a deep value (e.g., poverty alleviation). The possibility for learning values rests in the opportunities to work alongside mentors and coaches, as novices experience directly but in abbreviated ways what the mentors experience daily. In online courses, assessment-for-learning activities can be integrated into assignments that require an apprentice and protégé relationship. In addition, online environments permit cognitive apprenticeships (Collins, Brown, & Holum, 1991).

Cognitive apprenticeships share many of the features of regular apprenticeships but differ in that the objectives are not skills but cognitive attributes (e.g., reading, problem-solving, analytical thinking) gained through provision by the teacher or other learners of models, tutoring, scaffolding opportunities to articulate their emerging knowledge, and suggestions for ways to explore and transfer new knowledge (Woolfolk, 2009, p. 334).

Relationships

Trust may be developed in problem solving-based learning (Johnson, 2011, pp. 70–77) if “effective” problem-solving strategies are deployed

and are therefore shown to be effective. Online courses do not appear readily designed for apprenticeship practices. However, an apprenticeship element can be designed for and added to an online course (e.g., an assignment that requires a program review or assignment development alongside a mentor, over time, with deliberate attention paid to the needs of both mentor and protégé to meet together and enter into conversations). For example, each Bachelor of Education student in Ambrose University College's Education program is mentored by a classroom teacher, one who volunteers to accompany the education student for two years of the program. Without pay, official recognition, or career advancement for doing so, mentors readily step up, and each student in the program has a two-year (minimum) commitment from a classroom teacher. Courses and programs designed online can include apprenticeship-type elements, such as mentorships and professional directorships.

Learning theory and application

Co-operative group problem-solving in which the concepts and principles inherent in solving the problem are discussed provide opportunities for students to see the interrelationships among things, clarify their own thinking, observe and model tactics and relationship approaches necessary to solve problems, and become efficient in approaching new and similar problems (Ormrod, 2008, p. 424). Authentic apprenticeship activities increase the likelihood that transfer of training and transfer of learning can occur: transfer in both its forms, in the working memory of the learner and in real-life situations.

Indicators of effective teaching

In this context, good teaching is indicated when learning is transferred, and transfer of learning is enhanced in authentic activities, those similar to what students do or will encounter in their school, workplace, or families (Haskell, 2001). When learning is meaningful, it is likely that transfer is near, positive, and horizontal, and students recognize the connections to their "real world" outside the classroom or online course.

Course design: Apprenticeship

Apprenticeship models are best used in courses where competency development is an intended learning outcome. Students develop mastery in procedural skills related to a value. In modified apprenticeships, students take up short-term mission trips, international work projects, and "outward bound" type activities. Novices join communities

of practitioners, first as participant-observers, then gradually assuming increasing responsibilities in the new setting. Situated learning (learning in the situation through gradual assumption of roles) and action learning (problem-solving while in the field) are the two main learning requirements for modified apprenticeships. Unlike real apprenticeships, where mastery is the goal (Pratt, 1998), modified apprentices are expected to experience a conscientization (Freire, 2006), a raised consciousness of the knowledge, skills, and attributes of the community, what practitioners value most highly and why, and what they value less highly and why. Such apprenticeships are best designed in settings with trusted and experienced experts, as the practical assignment of a course.

Why used

Apprenticeships are best used to close the gap between theory and practice. For example, apprenticeships in the form of internships (e.g., medical doctors), practicums (e.g., teachers), and articling (e.g., lawyers) provide students with the best possible set of conditions for transfer of learning to occur. These conditions include time for modelling and time to construct meaning, opportunities to reflect and receive formative as well as evaluative feedback, and, if the apprenticeship is designed and implemented by a thoughtful teacher, sufficient scaffolding to bring the student closer to best practices. Until apprenticeship models are drawn from to shape the educational practices in the professions, transfer of learning and training will continue to be problematic in the professions. In the trades, apprenticeships are used with high success. Professions that avoid the use of apprenticeship models will continue to be plagued with critiques similar to “I never really learned how to teach until I began teaching.”

Enhancement of relationships

The context for modified apprenticeships is work in a challenging context, one unfamiliar to the student. The possibility for learning values rests in the opportunities to work alongside mentors and coaches, as novices experiencing directly but in abbreviated ways what the mentors experience daily. As the teacher and student work together toward some common and desired end, relationships are formed.

Where best designed

Apprenticeships and cognitive apprenticeships are best designed for learning experiences in which domain-specific procedural knowledge is a desired outcome. When a course’s or program’s intended learning

outcome is “knowledge through the hands” (i.e., competency development), a teacher should draw from apprenticeship and cognitive apprenticeship models.

Educate a boy and you educate an individual; educate a girl and you educate a community.

—African proverb

Case Study

Power shift matters

When engaging with case studies, learners read a selected case—a particular instance of a behaviour or action—and then describe and analyze the events in the case to see what themes make up the event or behaviour. Case study-based learning tries to encourage “thick” description of the case (thorough as possible description of an instance of behaviour or action), as well as analysis of the particular instance so that cause-and-effect relationships within the case are revealed (Pratt, 1998). Also, case-study learning provides opportunities for learners to let the case interpret them, for learners to allow the case to reveal what personal meanings reside within them, the learners, regarding the case’s main causes and effects.

Case studies are best used in courses where interpretation is valued, as are non-positivistic ways of understanding the lived experience of people in some context (e.g., school, home, church, or community). The learner’s lived experience in an online environment is one often characterized by a shift in power and control, from teacher to subject matter (Pratt, 1998). As a result, the learner in the online environment can focus on the information and attending activities designed for learning in the online environment, on developing the skills, knowledge, and attributes identified in the course and stated in the course objectives and goals. The teacher no longer holds the trump card in terms of course success for the learner, particularly for the learner whose attributional make-up is characterized by luck (Weiner, 1986). The information and all attending learning activities designed by the teacher become all-important for the learner.

Relationships

There are far more technology-based ways for learners to work together in case studies than will be used in one course. Twitter, Facebook, blogs,

instant messengers, and text messaging are readily available and quite easy to set up. In each, the elements necessary to building good relationships and community (i.e., active listening, responding, providing and receiving feedback, and exploring the actual nature of language and its use) are possible (Galvin, 2011, p. 90). The use of social norms, netiquette, and awareness that messages can be stored and referred to later on all require learners and teachers to be far more conscientious and thoughtful about developing and preserving relationships than they might be in face-to-face learning environments. In other words, the very nature of online environments motivates teachers and learners to practice the communication competencies that in fact develop good relationships.

Learning theory and application

Case-study approaches provide for a form of negotiated collaboration, a unique way for learners to avoid dealing with the implicit but otherwise very real competitive, self-interest-oriented classroom typically found in most university programs. Subjectivity, emotion, co-operativeness, intuition, and community concerns characterize learners' experiences working on case studies (Putnam & Borko, 1998). With the predetermined goal of analysis of the case, learners deploy the language of negotiation and must practice creativity within collaboration.

Indicators of effective teaching

Teachers who use case studies in their courses are effective when they deploy a wide range of helpful listening and responding skills. They analyze and interpret problems and difficulties, reassure and support (but do not placate or inadvertently undermine the learner's problems), question and probe, paraphrase and acknowledge the emotions inherent in the problem (Putnam & Borko, 1998).

Course design: Case study

Case studies present a process wherein learners read a selected case, a particular instance of a behaviour or action, and then describe and analyze the events in the case to see what themes make up the event or behaviour. Case study-based learning tries to encourage "thick" description of the case (thorough description of an instance of behaviour or action), analysis of the particular instance so that cause-and-effect relationships within the case are revealed.

Why used

Case study-learning provides an opportunity for learners to let a case "interpret" them, for learners to allow the case to reveal to them what

personal meanings reside within them, the learners, regarding the case's main causes and effects. A case study–learning experience is inductive, and learners can and should be permitted to extrapolate from the case to other cases, similar and particularistic. One main outcome of case study–learning experiences is that learners recognize how the particular context, the reality aspects inherent in the case, influenced and were in turn influenced by the events in the case (i.e., their cause and effect).

Enhancement of relationships

The value of case studies lies dormant, compacted and amorphous, in the case; in the hands of the skilled teacher, the case can roll out into a truly life-changing opportunity. The skilled teacher not only unpacks the meaning that resides in the case (e.g., history, background, motivation, culture, and family influences) but also pours meaning into the case, legitimately so because of the shared and common experiences of all people, everywhere, all the time. Students can be uninhibited when studying a case of a person who has overcome adversity, inhibited when analyzing a case of a person who made wrong choices, desensitized in the presence of a person who came ever closer to the source of her fears and did so by simultaneously carrying with them sources of confidence (e.g., friends). Students can freely journey into the narrative of the case. The result? A deepening of a general sense of belonging to the human race, being a part of some grand narrative that, while not fully comprehended, is at least apprehended, taken up with others in a course or program.

Where best designed

A case study is best designed in a course as one assignment and integrated with other assignments, with conclusions drawn from research integrated into a major paper.

There are only two real tragedies in life: one is not getting what one wants, and the other is getting it.

—Oscar Wilde

Inquiry

Relevancy matters

Adult learners maintain a default interest in most abstractions, theories, and concepts presented in a course. They assume an interest in abstractions because they are required to broker in abstract ideas in their many courses and programs. Adult learners are primarily and fundamentally interested less in abstractions than they are in inquiry, or solving real problems, discussing real issues, and addressing real questions. We have found that adult learners respond with heightened involvement and deeper, more intimate relationships with their teacher and other learners in a course when we have designed the course to be inquiry based.

Inquiry is the systematic investigation of a problem, issue, or question. The distinguishing feature of an inquiry-based learning experience is that the lesson may develop from student responses and therefore the problem, issue, or question being investigated may open up into new questions, issues, and problems. If an inquiry is allowed to be open-ended, the teacher should accept that, at least for the time being, for the student there is no right answer, and no conclusion is required to end the inquiry (Davis, 1993). Inquiry can continue.

Relationships

Social penetration theory (Altman & Taylor, 1973) proposes that communication moves from superficial to more intimate forms during the process of relationship formation. The social penetration theory premise is that relationships are intimately connected to communication and that relationships develop in predictable and invariant stages: orientation, exploratory affective exchange, and stable exchange (Galvin, 2011). Inquiry-designed learning requires time and involvement in communication; these are essential elements and open up the possibility for the fourth stage of social penetration theory—stable exchange—to be

realized. Inquiry permits numerous opportunities to discuss, seek clarification, and work through and accept idiosyncratic ways of communicating (Galvin, 2011).

Learning theory and application

Inquiry approaches in course design mean co-operative and collaborative learning opportunities are inherent, designed for, and practicable. Jigsaw techniques lead to interdependence; reciprocal questions lead to insightful thinking about a problem, issue, or question; and directed ways to work in partners (e.g., switching roles assigned to learners: sometimes a scribe, sometimes a listener, sometimes a summarizer) lead to competency development (Woolfolk, 2009).

Indicators of effective teaching

Good teachers recognize that conversations work best with adult learners when they are substantial and cause engagement that is both cognitive and affective. Good teachers do not just let conversations happen in an online learning environment; they organize conversations within a framework that includes questions that both connect and lead to comprehension, rules for conversing that maintain dignity and respect, and, above all, expectations that are made intentional and explicit for how the conversation is to take place online. For example, good inquiry usually involves forming some hypotheses, laying bare assumptions, collecting and presenting data that test the hypotheses, forming conclusions, and returning to the original question, problem, or issue to reframe it (Woolfolk, 2009). Inquiry approaches take many forms and expressions but remain firmly aligned with the outcome most highly desired in adult online learning: both the content and the method or process of learning the content are equally important and worth learning (Woolfolk, 2009).

Course design: Inquiry

Course designers will incorporate inquiry to help students deduce a better solution to a problem, a better answer to the question at hand, or a more appropriate conclusion to the issue being investigated. Teachers enter into the student's inquiry with facilitative questions designed to limit and focus student responses. If an inquiry is designed to foster creative responses and artistic expressions of some insight, it will do so through the ways a student takes up the problem, issue, or question.

Why used

The ultimate goal of all inquiry, regardless of intent, is to generate new knowledge and understandings of that knowledge (Davis, 1993).

Enhancement of relationships

Through an inquiry (e.g., session, project, or course) students are engaged in different forms of communication with their teacher, from asking for guidance to seeking clarification for emerging ideas, to confirming emerging theories and hypotheses. As students and teachers move deeper into the inquiry, they invariably penetrate any barriers they might have in their relationship; they move from initial orienting exchanges through to stable and trusted exchanges, thereby deepening their relationship with each other.

Where best designed

Inquiry is best designed when a course or program is intended to produce a highly relevant, particular, and idiosyncratic answer, resolution of an issue, or way to solve a problem. In a course or program on a general topic (e.g., a running program to prepare for a marathon), the inquiry-based teacher guides students to state and refine their one question, problem, or issue, and then, from the sidelines, guides the students to produce their own solutions, answers, or ways to solve an issue. The task of the teacher begins and ends at informing the students of sources of information, ways to make sense of what is being discovered (e.g., answers, solutions, and ways to address issues), and how best to make known to others what has been inquired into.

Do not train a child to learn by force or harshness; but direct them to it by what amuses their minds, so that you may be able to discover with accuracy the peculiar bent of the genius of each.

—Plato

Case Studies and Examples of Technology-supported Courses and Programs

Suggestions for Reading This Section

- Start by reading the scenario section of each model first. By doing so you will be able to connect the familiar (the teaching examples) with the unfamiliar, various, and perhaps new ideas found in each section.
 - Look at the keywords section; be alert to reading these words in context throughout a section.
 - If you are a practically minded, concrete sequential learner, then read the sections titled “How best applied?” With some concrete examples in mind, the rest of the section and the model’s description of examples will make better sense.
 - Read the scenario again, together with the case studies provided in each section. Determine to call into question the scenario, to actively look to disaffirm or affirm the case study described in the scenario, based on your own teaching experience. By doing so, you will be cognitively engaged and in active intellectual engagement with the scenario.
 - Read and try out the suggested URLs, online resources, and, if possible, books suggested for reading. There is definitely more to the story of teaching and learning than what can be included in each section.
 - Read and consider the subheadings. These serve as useful advanced organizers to alert you to what you already know and to make sense of what you will read in the text that follows.
-

We don’t always think our way into a new way of acting, we act our way into a new way of thinking.

–Parker Palmer

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Transmission/Direct Instruction

Scenario

Students in Dr. Smith's undergraduate political science class have been discussing censorship and how different countries have taken up the notion of censorship. The students have discussed the Charter of Rights and Freedoms in Canada, yet they still seem puzzled about why certain forms of artistic expression developed and used in private, including those depicting sexual relationships between children and adults, are permissible de facto by not being prosecuted. Most of Dr. Smith's students, however, speak out in favour of people being able to do what they want "as long as they don't hurt anyone else." Dr. Smith recognizes that she has a teachable moment here, where students face a genuine tension, where most if not all students are able to say that they do not support any form of censorship even as they recognize and acknowledge that certain forms of behaviour (e.g., filming sexual torture and the killing of children) must be censored. She decides that the topic is important and compelling enough, that students are already engaged enough, that she could develop a series of lectures with guest speakers who would transmit various points of view on the topic of censorship. She decides to bring in a Catholic priest, a journalist, and an artist who would take up the topic and lecture on the place of government to decide what might be viewed and what might not be viewed. To ground the discussion in a concrete experience, she decides to introduce the coming lecture series by referring to (using the "hook" of) Howard Stern, the American shock talk-radio broadcaster whose shows include sexual activity broadcast live. Stern has just been given clearance to broadcast live in Canada on public radio. Dr. Smith also decides that the most effective way to organize the entire lecture series so that transfer of learning occurs is to ask students to prepare briefs (short summaries) for each of the three levels of government, with reference to specific persons in each level of government.

Background to transmission/direct instruction

Transmission is the presentation of content (information) to learners. Implicit in this perspective is that there exists a stable body of knowledge that can be “accurately and efficiently” (Apps, 1991, p. 40) delivered to learners. The emphases are on the teacher and the content to be transmitted, and how efficiently the teacher can be an “architect” of learning experiences through direct instruction. The teacher designs the transmission of content so that the content is represented faithfully to the learner. The teacher designs and implements the transmission of content so that it is efficiently and clearly organized and presented. Students reproduce the content in some form identical or similar to the original information (Apps, 1991, p. 41). The most commonly used transmission strategy is teacher talk or lecture. Other commonly used ways of organizing for presentation online and technology-supported information include presentation of print resources in some saved digital form, overheads projected on Smartboards, whiteboards, PowerPoint, books and handouts saved on a platform such as Moodle, websites, videos, pictures, and other visuals.

Keywords

- *Instructional design* – step-by-step, logical, and organized design of environments and learning experiences.
- *Scaffolding* – providing environments to assist learners to understand new content, dependent on previous content and learner understanding of previous content. For example, in order to scaffold a learner’s experience of learning, a teacher’s first learning activity online might be for students to introduce themselves and include three sentences in their online introduction: what they know about the topic of the course, what they want to know about the topic, and what approach or style of learning they will likely use to learn about the topic.
- *Transfer of learning* – learners transfer into their reception of transmitted content previous learning and transfer their learning to new or other situations (e.g., a workplace, a sport, a skill, an examination).

Indicators of success

When transfer of learning is evident, learners make connections with new content using previously learned content, and learners apply their learning to new situations with satisfactory to exemplary results. For example, students could document their emerging insights in a digital

or online format. Each week they could post a three-part response: the main idea of the week's readings (or discussions online), students' main conclusions about the readings, and what remains fuzzy (Angelo & Cross, 1993).

How best applied

Using narrative in each designed learning experience is an effective way to include content or information that has been attended to over some period in the course. For example, teachers may ask students to post a shared journal entry each week, in which they identify when during the week they were most engaged and least engaged, and why. In addition, during direct instruction (transmission) online, teachers need to use some "hook" or motivator to draw students inductively into the content being transmitted. For example, teachers may use an anomaly or unusual event posted online to create cognitive dissonance (e.g., a child prodigy demonstrating a gift in a class on stages of development that ostensibly "all" children are typically supposed to follow).

Challenges to using transmission/direct instruction

Student prior learning may negatively influence transfer, which affects how a student makes new inferences, draws accurate conclusions, and makes valid interpretations. Information is often less reliably perceived and interpreted by learners than what might be expected or hoped for. Understanding of content that might be desired in transmission approaches may be less possible than what many teachers would hope for, in part because much learning may be more tied to specific cases—experiences that gave rise to memories (lingering effects of experiences in the learner's long-term memory)—than to abstract content transmitted in skillful, organized ways (Pressley & McCormick, 1995). For example, teachers may question students early in a topic to assess misconceptions. Students could be asked to post a response to an "essential question" skillfully worded to tease out misconceptions. For example, at the University of Calgary I (Bernie Potvin) have asked graduate students in my learning-theory course this question: "What does it mean for children, ages 5 to 11 (approximately), to be concrete operational in their thinking, according to Jean Piaget?" Typically, most students respond that children need concrete experiences through which to learn. That answer, while true, is not the whole story. At the concrete operational-thinking stage, children make sense of new experiences through accessing the leftover or residual effects of their previous, concrete experiences, which are now lodged in their long-term memory stores. Once identified, the misconception about concrete-operational thinking can serve as a direction for additional direct instruction.

Opportunities to enhance the effectiveness of using transmission/direct instruction

Organize information (content) into bite-size chunks (so that no more than five to nine chunks of information have to be processed in a learner's short-term memory within a five-to-ten-minute period); develop an architecturally sound framework for organizing content (e.g., teach facts by first teaching an organizing concept, one that provides learners an opportunity to pour meaning into the facts); transmit in a logical way, from general to specific or simple to complex, depending on the content; combine uses of transmission strategies so that each modality of learning (visual, auditory, and tactile) is used by each learner; differentiate transmission so that there are multiple entry points into the content (e.g., artistic learners can explain by drawing; storytellers can explain by telling stories) and multiple points from which the learner can be assessed and evaluated. Organization of information can be facilitated, for example, by Prezi or PowerPoint presentations that are terse, concept first (in upper-case letters), followed by propositions (lower-case letters).

Purpose

To efficiently present the maximum amount of information possible so that learners can master content and transfer content in workplaces, during examinations, and in concrete real-life situations (e.g., while parenting).

Goals

By the end of a well-designed transmission-based learning experience, students will be able to connect a previously understood concept, idea, or principle to a newly heard, seen, or tactilely experienced concept, idea, or principle; transfer to a new situation the newly heard, seen, or tactilely experienced concept, idea, or principle (e.g., transferring the idea that skimming through a story first to get the main idea is a practice that can be used, or transferred, to reading a set of instructions on how to build a model airplane or fix a flat bicycle tire).

Alternatives to transmission/direct instruction

Alternatives to transmission are the use of stories, video, and reading in "directed" teacher-led situations, in which students are guided by their teacher to engage the content, or interact with the information in the story, video, or book in three ways: identify what they paid attention to and understood in an initial section of the story, video, or book;

understand what they conclude about that initial content; and predict what will happen next in the content.

Assessment as learning

Quick responses (QRs) are a time-efficient means for students to “re-enter” the learning experience they just completed, to re-engage the ideas and reconsider their conclusions about the ideas that were previously transmitted. During a QR, students identify in writing (posted online) the idea that caught their attention and their conclusion regarding that idea, as well as one more question they needed to ask to fully understand the idea. A QR is an assessment-as-learning activity intended by teachers for students to carry on with their learning about a topic through a highly personalized strategy.

Assessment for learning

Mad minutes (MMs) are a commonly used assessment approach in mathematics. Students complete a set of activities (e.g., multiplication questions) provided by the teacher, posted in Prezi or PowerPoint format. Teachers look at responses to see or try to see patterns of mistakes, common misconceptions, or typical errors. This miscue analysis serves to alert teachers to what needs to be addressed during the next learning experience. MMs are a form of assessment for learning; they direct the teacher toward what needs to be designed next so that learning purposes are achieved.

Assessment of learning

Quizzes may take different forms (e.g., paper, art, movement). The importance of quizzes, as with any form of measurement or assessment of learning, is that a complete quiz provides a teacher with information regarding the amount, degree, or quality of a student’s learning. The teacher can use this gathered information as one basis for evaluation, to provide a judgment to the student and parents regarding what the student knows, understands, and can apply, synthesize, analyze, or evaluate.

Nurturing

Scenario

A community college class in urban planning has been asked to respond to a survey regarding a proposed plan to expand the local zoo. The students have debated the role and place of zoos and generally have concluded that zoos, while useful and a part of our society, have contributed to the carelessness with which people treat the environment and approach conservation issues. They believe that if we did not have zoos, people would be far more careful about preserving wildlife in the natural environment. The teacher suggests that the students write letters to the local zoo officials, to conservation officers, and to local politicians. The students are convinced that their efforts will produce little if any good, that adults do not listen to young people's opinions, anyway. The teacher acknowledges that perhaps they are right, but if they value change, change for the good, and their role in being change agents, they might use this as an opportunity to develop skills of persuasion, writing, public speaking, and influence through dialogue. The students remain sceptical but agree to try. The teacher wants the students to keep their own voices but agrees to guide the students along the way, helping each of them identify his or her main gift (e.g., public speaking) and develop that gift with careful, modified practice, so when the local officials come to the school, the students can speak up on behalf of the class. The class decides to hold a major weekend information session, with full participation of the entire community, attended by several zoo officials, conservation officers, and local politicians. The "walk-about" (a challenging situation) is planned and implemented entirely by the students. The goals of the session are information-sharing and consciousness-raising relative to issues of conservation and animal preservation.

Background to nurturing

Self-efficacy is the learners' confidence, allowing them to access information, develop understanding, and apply their understanding to new situations. In psychology the notion of self-efficacy has a long history of study and research (Pressley & McCormick, 1995). It is clear that certain conditions are necessary in order for learners to develop confidence that their efforts, skills, and attributes can be instrumental in accomplishing something new or better. In this context, competency precedes confidence, and learners need to be in situations of learning where the skill required to be successful (e.g., dribbling a basketball) precedes confidence; get good at something and confidence follows. Teachers therefore need to modify a skill to fit the child and not try to modify the child to fit a skill (e.g., use balls that are smaller and lighter than regulation basketballs early on in the development of dribbling).

From a nurturing perspective, the teacher is more concerned with being appreciative and facilitative as opposed to being a lecturer; being forgiving as opposed to being right; being accommodating to the needs and background of the child as opposed to being concerned about the needs of the subject matter; and, above all, being aware of the child's learning style, intelligence, and predisposition. The learner is encouraged to exercise autonomy and take risks, to enter into the learning at multiple entry points, and to be able to express learning in one of multiple ways (e.g., through art, drama, paper-pencil tests).

Keywords

- *Appreciative inquiry* – the premise that an organization will naturally move toward what works well, in planning and implementation; the idea that when practices that are working well are emphasized and reinforced, what is not working well within organizations will fade and eventually disappear.
- *Competency* – knowledge through the hands; the underlying capacity of persons that can be mobilized in specific situations.
- *Modifying skills to fit the child* – a teacher's act of adjusting a skill so that the child can be successful. The adjusted skill resembles the ideal skill and is a foundation for the eventual acquisition of an adult-like skill (e.g., allowing a bounce in volleyball).
- *Self-efficacy* – a person's sense of confidence that he or she can be successful in a task, that he or she has the competency required to find a solution to a problem, a way to address an issue, or an answer to a question, and can apply the competency within a specific situation.

Indicators of success

Nurturing is successful when the language the teacher uses is well within the understanding of the learner, and assessment is best designed for learning (e.g., assessment and the information gathered are used by both learner and teacher to direct further learning). The welfare of the learner overrides the content and its veracity: when learners display confidence, the perspective and its implementation have been effective. For example, a teacher may design an assessment-for-learning online activity in which students showcase their “best thinking to date” regarding a topic of the week—in the form of a metaphor, an analogy, a visual—and best thinking expressed visually is received appreciatively.

How best applied

Nurturing can be applied in role-play activities, through facilitation and group games, all performed within a context of avoidance of external standards and other indicators of success (e.g., rubrics). Goals should be set by the learner. For example, students can design their own rubric and apply it to the assessment and evaluation of an assignment.

Teachers may also design an online course or lesson to include a bank of stored, selected, and limited “nurturing-oriented” feedback sentences to be used by teachers and students. No other feedback sentences can be used, particularly feedback like “good work” and other non-information types of feedback that may actually undermine self-efficacy and not in fact nurture the learner. Some examples of permissible feedback sentences include:

I connected most deeply to your point regarding X because_____.

Your analysis of X was engaging because_____.

Your ideas ring true because_____.

Challenges to using nurturing approaches

Pressure to conform to some external standard or guideline exerts an influence on the learner; learners may lack trust in the appreciative and facilitative role of the teacher.

Opportunities to enhance the effectiveness of using nurturing

Developing relationships is a key to effective nurturing in the online learning environment. Learners need to feel trusted by and in turn trust their teacher; respect is mutual; appreciation and affirmation are mutual. The image to keep in mind here is one of a team, all members working together toward a common goal: the increased self-efficacy of the learner. For example, teachers could call each student personally to

ask, “How is the course going for you? Is there anything going on in the course that is an obstacle to your enjoyment of it?”

Purpose

The development of a person’s sense of confidence, clear self-concept, and the evaluative part of that self-concept (self-esteem) determines a learner’s well-being and potential to learn and take risks, to grow and develop into an instrumentally competent person, one able to set goals, and to be self-controlled and pro-social. Self-efficacy is not developed by being taught about it but through developing actual competencies within real, active situations.

Goals

By the end of nurturing learning experiences, learners should be able to:

- Assume responsibility for learning, its successes and failures;
- Identify the reasons for successes and failures; and
- Approach tasks with a high degree of confidence, sustained despite the potential inherent in the task to either succeed or fail.

Alternatives to nurturing

Apprenticeship is an alternative to nurturing. In carefully designed apprenticeships, while the main intended outcome may not necessarily be a nurturing-related one, students can and often do experience feeling nurtured.

Assessment as learning

Walkabouts are one way in which nurturing can be assessment as learning. In a walkabout, students take on a longer-term task, a challenging situation in which they have to use acquired skills to be successful. Walkabouts can range from a physical challenge like an extended bicycle trip to an extended personal challenge like working over a weekend in a homeless setting, with programs designed to assist homeless individuals. Walkabouts are opportunities for students to take up, experientially, activities that before were just talked about. Students engage in a challenging activity, like running a marathon, so as to come to know the differences between, for example, pain and suffering, which before the experience were mere abstractions. The nurturing-oriented work of a teacher now becomes more meaningful, relevant, and understandable. Walkabouts, therefore, can be a type of assessment-as-learning activity.

Assessment for learning

Stems can be used to facilitate transfer of learning. Teachers present to students their appreciation-laden, stem-based perceptions to determine the degree to which the intended outcomes of nurturing activities have been achieved. Teachers can reinforce students' desire to maintain adherence to further nurturing activities. As well, the stems used by a teacher express the teacher's understanding of a student's current understanding and feeling, concretely and visibly. As such, stems can be effective activities for assessment for learning. Some examples of stems include:

I enjoyed your story because_____.

Your evaluation of events was accurate because_____.

Your conclusions resonated with me because_____.

Assessment of learning

One way in which to assess student learning in a nurturing-oriented environment is to use SWOT analyses, which assess student perceptions of strengths, weaknesses, opportunities, and threats as experienced in a course. Within the context of a nurturing learning environment, students' perceptions are valued and, once provided in writing, become a way for a teacher to evaluate the degree to which the nurturing activities have been effective. SWOT analyses are one way to assess learning.

Guided Discovery

Scenario

Dr. Jones recognizes that her students have strong values and expressed opinions about many issues. However, she recognizes that often students express opinions and propose solutions with little if any real reference made to the complexity of a situation. For example, students are quite sure that homeless people in Calgary can and should be working because there is plenty of work in Calgary—jobs are plentiful. Students believe that the main reason why homeless people do not work is because they are lazy. The powerful value of “everyone should and can work” appears to override any other value, including compassion and understanding of the causes of poverty and homelessness. She has tried on several occasions to tell students that homeless people often experience mental-health challenges like depression; they often experience gaps in knowledge because of limited or missed opportunities to learn important social and work skills during formative, sensitive periods; and often the homeless person has limited social capital, people who would or could help them learn how to get work and be successful. The students seem to nod in agreement, but on a field trip to downtown Calgary, the teacher overhears the students talking about the Mustard Seed (a street ministry in Calgary and Edmonton) and wondering why the lazy people lining up for lunches just don’t work like everyone else.

Dr. Jones decides that a guided discovery approach to the problem of homelessness might result in transferable understandings. The teacher poses a question intentionally designed to first unearth student’s misconceptions, to unpack their own personal assumptions, theories, beliefs, and values. She asks, “What does a homeless person need to learn in order to work and hold a job?” The teacher asks students to design an action plan, a “to-do” list for the typical homeless person, so he or she can get a job. The teacher sets up just a few conditions for the guided discovery.

First, the students are asked to make intuitive guesses about the ideal job for a homeless person, and to make intuitive guesses regarding why that job would be ideal. Also, the teacher engages the students in role play, wherein students are asked to draw a shape described by the teacher. During this activity, the students have no idea of what they are drawing. She compares the drawings and asks the students to consider why they had so much difficulty drawing the shape. The difficulty with communication is identified and becomes the first of many problems in succeeding at tasks that students will experience through problem-solving activities she sets up in the classroom. Students develop a concept map, a diagram showing the mental connections that students make between the causes and effects of homelessness (Angelo & Cross, 1993, p. 197). The effects everyone faces (with understanding messages), but which are made worse if one can't read, or has anxiety, or hearing problems, are highlighted. The teacher also identifies other problems a homeless person might have in attempting to gain employment, such as fear of failure and lack of prior knowledge. For example, she asks students to tie a tie and do so within a specified time period. After the activity, the teacher and students discuss anxiety (an effect), and the teacher gives students opportunities to consider what caused the anxiety in the first place.

Through these in-classroom, guided-discovery activities Dr. Jones develops advanced organizers, personal understandings of what is "familiar" to the students, from which students might discover what the unfamiliar (what it is like to be homeless) might be like. Throughout the in-class activities the teacher invites the students to make intuitive leaps toward understanding the many causes of homelessness, and in the process students discover the presence of an underlying theme in these causes. She keeps a record of these causes in the classroom on flowcharts. The next phase of guided discovery is hands-on, an actual lived experience, similar to and in the context of homelessness.

The teacher, in co-operation with the Mustard Seed, has the students stay for an overnight in guest housing at the Mustard Seed. They are told they can bring five dollars and will not need a change of clothes. The activities for the students include talking with guests who are in transition housing, eating a meal with the guests and homeless people, and meeting with workers. The next morning, they receive no breakfast. Likely having spent their five dollars the evening before, the students are asked to go and find a breakfast somewhere. With supervision, students are given two hours to see if they can find a breakfast.

Back at the school, students are guided to develop their action plan. Dr. Jones asks carefully designed questions, inviting the students to consider alternative responses, the consequences of the actions proposed and the implications of those actions.

Students write an action plan and must defend the plan by describing the underlying principles on which the plan is based. The final activity invites the students to return to the original problem and reconsider their original position regarding homeless people and employment.

Background to guided discovery

Guided discovery is the teacher-led discovery and application of a solution, concept, or principle (Davis, 1993). Implicit in this kind of learning is that the process of discovery for students, guided by a teacher's intentional questions, leads to meaningful understandings of some underlying solution, principle, or concept (e.g., why cities have a densely populated downtown core is, in part, due to efficiency of travel, service-provision, and collaboration). The premise within guided discovery (as opposed to discovery) is that when a solution, concept, or principle has come to be understood and is purposefully understood, because the teacher has guided the students toward discovery, learning is more personal and meaningful, likely to be more accurate, and transferable (Davis, 1993). Students who learn through guided discovery can best apply their understanding of the solution, concept, or principle to new situations.

In guided discovery, appropriate solutions are often discovered through solving problems, either real or simulated (e.g., make up a design for a zoo that allows people to view and enjoy animals and also allows animals to live with the privacy necessary for their health). Students are encouraged to make intuitive leaps of conjecture, educated guesses that become the bases for teacher recognition of misconceptions and subsequent guidance toward clarification of these misconceptions. Through teacher guidance, errors in logic, syllogistic thinking, and circular reasoning can be identified and addressed.

Keywords

- *Guided discovery* – the systematic, intentionally designed set of questions and posed problems that guide a learner to discovery of a better way to perform a skill, a clearer understanding of a problem or issue, and a better answer to a question. Guided discovery should not be confused with discovery methods of teaching. Guided discovery presupposes that there are better ways to perform a skill, solve a problem, address an issue, or answer a question.
- *Problem-solving* – identifying and then analyzing cause-and-effect relationships in specific situations (e.g., workplace miscommunication), then applying contextually appropriate solutions to the problem. In learning experiences based on problem-solving, the situation is most

important; the premise is that problem-solving is situational, unique to a context, and relevant to the particular circumstances and people associated with the problem.

- *Transfer* – the two-part, cognitive-based activity of a learner bringing knowledge into active memory so as to facilitate interpretation of new learning and applying the subsequently acquired new understanding to a situation (e.g., workplace).

Indicators of success

Students recognize differences between concepts (e.g., wildlife management and wildlife care) and the truthfulness of the facts. Students recognize the structure of disciplines (e.g., science is inquiry based and is a process as much as it is about producing a theory). Students' transfer of solutions, principles, or concepts to new situations rings true. The teacher recognizes plausibility in a student's conclusion regarding a truth. For example, students can blog or use Tumblr blogs to digitally document one form of their learning, their discovery of what might be true, as they interpret it, regarding some fact. To illustrate, in a course on human geography, students will hear or read the "fact" that there are (an estimated) 6.8 billion people in the world. The mathematical number, whatever it is, is the "fact." Students could be guided to discover what would be true about that fact; for example, is it true that the world is overpopulated? In this example, a teacher might guide the students to do some additional mathematical calculations regarding the distribution of 6.8 billion people in the province of Alberta, Canada. Surprisingly, students would discover that the entire population of the world could fit comfortably in the province of Alberta and that, with smart agricultural practices, enough food could be grown in Alberta to feed the entire population. Students are guided to discover what indeed might be true about 6.8 billion people. Maybe the world is not overpopulated; maybe the truth about population has more to do with distribution of resources, education, justice, sharing, and so on.

How best applied

Guided discovery is best applied in solving real-life problems that students recognize as authentic and meaningful to them. Deduction is called for, where students first examine a problem and brainstorm possible solutions and make intuitive leaps toward possible solutions, but hold these "solutions" with tentative openness and the realization that more information is required for most problem-solvers. For example, teachers may ask strategically placed questions to cause students to see the problem through new or other reality tunnels (e.g., zoos might offend

you, but animals may quite like three square meals a day and a margin of safety not experienced in the wild). Questions of simulation (e.g., imagine what would happen if . . .) and imagination (e.g., make up a set of questions that a gorilla in a zoo might ask, or would ask, if given the opportunity) can be addressed in guided-discovery based ways.

Challenges to using guided discovery

A challenge to using guided discovery is that teachers may focus on the thinking *contents* (solutions, principles, facts, and concepts) instead of the thinking *processes* and the inherent and evident value in the thinking processes in coming to solutions. Teachers may also become too open during the process, and the result may be an incorrect or inadequate solution. Teachers need to guide students toward convergent thinking. In other words, a teacher needs to have some idea of “better than other” answers to questions, ways to address issues, solutions to problems, and skills to perform physical tasks, and guide students toward what, indeed, is better. Unlike pure discovery, guided discovery presupposes that “better” does exist.

Opportunities to enhance the effectiveness of guided discovery

When using guided discovery, teachers should follow a questioning approach. For example, teachers could pattern their process on Bloom’s taxonomy, where an initial set of questions is used for students to clarify what they recall about a topic and what they understand about that topic; then another set guides the students to apply their understandings to a new situation in a “test case” or leap of intuition, moving on to analyzing the current problem under investigation by looking to cause-effect relations, and then synthesizing emerging ideas into a possible final solution, concept, or principle; and finally a set of questions is used to help judge the value of the new solution by applying it to a new situation.

In addition, teachers should encourage students to see contrasting features of some phenomenon under investigation—for example, the difference between zoos and wildlife refuges. Teachers should introduce through story, video, or guest speaker a thoughtful consideration of alternative solutions and outcomes. The key to guided discovery is student learning through doing (e.g., students design a humane system for treatment of animals that will be presented to a government agency that they feel may not practice humane treatment of animals).

Teachers should acknowledge in specific and observable ways that other solutions and principles need to be kept in view as further thinking about a topic is likely to follow.

Purpose

Guided discovery can help learners develop confidence in solving problems through development of competence in deducing solutions and identifying or developing concepts and principles.

Goals

By the end of guided-discovery learning experiences, students will be able to:

- Recall previous facts, principles, and concepts that will be used in the development of new solutions, etc;
- Apply solutions, concepts, and principles to new situations with high satisfaction that proposed solutions can be successful;
- Judge the worth of alternative solutions in the light of current solutions, concepts, and principles; and
- Demonstrate at least once, in the context of a new, yet related, scenario, the transfer of the solution, concept, or principle.

Alternatives to guided discovery

Discovery is an alternative to guided discovery. Pure discovery approaches to designing learning experiences, as opposed to guided-discovery approaches, do not presuppose a “better” solution, answer, or way to address an issue or performance of a physical skill. Discovery approaches do presuppose that learning can be idiosyncratic and unique to a learner.

Assessment as learning

Students can design and write a proposal to be forwarded to an identified decision-maker in their community (e.g., MLA, CEO of an organization). The proposal should contain the three main elements or ideas of a good argument: main idea, main conclusion, and way forward or concrete suggestions for implementation of ideas. By re-entering the discourse (debates, inquiry, readings) that has taken place up to the time when teachers use this assessment-as-learning activity, proposal-writing is an effective assessment-as-learning activity.

Assessment for learning

To assess for learning, teachers may ask students to debate the pros and cons of a desired plan. Students need to include three elements or ideas per side of the debate: the main idea or principle on which their position is based; their main conclusions regarding why they support their argument; and the next step for important people (bosses, government

leaders, etc.) to take to accomplish the goals of their plan. Because students will visibly express ideas, and teachers can carefully listen and document those ideas, gaps in understanding and misconceptions can be identified and teachers can design additional learning activities to address both. Debates provide teachers with information regarding how well students have understood main concepts, and in so doing can help teachers decide what is necessary.

Assessment of learning

Teachers can assign a pro-and-con grid to students to assess learning. Using the grid, students do a quick but focused written analysis of their plan, noting benefits and advantages, costs and disadvantages. The grid provides teachers with a visible expression of each student's understanding and feelings regarding his or her plan, as well as an opportunity to evaluate the degree to which students' understandings match the goals of the learning experience (Angelo & Cross, 1993).

Projects

Scenario

In a graduate-level sociology class, students are studying culture. In their unit on ethnocentrism, students come to recognize that the causes of racism are contextual and often tied deeply to people's ethnocentric views. These ethnocentric views often remain tacit and hidden to people. Students become quite determined to "save the world" from further racism and decide to require everyone to simply quit being ethnocentric. The teacher asks the students to identify their values, their main "hills to die on," regarding this topic. Most students say there should be "fairness and justice" for all people, regardless of their culture and country of origin. The teacher wants to challenge the students to be realistic, to simply try to be fair and just in their own dealings with each other, and to recognize that their fairness with each other is enough for now. The students are unwilling to accept this answer and want to see if they can get the whole school to become free of racism. They heard about the "brown eye-blue eye" study done some years ago, in which blue-eyed children were given preferential treatment over brown-eyed children. The students want to replicate this "project" in the school. The teacher asks the students to clearly describe the problem or issue they are addressing in this project, and then to craft a clear and precise project/investigative question. The students come up with "How can _____ School eliminate racism?" The teacher works with students to design a questionnaire that delves into students' attitudes toward each other and how language expresses those attitudes. The students gather the information, categorize and thematize the responses, and provide the school with its "racism profile," as well as suggestions for addressing problems of racism as they continue to persist in the school. The teacher reminds students that a caring community needs more than just knowledge and understanding; it needs accountability, responsibility, and an appreciative framework of language in which understanding and acceptance are allowed to thrive.

The students then take up the project of designing a new mission for the school, one that includes their new understanding of the school's need to eliminate racism.

Background to projects

Projects are student-led investigations into a topic. Students are in charge of the procedures used in the investigation. The purpose of projects is for students to experientially understand that there are solutions to problems, answers to questions, and better and worse ways to address issues. The outcome of projects is deeper understanding and a broader knowledge base regarding a topic. Projects encourage students to use a coordinated set of skills (including inquiry, problem-solving, and presentation) to build a base of knowledge about an issue, question, or problem. The best projects include research into "living cases," real situations, or an actual problem. For example, students can create projects to support a child through an organization like Foster Parents of Canada. Teachers design the template, or model, for students to follow, as the students initiate and implement the project. Projects are similar to case-study research, following a design where the question, problem, or issue is stated, the project's questions are clearly stated, information is carefully gathered, relevant literature and other information are read and summarized, data are gathered, themes are constructed from the data, and conclusions, recommendations, and responses to the original question are proposed.

Keywords

- *Real-life cases* – cases that have lived somewhere in the world, at some time, with real people (e.g., apartheid), as opposed to the abstraction that helps students understand the causes of the case (e.g., ethnocentrism)
- *Student led* – students are in charge of the procedures used in the investigation. The purpose of projects is for students to experientially understand that there are solutions to problems, answers to questions, and better and worse ways to address issues. The outcome of projects is deeper understanding and a broader knowledge base regarding a topic.
- *Teacher designed* – teachers are in charge of the procedures used in the investigation. The purpose of projects is set by the teacher, for students to experientially understand that there are solutions to problems, answers to questions, and better and worse ways to address issues. The teacher designs projects with the intended outcome of deeper understanding and a broader knowledge base regarding a topic.

Indicators of success

When successful, students participating in a project express high satisfaction of their knowledge acquired when working on the project.

How best applied

Projects should be introduced in a course when there is a genuine desire in students to discover something in a real, authentic context and through student-led procedures of investigation. For example, students may wish to take up sponsoring a foster child but wish to understand more regarding how money is spent in child-sponsoring agencies. In this case, teachers should guide students to craft the project's main investigative question, after considering together what the issue, problem, or question is that requires project work. If students believe that all the money should go to the child, and express the high value they place in this intended outcome, teachers may craft the project's main question as "Why might a child-sponsoring agency not send 100 per cent of money received directly to the foster child?" To take another example, if students are investigating ways of addressing the media's influence on the buying habits of children, teachers may help students craft a question like, "Do the buying habits of children change because of advertising?" To illustrate by another example, students may undertake a project to determine if brand-name products actually do last longer, produce better results, or make some difference to the well-being of their friends. They may research this question and design an advertising campaign to counteract the brand-based ones.

Challenges to using projects

The main challenge in project work is time. As well, confounding factors need to be taken up by teachers and addressed (e.g., lack of evidence to support an original premise or hypothesis). Additionally, student work may not be assessed fully or substantially enough to reinforce for the student that real questions can and do have real answers.

Opportunities to enhance the effectiveness of projects

Teachers can enhance the effectiveness of projects by connecting with existing projects, such as—to continue the example of the Mustard Seed project noted in the case study—the Mustard Seed's after-school educational programs for children. In this context, teachers may initiate a topic and unit or sequence of learning experiences by a 30-minute webinar with the founder of the Mustard Seed or with a resident of the

Mustard Seed, a person who came off the streets and is now living in the residence. The conversation would include time for the founder of the Mustard Seed or resident to answer the question, “How did you get here?” Then, students could ask previously agreed-upon, essential questions, designed to inform them about what type or form of after-school educational program would work best to meet the needs of children who live at or near the Mustard Seed. The project of designing the after-school program can be based on information provided to the students, information that is based more on lived experience and less on some abstraction of what “ought to be done in after-school programs.”

Teachers can also arrange for a presentation of children’s projects in a public venue (e.g., at a school-wide fair).

Purpose

Projects help students see more clearly the assumptions, theories, and beliefs that make up their own knowledge of a topic. In addition, projects taken up in collaboration with others (including existing projects) help students see and understand the values of others, coming to appreciate the reasons for other practices in other situations. For example, older students can use Google Docs to record their weekly responses to the question, “What assumptions have been challenged this week? Why?”

Goals

As a result of participating in the design and implementation of projects, students will be able to:

- Develop research skills necessary to fairly investigate a problem, issue, or question;
- Describe clearly and with fidelity to the research process understandings and knowledge gained through the project; and
- Value highly and express high importance for the successful outcome of the project.

Alternatives to projects

An alternative to a project would be participating in a simulation designed by a teacher or guest, where students engage in a classroom-based experience that is similar to one they might have designed as a project. For example, if students value a free-market economy over a planned economy, a teacher or guest may implement a learning activity using the game Monopoly, with an unpacking of the responses students have to winning and losing while engaged in the game. The sequence of probes or questions used by the teacher to assist the students to recognize and see

clearly the responses they had during and after a game could follow this pattern: 1. Describe your responses (e.g., anger, downshifting, frustration); 2. What do your responses tell you about what you value most highly (e.g., winning, losing, peacemaking, avoiding embarrassment); 3. What do your responses tell you about the ideology you are most closely connected with (e.g., sharing/socialistic, capitalistic, consumeristic); 4. What is your main conclusion about how to engage with yourself, others, and the society you live in?

Assessment as learning

After completing the design and presentation of a project, students can identify their top three values regarding the topic. While doing this, they may present their values as “hills to capture,” a game they may have played on the schoolyard. They describe how their top three values are different from and should challenge three values evident in some organization. For example, a student may have come to value the practice of only providing money to support children living in poverty to organizations that forward 100 per cent of donations to the sponsored children. This value challenges the practice of aid organizations that use less than 100 per cent of donations in this way because of their respective needs and requirements to have administrative costs covered. (The “hills to capture” activity is similar to everyday ethical dilemmas found in Angelo & Cross, 1993.)

Assessment for learning

Concept maps (webs) are commonly used by students to organize information in an at a glance fashion. Teachers can guide younger students to write their personal maps, beginning with what they think is the “big idea” of a topic. For example, “loneliness” might be a young person’s big idea in the topic of “homelessness.” From the big idea students can add any ideas that simply come to mind, ideas that the student connects to or feels should be connected to loneliness. For example, students might add words like “sadness,” “no friends,” and “boring”—words that become part of the concept map. When viewing the maps, teachers will recognize patterns as well as words (ideas) that students might want to consider but haven’t. Teachers can design an additional learning experience to introduce these words (ideas).

Assessment of learning

Jigsaws are a commonly used activity through which students can combine their conclusions with those of two or three other students. In jigsaws, students work with other students to put pieces of larger stories or

descriptions in a correct order. Jigsaws are most effective when guided with specific instructions for students to follow regarding combining conclusions. For example, students in upper-elementary or lower-middle-school grades could be assigned one smaller topic within a larger topic to research and then provide a personal conclusion. The larger topic of ethnocentrism has several smaller topics associated with it, including prejudice, bias, education, and apartheid. Teachers assign topics to the students, who then bring their individual conclusions (each a part of the jigsaw) together to form a complete picture.

Insight-generating

Scenario

A community adult class in ethics has been debating the idea that all people essentially believe the same thing about right and wrong, and that the development of wars, for example, is simply the result of a few bad people who should know better but decide not to choose what is right. In a political science class, students have to address the question of policing agencies and the need for liberal democracies to have police forces. To a person, the students believe that if we were to eliminate all police forces, and instead invest the time and money that go into policing into schooling so children develop love and respect for each other, then police forces would be unnecessary.

The teacher believes that the students are generally well-meaning, valuing the worth of people, their inherent goodness, and the power of a good society with equal rights and freedom for everyone to be all the “policing” we would need. The teacher decides, however, that before students design their action plans and write their essays promoting a police-free society, they need to develop an understanding of some concepts, including conflict and conflict management, group and organizational behaviour, selfishness and human self-preserving tendencies, and the politicization of decisions (legal, educational, and social).

The teacher tells students that they will be debating the topic (police forces eliminated in favour of improved schooling) next month. To prepare for the debate, students are asked to reread three books; *Animal Farm*, *Lord of the Flies*, and *Summerhill*. The teacher recognizes that each book takes a particular stance regarding the issue (implicitly, at least). The teacher asks students to identify what they paid most attention to in each book, what captured their emotional responses, created the greatest cognitive dissonance, and raised the greatest question. A set of students were shocked at the level of violence in *Lord of the Flies* and could

not accept the outcome (the character Piggy's death), given the ideal setting, the governing structure, and the obvious problems everyone surely must have seen in not working together.

The teacher takes up the students' "attention-getters" in class over the next two weeks by engaging in thematic analyses of the students' responses, looking for themes and commonalities among the responses. She organizes the students into groups and asks students to consider the reasons for Piggy's death (pouring meaning into the death). The teacher reminds students of their study on the causes of war taken up in the last unit and asks them to base their reasons on the conclusions they came to in the last unit. The teacher then provides the students with a set of criteria for evaluating, or judging, the causes and effects of Piggy's death and asks the students to arrive at a conclusion regarding the real causes of Piggy's death, and if and how Piggy's death could have been avoided. Finally, the teacher asks students to design an alternative plan, another way the children on the island in *Lord of the Flies* could have governed themselves.

Background to insight-generating

Insight-generating approaches are designed for students to systematically analyze a concept with the goal that students will emerge with a personally constructed insight into that concept. Insight-generating approaches follow a deliberate and systematic procedure designed by the teacher. Students initially, and then over time (e.g., the length of a course), identify what they pay attention to regarding a topic, problem, question, or issue. Over a course students are guided to understand the concept, through unpacking the meaning of that concept in our culture, homes, schools, and communities, then through pouring meaning into that concept so that they construct personal meanings (understandings of a different type) of that concept. Students are guided to judge the concept (assess, evaluate, form opinions that are informed, affirmed, confirmed by the story and vision of others), and then implement actions that are consistent with the emerging insight.

The goal of insight-based learning is for students to come to some insight into the elements (facts) that make up a concept (Lonergan, 1997). Implicit in insight-based learning is that facts can best be understood within a conceptual framework that pours meaning into facts; students will best understand facts once they understand the concept within which the facts make the best sense. For example, students may best understand the right to life and right to choose positions (regarding abortion), and the facts presented by both sides of the issue, only after they have some conceptual understandings of life, personhood, democratic

freedoms, rights, and so on. Without a conceptual framework, students respond to facts with emotion, subjectivity, and a shortsightedness that prevents insight.

The teacher designs learning activities to follow a pattern where students are first guided to pay attention to “what already they do pay attention to” regarding some problem, issue, or question. For example, in discussions regarding the era of apartheid in South Africa, or the era of the civil rights movement in the United States, students are invited to identify what it is they catch themselves paying closest attention to within the facts of apartheid or the civil rights movement. Next, the teacher guides students toward personal understanding of what they in fact paid attention to. Teachers help students unpack the reasons for the existence of apartheid or the civil rights movement, the historical, cultural, psychological, and spiritual reasons for their existence. The teacher also pours meaning into the facts, drawing into the classroom discussions the ways other people have taken up being together in multiracial ways. Third, the teacher guides the students toward some judgment of the facts. Here, students are asked to evaluate the facts based upon some external criteria, some aspects of the moral order as the student understands it (e.g., natural law), some principle (e.g., the golden rule), or some religious or philosophical criteria of right and wrong. Here the teacher avoids allowing students to be subjective and emotional regarding their judgments. Fourth, teachers invite students to design an action plan, a strategy for personal actions and behaviours, and a strategy for government, policy-makers, and lawmakers. Fifth, the teacher puts a concept into the discussion with students. The teacher asks students to consider what a concept like ethnocentrism means in the light of the facts of apartheid, and what human dignity (as a concept) means in the light of the facts of the civil rights movement (Lonergan, 1997).

Keywords

- *Attention (attending)* – the cognitive-based activity of alertness or sensitivity to stimuli. Attending to stimuli can be enhanced by a teacher who designs discrepancies (e.g., different levels of noise in a classroom from what is normal), anomalies (e.g., puzzles or word problems), or cognitive dissonance (e.g., a story that does not fit well into a student’s schema, requiring that the student accommodate a schema to make sense of the story: the Holocaust and the student’s schema of the inherent goodness of people).
- *Concept* – an ordered rule for determining what something is and where it belongs.
- *Judgment (judging)* – the objective evaluation a student assigns to circumstances, events, persons, issues, questions, or problems.

Judgment in insight-generating can be in terms of subjective categories, such as better or worse, or feelings, such as like or don't like; but it is best taken up in terms of more objective categories, such as good and bad and right and wrong.

- *Understanding* – in the context of insight-generating, the student's constructed meaning of circumstances, events, persons or personal issues, questions, or problems.

Indicators of success

An action plan is designed by the student to solve a problem or address an issue. The plan demonstrates thoughtful attention to the conceptual understandings generated in the procedure (e.g., a student's development of an educational plan to address racism may include an expressed understanding of people's inherent dispositions toward selfish choices, or it may include an expressed understanding of the systemic reasons for people's choices). Students may post their conclusions regarding the issue within an issue or core of a problem. All students in the course must respond to the posts put up by their fellows: why does each post call into question or call forward their understanding of the core issue. What ensues as students talk to one another could be a conversation, threaded together, hopefully leading students into deeper insight into the issue.

How best applied

Insight-generating activities are best applied when anomalies, cognitive dissonance, and discrepancies (apparent or real) characterize students' discussions and expressions of frustration and anxiety.

Challenges to using insight-based approaches

There are challenges to insight-generating. Students' emotional responses to problems, issues, or questions may seep into the strongly cognitive procedures of coming to insight; cultural and religious ways of thinking may exert undue influence on students' ability to allow the universe to ring true; and teachers may carry bias for and/or against some topic and, recognizing the impossibility of neutrality, choose to be a subjective and detached facilitator of the coming-to-insight procedure. For example, in an undergraduate course on the psychology of religion, I (Bernie Potvin) posed the question, "What of your current behaviours would change should you find out for sure that there is no reality other than the time-space one you currently inhabit; that is, what would you change if there were no afterlife?" With this unsettling question comes the opportunity to begin to develop insight into the particular psychological

influences of personal beliefs, and how cognitive dissonance can often be the necessary starting psychological experience that leads to insight.

Opportunities to enhance the effectiveness of using insight-based approaches

When employing insight-generating in the online environment, use a framework or curricular structure in which students recognize the common realities of any topic, those complex and interrelated interest-sharers that have a vested interest—a common place—in the problem, issue, or question. For example, any curricular design (e.g., an action plan to address ethnocentrism or racism) must include the learner and learning, teachers and teaching, curriculum and subject matter, schools and classrooms, and society and culture (Schwab & Thomas, 1986). To take up another example, any discussions regarding freedom of choice regarding abortion must include the rights of the unborn, the societal and cultural implications of freedom of choice reigning over other freedoms, the teaching of values related to both sides of the issue, and so on.

Purpose

Insight-generating serves for teachers to guide students to address issues, problems, and questions fairly and rationally, to “allow” the universe to ring true because it has been fairly tested (Lewis, 1946).

Goals

By the end of well-designed insight-based learning experiences, students will be able to:

- Clearly and with differentiated language state what they pay attention to regarding topics;
- Engage in interpretive activities by pouring meaning into and unpacking phenomena using the science and art of interpretive activities;
- Engage in critical evaluation of topics using external criteria (e.g., rubrics, principles); and
- Design action plans with comprehensive and integrative fidelity to conclusions generated in a learning process.

Alternatives to insight-generating

Some alternatives to insight-generating activities include debates, panel discussions, and round-table discussions, where students can come to conclusions independent of the procedures outlined above.

Assessment as learning

LEGO model-building allows students to create representations that visibly express their insights. Through expressing their insights metaphorically, by building a model, students re-enter their learning and have an opportunity to extend and deepen their insights. As such, LEGO building is a form of assessment as learning.

Assessment for learning

One way teachers can assess students for learning after insight-generating activities is to employ “muddy thinking.” Teachers ask students to indicate the three main points they took away from the insight-generating session, the points that agreed with their understanding of the world, and why their thinking is still muddy, going around in circles, or unclear. Teachers will be able to determine what additional activities and environments need to be designed based upon their assessment of students’ thinking expressed in each of the three concrete expressions of insight.

Assessment of learning

To assess learning after insight-generating activities, teachers might ask students to participate in “matching and mixing.” Students are given 10 key terms that represent the 10 core or most essential concepts of a teaching/learning lesson. In addition, students are given 10 “lived expressions” of each concept. Students are asked to match a concept with an appropriate lived expression of that concept. For example, the concept of ethnocentrism might be matched with a historical and lived expression of that concept, such as apartheid as it was practiced in South Africa, or the genocide in Rwanda. In addition, because a lived expression is always more complex than what one concept can explain and encompass, during this activity teachers ask students to “mix in” a second and perhaps third concept that may also be complicit in the lived expression. For example, apartheid in South Africa can be explained in part by the history of movements of people, the physical relocation of people, and their claims to land.

Yesterday I was clever, so I wanted to change the world.
Today I am wise, so I am changing myself.

—Rumi

Training

Scenario

A teacher in-service program on bullying in schools takes up the following case.

A 10-year-old boy in an elementary class grabbed a boy's scarf and pulled it tight enough to hurt the other student. The boy is a decided bully, and the behaviour has now caused some harm to another boy. The parents and teachers meet with both boys and discuss the act, its consequences, and possible alternatives. The parents would like both boys to practice safe and healthy play on the schoolyard but also to understand and value kindness as a way of being. The teachers set up a schedule of reinforcers (e.g., feedback) using what the boys deem important as reinforcers, and place a chart, accessible to both boys on the side of the homeroom teacher's desk. Both boys like pizza, so stars are used and can be traded in at the end of the week toward purchasing a pizza. Teachers look to catch the boys in displays of kindness or not, positively reinforcing the former by placing a star on the chart and negatively reinforcing the opposite by removing a star for bullying behaviour. The teachers decide to reinforce each and every example of observable behaviour, but they also decide that once the behaviour of kindness has been established, and not just an approximation of the behaviour, they will use a schedule of reinforcement described as "intermittent."

In the in-service program, the teacher leads the participants (the other teachers) in a debate regarding the pros and cons of operant conditioning. The debate question is, "Be it resolved that because something (like conditioning) works, it does not make it right."

Background to training

Training is the systematic shaping of observable behaviours through the planned use of reinforcers. Implicit in this perspective is that people

may “act their way” into new ways of thinking. In other words, human behaviours of any kind lead the way into how and what we human beings think about these behaviours. Practicing to exercise every day, for example, is the necessary precondition to the inference (a way of thinking) that daily exercise is a good idea.

Keywords

- *Reinforcement* – the effects or outcomes of using reinforcers.
- *Reinforcers* – things that when presented after a behaviour increase the likelihood that the behaviour will reappear in the future in the presence of similar circumstances. Reinforcers can be positive (e.g., feedback or stars given out when a student is caught doing “good”) or negative (e.g., something taken away as a consequence of performing a “good” behaviour, like buckling up a seat belt [good behaviour] to take away or remove an annoying buzzing sound).
- *Shaping* – reinforcing successive approximations of a desired terminal behaviour.

Indicators of success

Training is successful if student behaviour changes regarding specific value-based issues.

How best applied

Training is best applied in a course through coaching and mentoring.

Challenges to training

Challenges to training arise when there is a lack of observable behaviours to reinforce. Challenges in applying the principles and practices of training arise in courses and programs when the display of observable behaviours barely if at all approximates desired terminal behaviour. For example, until a person engages in daily exercise and experiences reinforcement for doing so, little or no change in thinking about the value of daily exercise is possible. The consequences of exercise—good feelings psychologically and physiologically—are powerful reinforcers because they are immediate and fixed. These two attributes are usually the most powerful conditioners when learning a new and less complex behaviour and attendant skill (such as exercise). The further away the reinforcer is (e.g., in this context, losing weight) the less powerful is that reinforcer, unless the intended outcome (losing weight) is a most personally sought after and important outcome.

Opportunities to enhance the effectiveness of training

Training can help teachers catch students engaged in value-laden acts, positively or negatively reinforced, or to design a programmed course. For example, a course or program may have designed self-testing modules scheduled weekly. Students complete the testing module in order to experience the reinforcing effects of the measurement of the amount and quality of their learning.

Purpose

Learning through training is evidenced through a change in behaviour. People may not always “think their way” into new ways of acting; they may act their way into new ways of thinking (Palmer, 1998). If we as teachers can modify learners’ behaviour, we may help modify their thinking and values.

Goals

By the end of a training (mentoring/coaching) session for clarifying values, which includes the use of reinforcers, students will be able to choose an ethical behaviour as a response to a situation.

Alternatives to training

An alternative to training is programmed instruction. In programmed instruction the answers are readily available to students in a separate manual, and students can access answers directly. Reinforcement by a teacher is not required; reinforcement resides in a student directly accessing answers to questions.

Assessment as learning

Often a student’s prior knowledge, if not checked, is a hindrance to new learning; prior knowledge impedes understanding and practicing values learned through training. Teachers may wish to perform a misconception check. In this assessment approach, teachers help learners identify and understand their current values regarding a topic or issue. Once a teacher recognizes that a student’s prior knowledge making up a value is based on misconceptions, the student’s misconceptions can serve as the scaffold to identifying and understanding new values, ones that the teacher is introducing through training (Angelo & Cross, 1993).

Assessment for learning

A teacher may assess students for learning after a training session by asking them to graph progress toward a desired outcome. For example, if a

student designs a student personal growth plan (SPGP) regarding fitness, with weight loss or gain as the most desirable outcome, the teacher can guide the student to monitor progress toward the desired end by using a bar or line graph, weights (increasing or decreasing) being on the x -axis and time in fitness activity (in minutes) on the y -axis. Over a period, the teacher can guide the student to recognize the power or not of the intended outcome (weight loss or gain) as a motivator.

Assessment of learning

To assess learning, teachers may ask students to write a scenario—for example, a depiction of an ideal fitness program, one that includes the most desirable motivators, the role and place of conditioners in the fitness program, strategies to maintain a fitness program, and tactics and logistics used by fitness experts to motivate others into regular and sustained fitness. The scenario is the description of the ideal plan and, as such, represents the theoretically soundest and most appropriate fitness program. While scenarios are often criticized precisely because they represent the ideal (though the best scenario activities also include identification of problems and their solutions inherent in any ideal expression of any plan), they serve as a very useful and credible assessment of learning activity because they reveal what students have recalled, understood, analyzed, would apply, or could synthesize regarding a topic.

Shared Praxis

Scenario

A youth leader overhears young people comment that their families have had religious people come to their doors and “try to stuff religion down their parents’ throats.” They say, laughingly, that they and their parents have slammed the door in the faces of the religious people. The leader hears the students say that no one should be able to preach religion to anyone else. The leader decides to challenge the students and engage them in some experiential learning. At the next session, the leader asks them to recount their stories and actions related to talking with religious, proselytising people. Next, she invites them to identify their assumptions, values, beliefs, and theories associated with their actions. That is, she asks them to lay bare the reasons for their actions with these religious people who come to their homes.

After these first two teaching activities, she divides the class into groups of four and invites students to play a version of the game “Monopoly,” using rules of the game described on four separate sheets of paper. However, the students are unaware that each description of “Monopoly” is different. They assume incorrectly that each group is playing the same game and that winners from each game will face off for a championship round later in the class. The leader lets the students finish the first game then moves winners together to play a face-off round. However, students must not talk during this round. With four different students having learned to play four different games, students quickly find their anger, frustration, and anxiety rising to new heights. The leader stops the winners’ game and unpacks their reactions. She asks them to consider what values they recognized they had by their anger, their anxiety, their frustration. How did they come to have these in their lives? The leader’s use of this activity is intended to guide the students to see that they each carry tacit (hidden) values and theories that influence their behaviours.

After the conversation unpacking the game, the leader asks students to consider if they might have hidden values, theories, and beliefs that should be examined closely regarding their behaviours and actions toward religious people who come to their doors. Once the students recognize and acknowledge that indeed they might have and that these need to be re-examined, the leader tells the story of Mother Teresa or of some other religious person who has chosen in some way to tell other people about her or his religion. The leader tells the story of St. Francis of Assisi, who once told his followers, “Go and preach the gospel, and if you have to, use words.” The leader shows the students the video *Brother Son, Sister Moon: The Life Story of St. Francis of Assisi*.

Next, the leader asks the students to consider how the movie, examples of religious people, and their experience with “Monopoly” call into question or disconfirm their behaviour and actions with religious people. The leader invites the students to share how their actions and behaviours have anything to add to the class’s understandings of the stories of religious people. Finally, the leader asks students to describe a new action plan, a new behaviour now considered in light of the day’s lesson.

Background to shared praxis

Shared praxis is learning through deliberate reflection on one’s previous actions and behaviours. In experiential-based learning, a student, through teacher-questioning, returns to a previously experienced action and, with a teacher’s careful guidance, re-engages with that action by considering critically how some new information introduced by the teacher calls into question or not the student’s actions and reasons for the actions. What is produced is a way of knowing that the Greeks called *praxis*, a word that roughly means “knowing through reflecting critically back into some social engagement” (Groome, 1981).

Keyword

- *Reflecting on actions* – to think about actions (including behaviours and decisions) using additional information in the form of best practices, research, theories, intuition, and logic.

Indicators of success

Initially, teachers have their first indicator of possible success when their students express willingness to consider new, more just or ethical actions. Teachers have their next indicator of success when their students actually take up new actions or behaviours related to an issue, problem, or question.

How best applied

Teachers best apply shared praxis in courses when students are ready to change a previously patterned way of acting, when readiness is psychological, spiritual, and physically indicated; as well, when students are less dependent on the “right” answer and more dependent on the constructivism of knowing, the contribution of a culture and society, and the story and vision that shape (construct) a student’s way of knowing. For faith-based people, shared praxis is best applied in and subsumed under an essential question such as, Are we not responsible to make a difference in a world of injustice, poverty, and wrong?

Challenges to using shared praxis

Teachers need to find and deploy a relevant meaningful narrative, one that captures the imagination of the student and draws the student into a praxis-like engagement with a problem, issue, or question. Many narratives are not rich and textured enough to contribute meaningfully to an engagement and change in understanding and actions; students may have a variety of past experiences and so use of experiential learning with a large number of students may require identification of a common theme among all students’ previous actions, a theme that can be used as a starting point in teaching.

Most teachers know that with younger students, follow-through to actions is often not realized and a completed choice of difference-making action is rarely put into place. For example, high school-aged students often want to make a difference regarding issues of poverty and need (e.g., educational, medical) in low-income countries. However, the pathway is littered with good intentions and, far too often, little or no real actions along the way.

Opportunities to enhance the effectiveness of shared praxis

Teachers can enhance the effectiveness of shared praxis by inviting students to see themselves as partners in a grand narrative, co-participants in being able to make a significant difference in the story of human beings and their history; by guiding students to recognize that changes can be made by one person; and by helping students recognize that the reasons for one’s actions (the assumptions, theories, beliefs, and values that lurk below the surface of one’s actions and behaviours) ultimately influence, in profound ways, the actions and behaviours one takes up daily. For example, teachers can use stories of courage and virtue, from great and famous people like Mother Teresa and Nelson Mandela, to great and not so famous people like Charles Mulli, whose organization (Mully Children’s Family) has given a home and education to over

6,000 children in Kenya. The stories could serve as the weekly posting in an online or technology-supported course or program. In courses and programs for business people, stories of founders of companies (Henry Ford), builders of great companies (Jack Welch), and innovators of great technology (Steve Jobs) could be posted and serve as the interpretive key or piercing way for a student to consider the challenges and obstacles to their own success or lack of success as a leader, builder, or innovator.

Purpose

Shared praxis's purpose is for students to come to know another way of being in the world, to understand the reasons for actions, and to know through reflecting on previous experiences how to take up alternative actions.

Goals

By the end of a well-designed shared-praxis learning experience, students will be able to:

- Identify the reasons for personally chosen actions and behaviours;
- Describe how a narrative has been instrumental in causing an understanding and behaviour shift; and
- Describe a new behaviour or action.

Alternatives to shared-praxis learning

Some alternatives to shared praxis include book-club discussions and studies of a concept (Bible studies and other forms of discussions regarding abstractions and concepts).

Assessment as learning

Teachers can use invented dialogue as a tool for assessment as learning. In invented dialogue students create quotes, write up possible conversational sentences, or make up possible arguments used by persons either from history or from the cultures the students are studying. Students may use actual quotes and weave together a tapestry of dialogue, or may invent the dialogue (Angelo & Cross, 1993).

Assessment for learning

To assess for learning, students can design their own self-tests regarding a topic. Self-tests can be a series of questions, exercises, or other assessment means through which students indicate how they would like to

gather information about their own learning (i.e., what are the most important actions and their reasons?).

Assessment of learning

To assess learning after employing shared praxis in a course, a teacher might employ an anecdotal record. An anecdotal record is a descriptive account of actions, behaviours, and decisions made during the course of a period (day, week, or month). The best anecdotal records are those that identify significant events, circumstances, or results of actions, where students are asked to tie these to some personal choice of actions. The purpose of anecdotal records as an assessment-of-learning technique is that the student is identifying what she or he is in fact doing, and what the consequences, real or ostensible, of what she or he is doing are, and then analyzing the relationship between cause and effect within the context of the student's actions. If shared praxis as a way of coming to know is indeed being practiced, students should experience in a subjective way (allowable and preferred) the relationship between their actions and subsequent results. Journalling is required; metaphors and analogies can be encouraged (e.g., My actions and their results are like _____). Anecdotal records provide a teacher with information to judge, subjectively, the learning of students. Unlike other forms of assessment of learning, anecdotal records should not be used as a hard-core means to evaluate learning or measure outcomes, and they should never be used to hold something against a student.

Apprenticeship

Scenario

Adults in Dr. Brown's church class plan to participate in a building project for Habitat for Humanity in Mexico. Dr. Brown recognizes a unique opportunity for her students not only to build a home for a needy family but also to work alongside an experienced couple who have worked for years on similar projects. She does not want the "learning" piece of the experience to be assumed or presumed. She believes that people do not learn as much from experience as is commonly assumed. She believes that most learning occurs in reflection on experience. She wants to design opportunities for students to engage in active learning, where they predict before the trip and in class time each morning while in Mexico what challenges and opportunities the day will bring. She sets the students into coaching teams, with explicit instructions that each person must question the others regarding what ideologies are being exposed during times of frustration, what values are being exposed during times of anxiety, what virtues are not yet fully formed during times of unease and anger. She has invited a guest from the local community to talk with the students each evening regarding the impact a build has on the community. She asks the experienced couple to come alongside the students to address their questions each evening and to offer "pearls of wisdom" for their successful negotiating out of the day's activities (as either worthwhile or not). Most important, she asks the experienced couple to slip next to students during the day's work, to address questions and respond to challenges as the students raise them.

Background to apprenticeship

During an apprenticeship, students develop mastery in procedural skill related to a value. In modified apprenticeships, students may take up short-term mission trips, if they indeed value learning about other

cultures. Students may engage in international work projects, if they value helping people who are less fortunate. Outward-bound type activities may embody another form of modified apprenticeships for young people who value challenge and learning about their physical and psychological limits. The context for modified apprenticeships is some form of engagement (e.g., work) in a challenging context, one unfamiliar to the student. The possibility for learning values rests in the opportunities to work alongside mentors and coaches, as novices experiencing directly but in abbreviated ways what the mentors experience daily. Novices join communities of practitioners, first being participant-observers and then gradually assuming increasing responsibilities in the new setting. Situated learning (learning in the situation through gradual assumption of roles) and action learning (problem-solving while in the field) are the two main learning requirements for modified apprenticeships. Unlike real apprenticeships, where mastery is the goal, modified apprenticeships are expected to allow students to experience a conscientization, or a raised consciousness, of the knowledge skills and attributes of the community and what practitioners value most highly and why, and what they value less highly and why.

Keywords

- *Coach* – someone who attends primarily to the observable behaviours and skills of a learner and provides feedback to help that learner improve a particular skill or behaviour. Coaching is more skill focused, immediate, and specific to a role than is mentoring.
- *Mentors* – people who invest time and expertise in the development of skills, knowledge, and attributes of a profession, skill, or activity.
- *Procedural skill* – knowledge through the hands; the actual ability to make wise judgments in practical settings.

Indicators of success

If an apprenticeship is successful, students' risk-taking behaviours become more evident over time. As well, students have a decreased reliance on external feedback for their sense of well-being and they display increased evidence of wise practical decision-making, judgments made regarding specific skills and behaviours.

How best applied

Apprenticeships are best applied in contexts of real practice, alongside real practitioners. Through the use of technology in the classroom, students are provided access to the successes and opportunities of practitioners. As apprentices, students learn the questions, issues, and problems of

real practitioners in real contexts. Skype and webinars are the technologies most commonly used to access practitioners.

Challenges to using apprenticeships

Apprenticeship and modified-apprenticeship settings may not provide adequate time or cause learners to reflect on experiences. As well, scaffolds across from the apprenticeship to the actual practice of the skill and behaviour required in a role may not provide enough time or opportunity for learners to experience all the various aspects of a role.

Opportunities to enhance effectiveness of using apprenticeships

One way to enhance the effectiveness of an apprenticeship is to organize a mutually beneficial modified workplace-like apprenticeship, one in which the mentors/coaches benefit and the learner benefits (e.g., paid internships, where novices take up actual roles and receive compensation). Teachers can also organize short-term trips in which student activities are reflected on under the guidance of a wise practitioner, one who asks questions through increasingly complex ways of thinking (e.g., Bloom's taxonomy). During these trips, real problems are solved when coach/mentor and student co-operate (e.g., homeless people's need for individualized programming toward completing high-school diplomas).

Purpose

Involvement in an actual context of practice provides students with the opportunity to develop specific insights, the understandings deeply embedded within a workplace and only made clear upon reflection on actual workplace experiences. Authentic, co-operative, and active approaches to learning are well supported in the research regarding forming schemata—self-organized clusters of knowledge, skills, and attributes regarding a particular concept (Pressley & McCormick, 1995). What then would be the role of technology and technology-supported learning opportunities? Through online conversations, in synchronous or asynchronous ways, learners write mission statements, life plans, or other high-level responses, considering what they are learning in their apprenticeship settings.

Goals

By the end of a well-designed modified-apprenticeship experience, students will be able to:

- Understand the requirements of a particular workplace, the strategies necessary to become a full member of a particular practice and its community of learners;

- Describe how best to solve situational problems; and
- Engage in out-of-context practices and learning that would increase the likelihood of success within the workplace.

Alternatives to modified apprenticeships

Alternatives to modified apprenticeships are full apprenticeships or simulations of apprenticeship, in which students read about and then imagine out loud what they might do in similar apprenticeship-like settings.

Assessment as learning

Teachers can implement modelled behaviours for assessment as learning during modified apprenticeships. With their teacher, students develop a set of attributes, knowledge, and skills jointly identified as necessary for completing a selected task (e.g., building a Habitat for Humanity home). Students keep a journal to describe the stepping stones they recognize as having been in place for them to achieve their identified attributes, skills, and knowledge. These stepping stones can be persons, events, or ideas.

Assessment for learning

Inventories can be used to determine the status of a phenomenon—the extent or quality of a phenomenon or the perspective on a phenomenon. Inventories provide a practical base from which a teacher can determine what else needs to be included in an apprenticeship program. Inventories can take many forms, but generally the student is asked to gather and document (provide evidence of) learning. For example, in club activities (like Boy Scouts) or in school apprenticeship-like programs (e.g., preparation over a year to hike the West Coast Trail in BC)—both of which are examples of apprenticeship programs, modified and shortened for the context—students self-appraise their learning by recording what they have learned, asking for others to provide information regarding what they have learned, and including information about what experts have learned and often teach. The inventory is personal, self-appraisal based, and, most important, recorded digitally or using paper and pen.

Assessment of learning

Teachers can assess students after modified apprenticeships by asking them to present the learning outcomes of their apprenticeships in a forum, to an audience. Forums are similar to conferences. Two or more presentations are given and the audience participates through questions

and answers. Often, a forum can include two sides to an issue, competing perspectives, different ways each presenter has taken up the skill of the apprenticeship program. Unlike in debates, no winner or loser is declared, and there is no formal rebuttal procedure. Teachers can readily recognize misconceptions, limited understandings, and poor logic; as well, they can readily see accurate conceptions, levels of understanding, and degree of insight.

Case Study

Scenario

The young adults in a home study class were discussing the right-to-die-with-dignity movement. One person mentioned that she had read about a father who had recently killed his daughter by putting her in a locked car in a garage, turning on the car, and letting it run until his daughter died. The group was disgusted and claimed that this was murder. The storyteller then told the class that the girl in the car was severely handicapped, in constant pain, and would not have likely lived beyond her early twenties. In addition, the student said that at the trial the father claimed the killing of his daughter was done out of compassion for his daughter.

The group leader noted with interest how the discussion among the students in the class changed when the student telling the story mentioned that the girl in the car had been severely handicapped and that the father claimed to have acted out of compassion. Many people in the group began to soften their responses and become far less disgusted. The leader asked them to consider why that was so. Why were they less disgusted and upset about the killing after knowing that the girl was severely challenged? Was the girl any less of a human? Did the father's motivation somehow make the act of killing his daughter "right"?

The leader decided to find the story of the man and his daughter, to do a case-study learning experience, to try to get the students to first describe and analyze the case, to look for themes regarding all aspects of the case, and to consider the girl, the culture we live in, and the philosophical positions regarding justice and truth each student carried. The analyses of the case would permit students to take up a full and comprehensive look at a particular case relative to the right-to-die-with-dignity movement.

Background to case study

Case study is a process where learners read a selected case, a particular instance of a behaviour or action, and then describe and analyze the events in the case to see what themes make up the event or behaviour. Case study-based learning tries to encourage “thick” description (thorough description of an instance of behaviour or action) of the case, analyses of the particular instance so that cause-and-effect relationships within the case are revealed. Also, case study learning provides opportunity for learners to let the case interpret them, for the learner to let the case study reveal what personal meanings reside within the learner, regarding the case’s main causes and effects. Finally, a case-study-learning experience is inductive, and learners can and should be permitted to extrapolate from the case to other cases, similar and particularistic. One main outcome of case study-learning experiences is that the learner recognizes how the particular context and the reality aspects inherent in the case influenced and were in turn influenced by the events and their cause and effect.

Keywords

- *Analyses* – in analytical case studies the events and circumstances surrounding the case are identified and described, and the author provides some possible cause and effect (analyses) of the interrelationship of the events and circumstances.
- *Descriptive* – in descriptive case studies only the events and circumstances surrounding the events in the case are identified and described.
- *Evaluative* – in evaluative case studies the author describes events and circumstances, as well as analyses, and also adds evaluative commentary (e.g., the reasons for apartheid were complex and extend beyond mere ethnocentrism to the complex historical and migratory patterns among the Dutch, Indigenous peoples, and other ethnic groups who settled South Africa).
- *Particularistic* – in particularistic case studies, the author describes one case in one context and makes it clear that the case is indeed particular to this time, place, people, and unique set of events and circumstances (e.g., the slave trade).

Indicators of success

Case-study learning is successful when a learner can describe the case honestly, accurately, and truthfully, by referring to the case’s events, with due attention given to the context of the case and how the cause and

effects inherent in the particular case and its events were determined by the context.

How best applied

Case-study learning is best applied when students are provided real, authentic, written cases; when cases put into a video format are allowed to be viewed in a directed-viewing activity, with careful teasing out of the themes inherent in the cases; when information from the learners' analyses is categorized or organized adequately, directed by the teacher, so that all aspects of the case have been attended to.

Challenges to using case-study learning

The challenges to using case-study learning are selecting compelling cases; determining the possible types of cases and intended outcomes (e.g., psychological, historical, cultural); determining if a case is descriptive, analytical, or evaluative; and directing students to recognize the case-study writer's orientation regarding the type of case. In addition, learners need to be reminded of the particular nature of cases and that extrapolation from a particular case to other instances—familiar or not in context—can only be made with acceptance of the assumptions of common human nature, of shared human characteristics regardless of particularity.

Opportunities to enhance the effectiveness of case-study learning

Case studies can be enhanced when teachers take advantage of certain opportunities, such as defining clearly the problem, issue, or question being exemplified in the case; categorizing information in a case (looking for units or blocks of meaning within a case) by looking for language used in the case (common, similar, or shared words); engaging in analyses of the case by looking for how language used by those in the case (or the language used by the writer of the case) might reveal meanings; describing to learners the meanings from the analyses in as close a set of terms as implied in the case; and extrapolating to other situations with due attention to the context of the old case and to the new situation.

Purpose

Case studies draw the learner into the real world of real people; they are able to cause a learner to suspend disbelief, to accept and understand their shared humanity with others, and to let go of the “personal fable” (Elkind, 1989) of uniqueness (e.g., “No one else has ever gone through what I am going through”).

Goals

By the end of a case study–learning experience, learners should be able to:

- Describe the problems that give rise to people’s behaviours or actions;
- Identify the contexts of particular situations, with clarity and attention to all the aspects of the context (e.g., schools are not just for children, they are for teachers, parents, curriculum, classrooms, society, and culture: all have a vested and legitimate interest in schools);
- Thoroughly describe the key elements of cause and effects within events;
- Consider how their own actions and behaviours are laid bare, exposed for their own particular causes and effects; and
- Generate a lessons-learned strategy (e.g., journal), a statement of “so what” regarding the case-study–learning experiences.

Alternatives to case-study learning

An alternative to case studies is theoretical analyses of events, to generate theories (plausible explanations for behaviours) from a reading of cases.

Assessment as learning

Teachers may employ the activity “shared attributes” to perform an assessment as learning. In this activity, students are given three characters, similar in attributes to the case studied. Students create a matrix of shared attributes by using a Venn diagram or a graphical representation of the shared attributes that allows them to make connections even as they display their knowledge of the case studied.

Assessment for learning

To assess for learning, teachers may ask students to perform a case analysis. After students view or read a case their task is to describe the core dilemma of the case, what questions they have regarding “missing information” in the case, what assumptions they have regarding the case, and their possible solutions to the dilemma. This assessment approach is best undertaken in a directed viewing or reading activity, in which the case is halted (video stopped, reading ceased) so that the teacher can assess and evaluate student responses to determine if the students have understood the case-study analysis process. If not, the teacher can return and review case-study analyses with the students.

Assessment of learning

To assess learning, teachers may ask students to find cause and effect in a case. After students view an entire case, they provide a summary, in digital form, of the core dilemma, the cause of the dilemma, and the possible effects of the cause on each person in the case.

Inquiry

Scenario

A topic in secondary-school social studies concerns how geography influences what people do. A student finds a picture of the seal hunt in Labrador and is quite upset at the picture of a baby seal being clubbed to death. The student becomes further upset when the teacher states that the reason for the seal hunt is economic and that the livelihood of the people in certain areas of Labrador is dependent on the seal hunt. The fur from the seals goes to making coats and hats for people, not just in Canada but also around the world. The teacher points out that the geography of Labrador determines and, in a sense, appears to limit choices people there have for making a living. The seal hunt is one of the very few options the people there have to make living. The teacher's answers do not satisfy the student. In fact, the entire class takes up the issue of the seal hunt and begins to give quick and somewhat emotional responses, ones that range from the government banning the hunt to putting all hunters in jail. The teacher recognizes that there is an opportunity here for an inquiry. She structures the inquiry around a question: "Is there an alternative to the seal hunt in Labrador, one that will provide a living for people in Labrador and protect the seals from future hunts?" The teacher wants the investigation into the question to be systematic. She asks students to develop lists of topics that might need to be understood before the question can be answered. The inquiry begins here. Throughout the next weeks, more topics emerge, including how fur trading came to be instrumental in Canada's development, why certain people and cultures think about hunting the way they do, how decisions are made in provincial and federal parliaments, and who owns decisions regarding hunting. In addition, the teacher determines that good work only will be accepted, that letter-writing will be of the highest quality,

that thinking about issues within this question will be free from faulty argumentation. Her assessment criteria include statements that alert students to what good work looks like and what is required to actually do good work. The students are encouraged to forage wide and far for information rather than relying on just one source for information. The teacher reminds the students where they are individually and collectively regarding the question by posting student work up in hallways and on classroom walls, by asking for presentations of progress to date, and by offering formative assessment comments, liberally and consistently. When the students take the topic into a discussion of the grizzly-bear hunt in Alberta, the teacher decides to invite a Calgary Zoo representative to speak to the students regarding care of and respect for animals and why zoos exist.

Background to inquiry

Inquiry is the systematic investigation of a problem, issue, or question. The distinguishing feature of an inquiry-based learning experience is that the lesson may develop from student responses, and therefore the problem, issue, or question being investigated may open up into new questions, issues, and problems. If an inquiry is allowed to be open-ended, the teacher should accept that, at least for the time being, for the student there is no right answer, and no conclusion is required to end the inquiry (Davis, 1993). If, on the other hand, an inquiry is designed to help students deduce a better solution to a problem, a better answer to the question at hand, or a more appropriate conclusion to the issue being investigated, the teacher will enter into the student's inquiry with more facilitative questions designed to limit and focus student responses. Finally, if an inquiry is designed to foster creative responses and artistic expressions of some insight gained through inquiry, the teacher will emphasize valuing student responses and appreciating the unique ways a student has taken up the problem, issue, or question. The ultimate goal of all inquiry, regardless of intent, is to generate new knowledge and understandings of that knowledge (Davis, 1993).

Keywords

- *Deductive thinking* – thinking like a detective who solves a crime using lots of evidence.
- *Inductive thinking* – proposing multiple solutions based upon an accepted idea, principle, or concept; generalizing from specifics to wholes, from particulars to big concepts.
- *Questioning* – in this context, to facilitate thinking differently about a topic, question, issue, or problem.

Indicators of success

Indications of successful inquiries include the following: a classroom climate of openness to new ideas and appreciative responses to those ideas; time and opportunity to think through issues, problems, and questions; and student willingness to modify a response based on new evidence.

How best applied

Teachers may wish to bring an inquiry into the classroom when real, authentic problems are identified by students and require real political or economic solutions (e.g., the grizzly-bear hunt in Alberta); or when new scenarios are required to address an issue (e.g., maintaining populations of endangered animals); or when cases come to the attention of students that reveal the reasons and causes for problems (e.g., poaching in African countries and the imminent loss of some species).

Challenges to using inquiry

There are challenges to using inquiry in the classroom, including inappropriate argumentation and circular reasoning. With inappropriate argumentation, initial assertions are invalid and unexamined, and conclusions and further assertions are therefore invalid (e.g., in deductive reasoning evidenced as All zoos are good. There is a zoo in Gopher Gulch. The zoo in Gopher Gulch must be good). When students employ inappropriate argumentation, the form of the argument appears to be that which makes the argument true. The conclusion or content of the argument, however, is not necessarily true. In their inquiries, students may also use circular reasoning, that revolving door of argumentation where one already assumes to be true what one sets out to prove as true, better, or more correct, or as an answer to a problem, issue, or question. If the initial assumption, idea, or concept is inadequate, or if the evidence used to inquire into a problem is one-sided, the multiple solutions and possibilities generated may not be adequate. An example of circular reasoning is as follows: I hunt and enjoy hunting. If you object to my hunting animals for pleasure and for food, then what is the difference between your eating beef and my eating deer; or your stepping on a mosquito to keep yourself comfortable and my shooting a bear for enjoyment? Therefore, hunting must be okay.

Opportunities to enhance the effectiveness of inquiry

To enhance an inquiry, consider the logic of a discipline, the inherent structure of a discipline, and make that evident to students (e.g., science is inherently about systematic investigation of real problems following a

method of investigation). Be open to how a topic opens up and where students may take an inquiry (e.g., an inquiry into hunting may open up into thinking about political decision-making, letter-writing to MLAs, discussions about morality and ethics, new problems associated with individual responsibilities versus rights, and classroom-based projects that lead the school to build an ecosystem in the schoolyard).

Purpose

The purpose of inquiry is to learn how to think systematically “into” issues, to be confident in one’s ability to solve real problems, address real issues, and answer real questions. The purpose of inquiry is to affirm creativity and confirm the importance of students generating authentic possibilities that, as of yet, do not exist.

Goal

By the end of an inquiry students will:

- Demonstrate systematic inquiry skills when addressing issues, responding to questions, or proposing solutions to problems.

Alternatives to inquiry

One alternative to implementing inquiry in the classroom is discovery teaching. Students are guided systematically to discover not possibilities and creative solutions but a historically and societally acceptable answer to a problem. The needle is in the haystack; the student needs to find it.

Assessment as learning

Teachers may implement student-initiated letter-writing for assessment as learning. In this form of assessment, students write a letter to a politician or policy-maker, describing the essence of the problem, the results of their investigation into the problem, and their proposed solution.

Assessment for learning

To assess for learning, and extend from the assessment-as-learning exercise noted above, teachers may ask students to respond in kind. When students receive a response to the letter they wrote, they reply. If students respond with reasoned, informed, and polite language, teachers have guided students into one important outcome of inquiry: to answer real questions and solve real problems, and do so with an intention of bringing about real change. If students do not respond appropriately, teachers will need to return to a review of core inquiry principles and practices.

Assessment of learning

To assess learning after inquiry, teachers may wish to introduce an inquiry-project design in the course, where students design a framework for an inquiry project for another grade. They introduce the project, guide students in conceptualizing and framing the project, and then mentor the class in their implementation of the project.

Follow-up Activities

Transmission/direct instruction

One estimate is that \$10 billion a year is lost in North America when training events fail to provide sufficient transfer of that training in North America, from the training event itself (e.g., a weekend leadership training workshop) to actual working places (e.g., being a good leader) (Baldwin & Ford, 1988). Why might that be so? Why might little of what we call “learning” be unable to be transferred from one setting to another?

Nurturing

Learners design a personal manifesto, a set of promises regarding how to nurture their future students. A personal manifesto begins with “I promise to _____” (e.g., listen to students carefully enough to understand their core issue or problem).

Guided discovery

In groups, students describe how to make a million dollars using an unusual object (e.g., Rubik’s cube, deck of cards, skipping rope, paper airplane). Students must identify the problems needing solving before the object can be used to make the million dollars. The value in this follow-up activity is the intellectual engagement of students working together to guide each other’s discovery of solutions to the problems.

Projects

A follow-up activity to a project would be for students to design a strategic plan for fundraising for a good cause (e.g., see Old Guys in Action at www.oldguysinaction.blogspot.com).

Insight-generating

Students share stories of coming to an “aha” moment, an insight regarding something personal and meaningful (e.g., parenting, birth of a child, trip to a different country). Students identify what it was (the circumstance, person, event, etc.) that generated the insight. Students discuss the pedagogic possibilities of this insight into their insight. They consider how to design learning experiences so as to create similar circumstances for other students.

Training

Commonly used reinforcers include praise and feedback, with secondary reinforcers such as stars or check marks that can be traded in for primary reinforcers (food), as well as self-monitoring of performance (feedback gained by observing the results of one's performance). Divide the class into four groups, each group responsible for one of the four types of reinforcers. Set up a physical activity like students hitting a badminton bird into a hula hoop placed three metres in front of the students, and reinforce accuracy. Each student is given three rounds of 10 hits each. The first round of 10 hits establishes the baseline data (how close the person comes to the hula hoop [measure the distance away from the hoop for each birdie hit, and record the distance in a line graph]). The second round of 10 hits is done blindfolded. The third round is done without blindfolds; this round determines the success of the reinforcer used by the group in improving accuracy. The praise group reinforces each hit of the birdie using praise, the second group using feedback, and the third group using check marks; the fourth group allows the blindfolded person to remove the blindfold after each hit to see how close she or he came to the hula hoop. Ask students to predict which group will produce the most improvement in accuracy.

Shared praxis

In this activity, students attempt to create a better version of an existing educational program, adding the six movements of shared praxis. For example, students can use a course they have taken in the past (e.g., self-help course, church- or mosque-based course, marriage seminar) and redesign the program based on shared praxis.

Apprenticeship

A coach of a major sport team, a leader in the community, or a well-known performer tells his or her story to the class, drawing attention to the person who "apprenticed" them, to whom they owe the greatest appreciation for their success. The themes of the story are teased out, clarified for their cause-and-effect relationship in the success of the coach, leader, or performer.

Case study

A fine follow-up activity to student work on a case study is the "nobody" scenario. Students are asked to identify mentors and their specific influence on the lives of the following five well-known individuals: Nelson Mandela, Mother Teresa, Sir Winston Churchill, Albert Einstein, and

Ellen Sirleaf Johnson (the president of Liberia). Each person's biography includes a mentor or teacher, yet few if any students will be able to identify these influential people. The nobody scenario reminds us of the investment principle, that each of us may or may not see the payoff of the investment of care and teaching in another's life, but there is a payoff—teachers in particular are not nobodies.

Inquiry

1. Students design an inquiry regarding issues they have read about and been moved by (e.g., garment factories in a low-income country catch fire and hundreds of garment-industry workers die). The inquiry is shared online and discussed.
2. Design a lesson plan for making gourmet macaroni from a box of pasta with cheese. The context and the rationale for the lesson will depend on the age of your learners. Design your plan first for learners who would appreciate a learning experience in which they can experiment first (i.e., learners try out different approaches to making gourmet macaroni before actually learning from you how to indeed make gourmet macaroni). Design a second plan for a different set of learners, those who appreciate knowing exactly what to do (instructions first) before they begin to experiment. What different tactics could you design for each plan? What tactics could be the same?

Suggestions for How to Design and Implement a Model's Learning Experiences

Suggestions for Reading This Section

- [Section III](#) shows how the 10 instruction models can be practically understood and applied to teaching. If one takes the view of instructors as “architects of learning experiences,” then just as architects need basic guidelines, principles, and frameworks to guide their design, so do teachers. This section concretely illustrates different tactics for implementing online and technology-supported learning experiences or lesson plans. We suggest that you create a blog in which you document the development of your own resource of teaching tips for each of the 10 instructional models.
 - This section also provides you with professional development suggestions and sources for professional learning. We suggest that as you share these ideas with your students, they create a Google document to interactively and reciprocally record the techniques and strategies they are learning and applying in their teaching practice.
 - This section provides support for the design of learning experiences to align with the shift in teacher practices toward creativity, critical thinking, community, and collaboration as outcomes or competencies desired in and through learning, whether online or face to face, supported by technology.
 - This section provides you with a set of tactics for use in your design and facilitation of a technology-supported learning experience. Each tactic chosen by us adheres to the following learning principles. In order for learning to take place, new information must be connected to what is already known. People learn in different ways, at differing speeds. Learning is active and strategic.
-

Tell me and I forget. Teach me and I remember. Involve me and I learn.

–Xun Zi

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Tactics for Transmission/Direct Instruction

Lecture-style presentation

A lecture is usually a structured transmission of information by a teacher. Lectures may involve the use of visual and/or digital aids. Unless the teacher designs the training with cognitive activities woven into the lecture (e.g., questioning, asking for predictions, etc.), this approach is of limited value in engaging the learners.

The lecture-style presentation can be used effectively in a training event or workshop to:

- Introduce the goals and purposes of the training event;
- Familiarize the learners with the style of the teacher;
- Introduce the main concepts of the training event; and
- Provide a set of expectations for the training event.

This type of presentation could fail if:

- The information provided is not connected to what the learners already know about the topic;
- The information is irrelevant to the learners' purpose for being in the training event;
- Too much information is presented too fast, with no meaning-making opportunities afforded to the learners; or
- The approach is not mixed with hands-on, experiential learning activities.

Small-group tasks

Learners are put into groups with assigned roles given to group members (one person a recorder, one person a motivator, one person a leader,

and so on). They are given a clear project to complete. One group member leads in the presentation of the group's conclusions.

Small-group tasks work best when learners are:

- Permitted to include what their current actions are and reasons for those actions (see *Shared Praxis*, p. 179) and
- Assigned clear roles and the group is assigned a clear intended outcome.

Small-group tasks could fail if:

- The task is not clear to participants and roles are confusing;
- The task is complicated and irrelevant to the purposes and background of the learner;
- The assigned task or project leads to competition and not to collaboration; or
- The description of the task uses language that is not shared or common to all.

Pictures/visuals

A picture is not worth a thousand words. Pictures often contain too little relevant information regarding a concept to be worth a thousand words. However, if chosen wisely, visuals can serve a discrepant attention-getting function, arouse interest, and re-engage learners at the training event.

Pictures/visuals work best to:

- Make clear and draw attention to relevant concepts;
- Give a different perspective on a familiar concept—making the familiar unfamiliar; and
- Show learners how the information being transmitted can be transferred to local contexts.

Pictures/visuals could fail if:

- They are too simple and lack enough content to be relevant to the concept being presented;
- They are presented with too much emphasis on their ability to be worth a thousand words in teaching a concept; or
- They are too complicated.

Word pictures

Word pictures are visual representations of a skill and are contingent upon the participants' interpretation of the words. Word pictures are very effective in helping students remember information.

Word pictures work best when participants:

- Have the word pictures presented in advance, posted in an online format, to draw the learners to make connections between what is familiar to them (the description they interpret in the word picture) and what is about to come (the unfamiliar) in teaching a skill;
- Are learning a physical skill (e.g., catching a ball with soft hands, punching a beat board with feet, following through a basketball shot with fingers going through the hoop, running on legs not with them, swimming front crawl as if swimming through a tunnel, running as if being pulled by a bungee cord attached to the mid-section, etc.).

Word pictures could fail if:

- Not enough time is given to learners to accommodate a motor response to a word picture.

Chunking information

Chunking information involves reorganizing information into meaningful summaries that are presented in advance, to alert learners of key points to come (e.g., storing an outline of a presentation on Moodle).

Chunking information works best for participants:

- Who need to learn about important self-regulatory strategies for obtaining meaning from text (e.g., stories, instructions, and descriptions);
- Who need to learn several self-regulatory strategies associated with one task (e.g., skimming, reading the end first, posing questions to the text, underlining keywords, paying attention to unusual styles in the text [e.g., tables], and writing personal summaries of paragraphs read [one- or two-word titles]);
- Who need to understand the purpose or reason for learning this strategy in one sentence (e.g., using contextual analysis to pour meaning into an unknown word in a sentence). The purpose statement should be read out loud, shared with the class. You should include where it is often used by good readers, why, and what the results are.

Chunking information could fail if:

- Too many self-regulated strategies are transmitted too soon, wasting everyone's time. In fact, too many posted online may also prove to be ineffective. Time is needed for participants to make sense of each strategy presented. Once a week, introduce a new self-regulatory strategy by posting the strategy on Moodle or some other online platform.

TIPS FOR TRANSMISSION/DIRECT INSTRUCTION

Participant communicates	You respond by
"I am not sure that I am on track."	Praising periodically, on a random schedule, and wherever possible providing specific information as to why you are offering praise.
"What use is this information to real life? How can I apply this to my life and work?"	Using a running checklist, or posting online a summary of learning that includes each participant's main ideas, conclusions, and possible applications. Documents produced in the training event can be posted online in a shared area such as a forum or Google Docs.
"I learn best in different ways than you are using to teach me."	Providing for more than one way for participants to process and interpret the information (partners working together, building LEGO models, drawing pictures, and expressing their learning).

It is my ambition to say in ten sentences what others say in a whole book.

–Friedrich Nietzsche

Tactics for Nurturing

Nurturing is usually directed toward the inner world of a learner through designed learning experiences, intentionally and carefully woven into courses. Nurturing learning experiences focus on a psychological need of the learner.

Feedback

Adult learners find feedback highly nurturing. Online courses in which there is a live or synchronous session or in which there are chat rooms or opportunities for Skype-based conversations are best for providing feedback. Feedback should:

- *Describe, not judge.* Choose words that refer to accomplishment, not those that describe the participants (e.g., “I was really surprised when you expressed a thought that I would never have considered—very creative!”);
- *Be specific.* For example, “You might find it helpful to rewrite this section emphasizing _____”;
- *Suggest what should be done to improve.* Describe or ask the learner to generate what he or she thinks the next goal or learning target should be. Ask for a specific strategy that the learner might consider applying to the task; if he or she cannot generate one, then suggest a specific approach, tactic, or strategy (Brookhard, 2010).

Feedback works best for participants who:

- Are motivated to improve their performance due to it applying directly to a real-world situation; or
- Think of and then apply small first steps that will lead them from where they are to an improved performance.

Feedback could fail if:

- Learners have a long history of failure and, due to this, cannot generate ways to improve. In this case, direct instruction in a specific approach, tactic, or strategy is appropriate.

Scenarios

Scenarios are usually a description of the ideal, or the “preferred future” for practices in a school, community, or workplace. Scenarios are best designed in partner or collaborative work with one other person. In online courses generally, and in the process of scenario development specifically, teachers have time to read between the lines, recognize need, and determine an appropriate response.

The scenario works best for participants to:

- Affirm that the first step in changing a situation is envisioning what it could be like; and
- Think of and then apply small first steps that will lead them from where they are to their ideal future or scenario.

Scenarios could fail if:

- Learners have a long history of failure and, due to this, cannot generate ways to begin the process of moving toward an ideal.

Facilitating belonging

Belonging is enhanced simply by greeting each of the students individually (Neufeld & Mate, 2004; Dame, Peat, & Berger, 2010). Step one is to establish eye contact and make a “non-verbal agreement” to interact by smiling, which leads to a nod from the participant. Interactive video technology allows both eye contact and smiling to take place; responses could be through the use of emoticons. Step two is to provide the learners the opportunity to form a relationship with you, the instructor. Talking about what can be common interests, topics, places visited, etc., shows the learners that they are valued on a personal, relational level. Step three is, through conversation, modelling, and interactions, to lead the learners to know that the course is a safe place to share ideas and thoughts without being made fun of. Learners need to know that the course is a safe place where independent and creative thought can be expressed.

Facilitating belonging works best for participants to:

- Begin to establish relationships with their learning colleagues; and
- Build the confidence needed to share ideas, thoughts, and applications of their learning.

Facilitating belonging could fail if:

- Learners have a view of learning that is one of learning from the “expert” instructor; or
- Cultural factors do not allow them to lose face by admitting that they do not know something, or that they can learn from a lesser tribe or caste.

Addressing a “great idea,” a “real problem”

Arrange for older people to be brought together with younger people to concretely address local civic, social, or environmental issues. Bringing them together has the potential to teach empathy across age groups, to transfer expertise of the old to the younger and vice versa. Technology is “a natural social solidifier as the young teach the old and everyone benefits” (Fullen, 2013, p. 76).

Addressing a “great idea” works best for participants to:

- Apply what they are learning to their own context; and
- Transfer their theory to practice.

“Great idea” implementation could fail if:

- Learners have a view of learning as simply the collection of knowledge or facts; or
- Participants do not have the underlying skills and/or dispositions to work together with others.

Focus on “getting closer” behaviours

Relationships are enhanced when those who want to build relationships are aware of and engage in behaviours that draw people in rather than pushing them away. Making these behaviours explicit to participants, who can then self-assess and engage consciously in the “getting closer” behaviours, will lead to a more nurturing environment for all of a teacher’s students, in face-to-face, technology-rich, and online environments.

Getting Closer	Pushing Away
Listen	Ignore
Accept or observe	Judge
Share	Put yourself first
Open up	Close down
Ask questions	Remain aloof
Do something together	Avoid contact
Meet people at their level	Play superior
React positively	Discourage
Smile	Deadpan or frown
Have a sense of humour	Be serious at all times
Maintain eye contact	Avoid eye contact
Praise	Criticize

Adapted from Madden, C., and Peat, D. (1999). *Stress management trainers manual (English)*. Kuwait: The Ministry of Social Affairs & The Ministry of Health, State of Kuwait.

Focusing on “getting closer” works best for participants to:

- Consciously build relationships with their colleagues; and
- Think about their own behaviours and how they are enhancing or “short-circuiting” the building of relationships.

“Getting closer” could fail if:

- Learners have a view of learning as simply the collection of knowledge or facts;
- Cultural factors do not allow them to lose face by admitting they do not know something or that they can learn from a lesser tribe or caste, or
- Participants have had success in the past working alone and are not therefore motivated to work with others (e.g., an intellectually gifted person with the predisposition to look down on others).

TIPS FOR NURTURING

Participant communicates	You respond
“I don’t seem to fit in well here; I am so different.”	“I’ll arrange an activity where each participant shares his or her ‘out of setting’ activities. Perhaps then you will find someone who has similar interests.”
“I have never been able to solve these kinds of problems.”	“That’s why we’re working together, so that you can see and experience how those who are successful at solving these problems do it!”
“I’m really slow at this.”	“That’s okay—faster speed comes with more experience. Remember, this is your first time working on a problem like this; take it easy on yourself!”

Probably the greatest myth that has evolved is this idea that socializing with one’s equals leads to socialization.

—Gordon Neufeld (in Mrozek, 2012)

Tactics for Guided Discovery

Questioning

Usually guided discovery is a learning experience designed by a teacher so that learners discover the answer to a question, way to solve a problem, approach to dealing with an issue, or most effective way to perform a physical skill. Guided-discovery methodology is characterized by a questioning approach called the limitation method, in which teachers pose questions to gradually limit learner responses as learners get increasingly close to a desired discovery. In addition, teachers design game-like activities through which learners discover a solution, answer, way, or method to address an issue or perform a physical skill. For example, a teacher begins with the “general exploration” questions (e.g., “How many different ways can you [balance on body parts, organize materials before beginning a construction project, etc.]?”) and then moves to “self-focus exploration questions” (e.g., “What would happen if you [balanced on points and patches, large body parts then small body parts; organized materials in order of size or in order of how the instructions were presented; etc.]?”) and questions to limit exploration to a focused experimentation with better-than-average responses (e.g., “What would happen if you [tucked your chin and went into a small ball shape before moving into a balance, collaborated with a partner to organize materials, etc.]?”).

The questioning approach works best for participants to:

- Affirm that there is more than one response possible: variety is more than the spice of life, it is inevitable;
- Engage in the learning activity, intellectually as well as emotionally; and
- Earn a discovery that will stick in their long-term memory because they discovered the solution themselves.

Questioning could fail if:

- Teachers are not patient or willing to invest the time and effort to guide learners in their discovery;
- Teachers confuse discovery with guided discovery; or
- Learners do not see the reason for the guided-discovery approach, instead preferring to be taught directly.

Games

Games are ready-made, off-the-shelf opportunities to guide the discovery of learners toward solutions, answers, and ways to address issues. Simple card games can be effective to guide learners to discover, or clearly see, their real values and ideologies, tacit as they may be. For example, in a workshop on ethnocentrism, teachers divide the class into two groups: one group plays with one set of rules, the other with another set of rules. Winners from each group play off against each other, but with no verbal communication allowed. The result is an interesting exposé of what values (competition, deference, placating others, winning at all costs, compromise) or “hills to die on” actually reside in a learner. Pictionary, Monopoly, Scrabble, and Apples to Apples can all be used in a way they were not designed to be used: to guide learners in their discovery of some attribute, skill, or way of seeing the world.

Games work best when they:

- Are designed and implemented as a fun learning experience, one that adults rarely have the chance to engage in;
- Uncover some inner attribute, or something tacit about the psychology of a learner (e.g., competitive or not competitive); and
- Introduce a topic’s essential concept or question.

Games could fail if:

- There is no follow-up to the game; that is, questions are not posed that would guide learners to see or discover for themselves the solution, answer, or way to respond; or
- Learners are unable or unwilling to be transparent, fear failure, or have had negative experiences with a particular game.

TIPS FOR GUIDED DISCOVERY

Participant communicates

“This seems like a waste of my time. Why not just tell me the answer?”

You respond by

Reminding the learners of times when they discovered something important, i.e., found out an answer to a question or solution to a problem. How did they feel then? Do they remember the discovered answer or solution to this day?

"Where is this class taking me? What am I supposed to learn?"

Explaining why we bother with this topic and the approach to learning this topic in this way. Remind students of the purpose (reasons why they need to learn this topic, the purpose for the class).

"I am worried about looking stupid in trying to discover the solution to this problem."

Asking the students what the worst thing that could happen to them would be if indeed they looked stupid in their efforts. Remind them that no one is looking as closely at them as they might think.

Learners are encouraged to discover facts and relationships for themselves.

—Jerome Bruner

Tactics for Projects

Project work usually involves student-led investigation into a topic, leading to deep, broadening knowledge regarding the topic. Students experientially understand that there are solutions to problems, answers to questions, and better and worse ways to address issues. Online courses permit projects to be taken up because time, the opportunity to reflect, communication that is transactional not linear, and informed access to relevant project information are possible in an online environment.

Projects encourage students to use a coordinated set of skills (including inquiry, problem-solving, and presentation) to build a base of knowledge about an issue, question, or problem. The best projects include research into “living cases,” real situations, or an actual problem.

Universal design for learning (UDL)

Ensure that there are a wide variety of resources available for learners to utilize in the inquiry, problem-solving, and presentation portions of their projects (e.g., texts, visual texts, interactive books, problem sets, videos, websites, podcasts, presentation tools, etc.). This allows students to practically experience that there are multiple ways of learning, of assessment, and of presenting (Rose & Meyer, 2002; <http://www.cast.org/>). For an example of a wide variety of digital resources for science projects, see <http://nsdl.org>.

UDL works best for participants to:

- Experience ways of learning that are more attuned to their own personal strengths;
- Unleash creative aspects of their thinking, personality, and skills; and
- Apply what is learned to their own experiences and contexts.

UDL could fail if:

- Assessment tools (e.g., rubrics) favour one particular way of learning (e.g., essay, drama) over others;

- Learners are not self-motivated; or
- Learners lack insight and/or experience about their own learning strengths and weaknesses.

Designing success to build confidence

These strategies can help teachers address lack of self-motivation in some learners. These tactics are applicable to major project assignments, although some of the techniques can also apply to shorter tasks. For detailed explanations of these approaches:

- Address participants experiencing difficulty with self-motivation and/or organizational issues with “empathetic encouragement.” This means first communicating that you understand the difficulty he/she is experiencing, and *then* urging participation;
- Utilize “threat reduction” to reduce learners’ anxiety and tension. This means recognizing past successes, making mistakes okay, and making learning concrete by using charts, diagrams, and/or conversations to make the steps for completing the project explicit;
- Extend the time span for completion of the project;
- Present the project in the form of a series of tasks at differing levels of difficulty. Allow learners to complete the first task at their own pace. Gradually introduce time limits. Have them record their progress and self-reward individual steps of that progress. When the speed is at an acceptable rate, gradually increase the level of task difficulty;
- Provide learners who avoid tasks with incentives. For example, provide them with assignments that are already partially completed;
- Allow learners to choose from a variety of activities within a parallel skill area;
- Use “social reinforcement” to increase engagement (e.g., smiling, nearness, enthusiasm, nodding, pats on the back, humour, etc.);
- Pair less motivated participants with more productive ones; and
- Utilize “group reinforcement” (e.g., provide a reward to the entire group based upon the performance of individual participants).

Designing-success tactics work best for participants to:

- Gain confidence, so that they better complete academic tasks and/or enhance relationship tasks; and
- Recognize that their colleagues may learn in different ways than they do.

Designing success tactics could fail if:

- Learners have a strongly established predisposition to competitive, non-interactive, non-relational learning.

TIPS FOR PROJECTS

Participant communicates	You respond
"I seem to be going in circles."	"Why don't you develop a step-by-step plan to reach your project goals? Here is a framework for planning. Give this a try and we'll meet again tomorrow to discuss your concrete plan."
"It seems to me that this technology is just adding complexity to my project."	"You're right. If the technology doesn't extend or enhance your learning and/or presentation, why would you use it? See if there are other technologies that would meet your needs better. You know, Mohammed has a lot of experience with different apps—have you talked to him?"
"I can't seem to get motivated to work on this."	"Learning factual knowledge is a good thing, but a more important ability is to be able to apply that knowledge to our lives and work. By listening to others with more and different experiences you can gain new ideas and perhaps be able to better apply the knowledge to your own situation."

UDL Reflection #1:

At the core of UDL is the premise that often the curriculum is disabled (and disabling!). It is not flexible; it often poses barriers, and consequently prevents rather than supports optimal learning experiences. Do you agree or disagree with this view? Why or why not?

—Universal Design for Learning, RTC

Tactics for Insight-generating

Active listening

Active listening tactics involve successful communication that happens when participants hear (not just listen to) what another person is saying. The goal of active listening is for participants to hear the problem, issue, or question in the problem, issue, or question being communicated. Active listening in technology-supported and online learning comes through activities that are designed for active listening to occur. Teachers should not assume it will happen, automatically, in technology-supported and online courses. For a participant to understand the intent in question (Adler et al., 2008), a tactic for active listening to hear the intent in the question needs to be part of the architecture of the activity. The consequence is a deepening of trust among participants in a course, openness to feedback, and ultimately a sense or experience of belonging to each other, of community.

Active listening tactics can be helpful for course participants to deepen their insights into their identities. Social psychologists refer to the centrality of relationships and community (as we define it in this book) in identity formation (Erikson, 1968; Marcia, 1966). One's identity is a powerful contributor to one's success or not in occupations demanding high social engagement, as well as other relationships demanding pro-social skills (e.g., marriage). Insight into one's identity is determined by relationships and in turn determines the quality of one's relationships.

Online courses allow for autonomous research regarding the meaning of one's life, the circumstances, challenges, and opportunities one has had, is having, and will have. Participants can judge these events in some carefully measured and informed ways, and then make choices regarding ethical actions.

More than one student has told each of the authors of this book that the course helped them understand better who they were as a person,

father, mother, son, daughter, or graduate student. We attribute this outcome to the inherent advantages of online and technology-supported learning, advantages of time, conversation, feedback, and research. However, we maintain that the greatest contributor to identity formation resides in design of learning, in which teachers include opportunities in their courses to consider anomalies, exemplars, non-exemplars, defining attributes, and prototypes (Woolfolk, 2009). Teachers can design activities for learners to “learn to learn” about their identities and do so safely through synchronous and asynchronous ways (e.g., cafés, forums, back channels, live video calls, GoToMeeting, etc.).

Active listening works best for participants to:

- Learn from experts not available normally to the class, and do so live via means like GoToMeeting;
- Learn about differing perspectives, including those from different communities and countries;
- Apply what is learned about themselves (identity formation) to their own experiences as parents, husbands, wives, and so on; and
- Access and do designed activities that can be influential in generating insight into their identities (e.g., the Johari window, personality inventories, and learning-style assessments).

Active listening could fail if:

- Technological infrastructure (e.g., bandwidth, sound) is not able to accommodate interactive online platforms such as GoToMeeting;
- Presenters cannot competently communicate in online environments; or
- Safety (psychological and interpersonal) is not attended to (e.g., not keeping confidential personal communication shared outside the course).

TIPS FOR INSIGHT-GENERATING

Participant communicates	You respond
“I am not comfortable being so transparent with people I do not yet really know.”	“I will set up individual forums for each person to post their responses.”
“I am feeling very vulnerable and insecure about the personal nature of these activities.”	“You are not required to do anything or write or say anything that would make you feel vulnerable. Whatever you do write will not be read by anyone else, including me.”

"This is discouraging; I think that I might be a psychological mess."

"You have your human-being membership card out. You are no more a mess than me or anyone else in this class. Welcome to the human race."

"What can I do with the insights I am gaining about myself?"

"Encourage conversations with trusted friends (not critical friends, appreciative ones)."

Anyone who stops learning is old, whether at 20 or 80. Anyone who keeps learning stays young. The greatest thing in life is to keep your mind young.

—Henry Ford

Tactics for Training

Praise

Training is the systematic shaping of observable behaviours through the planned use of reinforcers. Implicit in this perspective is that people may “act their way into new ways of valuing and thinking” (Palmer, 1998). The online environment provides teachers with a unique opportunity to shape at least three important behaviours: writing with clarity, responding to classmates in appreciative yet truthful ways, and negotiating accommodations to timetables, assignments, and schedules—and doing so professionally (e.g., submitting late assignments).

Adult learners can be motivated by praise that is offered to them on a random schedule, particularly after a pattern of “course-acceptable” behaviour has been established. Self-monitoring of performance for adults can be reinforced and is the preferable condition for a course or program. Self-monitoring can best be accomplished if adults have a rubric or criteria for a course or program’s assignments clearly and concisely spelled out. However, adults will still need reinforcement from you to recognize with certainty that they are meeting the course requirements.

Training works best for participants to:

- Complete requirements for a course (e.g., an assignment) as a consequence of the reinforcer you use;
- Produce higher-quality work: better writing, clearer expression of ideas, deeper analyses;
- Motivate colleagues in the program or course you teach, through offering reinforcing comments; and
- Repeat the behaviours you desire of them (e.g., being critical of you and others, albeit in an appreciative way).

Training could fail if:

- Participants are not reinforced by their choice of reinforcer (e.g., praise may be viewed as disingenuous and therefore not reinforcing); or
- Participants become so habituated to the reinforcement that they are no longer motivated by reinforcers.

TIPS FOR TRAINING

Participant communicates	You respond
"I am not sure if I am doing this assignment the way you want."	"Take a look at the criteria (or rubric) I provided in the course outline. Give yourself a grade for your assignment. To do so will tell you if you are doing the assignment as required."
"I need to take a break from the course for personal reasons."	"Up to this point in the course, you are achieving above expectations because _____. We can pick up the course when you return."
"I think that you are just being a 'nice guy' by telling me that I am doing okay."	"Let me give you three reasons why you are in fact doing okay: _____."

Praise out of season, or tactlessly bestowed, can freeze the heart as much as blame.

—*Pearl S. Buck*

Tactics for Shared Praxis

Socratic dialogue

The kind of questioning used by instructors influences thinking and, in turn, performance. For example, when a question is rephrased, it provides a longer wait-time for answers and allows respondents to respond in a comprehensive manner. As well, long wait-times indirectly send a powerful message—that the expectation is to think deeply, answer questions comprehensively, and that the time to do so will be provided. Those engaging in conversations with long pauses learn that in-depth thinking is both required and expected and, conversely, that surface, fast thinking is not acceptable. One approach to questioning that *systematically* facilitates learner's in-depth thinking and enhances achievement is the conscious use of Socratic dialogue. It is a form of questioning that can be effectively used as instructor and participants engage in shared praxis. It is applicable in face-to-face, technology-supported, and online environments.

Socratic dialogue is an interactive way to engage in discussion that encourages reflection and deeper thinking. When engaging in Socratic dialogue, teachers lead their pupils, through questioning, to discover relationships and applications *for themselves*. Collins (1977) provides one of the clearest examples of how Socratic dialogue can be broken down into steps and guidelines:

- Start with what is known;
- Ask for multiple reasons/examples;
- Ask for intermediate steps in students' reasoning;
- Request pupils to formulate general rules from specific cases;
- Pick counter-examples when insufficient reasoning is displayed;
- Use extreme cases to illustrate a misapplication of a concept;
- Probe for differences; and

- Ask for predictions.

Socratic dialogue works best for participants to:

- Answer questions that invite them to start with what is known (e.g., “What can you tell us about effective ways to prepare for writing your exam?”);
- Respond to the invitation to give multiple examples (e.g., “Those sound like really fine organizational approaches. I really like the way that you try to make sure that you focus your studying”);
- Formulate general rules from specific cases (e.g., “That sounds like it might be one effective way to study food preparation. What would you call that approach?”);
- Provide counter-examples when insufficient reasoning is displayed (e.g., “I agree, it might be a good strategy to use for more than one subject. However, is just going over examples enough? Is it possible to memorize formulas, by doing many examples from a book, but not to understand either what is being asked or why the formulas work?”);
- Probe into their residual experiences, their memory, for differences (e.g., “Great question and example. From what you say in reading, and what I said about formulas, it sounds like it’s possible to review multiple examples—to memorize—but that doesn’t necessarily mean we understand. What is the difference between memorizing and understanding? How can we be sure that we understand something?”);
- Use extreme cases to illustrate a misapplication of a concept (e.g., “I’m dreadful with formulas such as those in mathematics and physics; that’s one reason why I teach English, and why I chose the formula example. [It’s how I got through, but I still don’t understand it!] I can tell you that $E = mc^2$ and that this formula has something to do with time, but there’s not a lot more I can tell you about it; oh, yes, Einstein was the first to come up with the formula. Now that’s an example of something memorized but not understood. Can you think of other examples?”); and
- Ask for predictions (e.g., “Over the past hour, we’ve come up with several study strategies that you use to prepare for your exam. As well, you identified the specific strategies that you think are most applicable to the way you learn, and how best to understand the new English content. Now, are you willing to take part in an experiment? Assuming that you’re going to follow the study plan that you’ve made, and you are going to try the new strategies that we’ve learned over the past few weeks, do you think your performance will improve? By how much?”)

Socratic dialogue could fail if:

- Students are not provided adequate wait-time after a question is asked, at least 5–10 seconds; do not expect nor promote immediate responses;
- Learner/participant responses are not accepted or the teacher does not build on their responses;
- Participant responses are not integrated with other information;
- Ideas provided by the discussants are not extended beyond the question asked;
- Responses and answers are not rephrased, and no clarification of them is requested; or
- Participant responses are neither added to nor probed for supplementary information (French, 1985).

TIPS FOR SHARED PRAXIS

Participant asks	You respond
"Isn't it better to just tell people what ethical action they should choose? This shared-praxis approach just seems to lead to individualized choices of right and wrong only."	"The universe rings true wherever it is fairly tested, so said C.S. Lewis. Suspend your mistrust of this process just for long enough to see if it is a right and good way to 'test the universe,' as it were, to see if there might be some common, shared understanding among us about what is true about _____."

If a man is proud of his wealth, he should not be praised until it is known how he employs it.

–Socrates

Tactics for Apprenticeship

Usually applied when skills are targeting development to a mastery level, apprenticeships directly address the transfer of learning from “head knowledge” to application. In modified apprenticeships, learners may be involved in short-term work-study trips, international work projects, and outward-bound type activities. These modified apprenticeships usually take place in a challenging context, one in which the student recognizes opportunities to address a deep value (e.g., poverty alleviation, illiteracy, etc.).

Modelling

Much of the learning that takes place during apprenticeships is due to the student working alongside mentors and coaches, where they experience the work together. Effective modelling requires many, if not all, of the following steps to be undertaken:

- Setting the stage: Discuss, demonstrate, and expose learners to readings and/or digital resources that show why learning the skill is important;
- Specifying the skill components: Break the skill down into sequential steps. Show and talk about the importance of each step;
- Modelling the skill: Demonstrate the steps, perhaps with the apprentice “mirroring” or practicing the steps as they are shown;
- Cognitive rehearsal: Talk through while visualizing the steps required in learning the skill;
- Behavioural rehearsal: Practice the skill;
- Evaluating performance: Mentors or coaches provide feedback (See Nurturing, p. 177, for details concerning how to provide feedback); and
- Generalizing: Systematically apply the newly learned skill in different situations/settings.

Video recordings could be made to document the mentor's demonstration for the apprentice to watch as a model for practicing. A video could also be made throughout the learning process to demonstrate the learner's increasing competency, providing evidence that the apprentice has attained, or is progressing toward, a "mastery" level.

Modelling works best for learners to:

- Learn new, hands-on, practical skills;
- Engage in much practice as they gradually learn the skills;
- Apply what they have learned to multiple settings and situations;
- Organize their thinking into sequential, well-planned steps; and
- Address issues of deep, important value.

Modelling could fail if:

- The equipment needed to learn the skill is not available;
- The process is undertaken too quickly, not allowing for all the steps in modelling to be performed;
- There is a lack of positive relationship between the mentor and the apprentice; or
- There is a lack of patience and/or skill on the part of the mentor/coach.

Cognitive modelling

Cognitive modelling is an extension of the modelling tactic described above. In cognitive modelling, the mentor/coach makes his/her thinking process about the skill explicit to the apprentice. There are three instructional phases when using this tactic to teach a skill:

Phase I – The instructor models the learning task while thinking out loud about what she/he is thinking while doing. The mentor uses the first person while speaking.

Phase II – Both modeller and learner complete tasks simultaneously, following the words of the instructor as she/he thinks out loud.

Phase III – The learner performs the same tasks while thinking out loud, using his/her own vocabulary while speaking.

Cognitive modelling works best for learners to:

- Learn the thinking involved while learning new, hands-on, practical skills;
- Increase their focus as they engage in practice, gradually learning the skills;
- Increase focus, particularly when under stress or working within tight timelines;
- Be able to explicitly talk about their thinking in terms of sequential, well-planned steps; and

- Organize information in ways that are meaningful to them (e.g., problem-solving, analytical thinking, etc.).

Cognitive modelling could fail if:

- Learners lack the vocabulary to describe their thinking processes;
- Learners do not know that most people talk to themselves, particularly when wanting to increase focus if under stress or time pressure, but rather see talking to oneself as “crazy”;
- There is a lack of positive relationship or trust between the mentor and the apprentice; or
- There is a lack of patience and/or skill on the part of the mentor/coach.

TIPS FOR APPRENTICESHIP

Participant communicates	You respond
“I have difficulty expressing what I really think.”	“This will improve as you listen to what others say and as you practice talking through your thinking.”
“I feel strange talking to myself; others may be listening—only crazy people talk to themselves.”	“I can understand why you’re feeling this way. However, almost everyone talks to himself or herself at some time or another, especially when they are under stress or tight timelines. You should hear me when I have a lesson to plan and it’s the night before! The next step is learning to use your own language to guide your thinking, but very quietly—let’s try it!”
“Addressing this issue is overwhelming; what can one person do?”	“You’re right, it is overwhelming. What we have to do is to focus on what we can do, not on what we can’t. The ‘ripple effect’ is important here; your teaching one person may affect dozens of others, and they in turn others!”

The apprenticeship of difficulty is one which the greatest of men have had to serve.

—*Samuel Smiles*

Tactics for Case-study Learning

Teachers deploy case-study learning when interpretation is valued about the lived experiences of people in context. Case-study learning is a process where learners read or otherwise gain knowledge about a selected case, a particular behaviour or action, and then describe and analyze the events in the case to see what themes make up the event or behaviour; cause-and-effect relationships are revealed. As well, case-study learning provides learners the opportunity to reflect upon personal meanings that emerge as the case is analyzed and reflected upon.

Online presentation of story and vision: A company, business, school system, school, or NGO

This approach is particularly applicable when using interactive online instructional platforms such as *Big Blue Button* (<http://bigbluebutton.org/>) or Blackboard Collaborate (<http://blackboardcollaborate.com/>).

Assign participants to present the story of the development of their place of employment or study and its current vision. Guest expert speakers could be “beamed in” on these interactive online platforms. Follow the reading or presentation with a Socratic dialogue (see [Appendix III](#), Shared Praxis), and encourage learners to ask questions following a structure such as Bloom’s taxonomy verbs, which will lead to deeper understanding about the company, business, or NGO. During the dialogue, provide opportunities for the participants to transfer what they have learned to their own personal company, business, or NGO.

Online presentation of story and vision works best for participants to:

- Learn from experts not available to the class in person;
- Learn about differing perspectives, including those from different communities and nations; and
- Apply what is learned to their own experiences and contexts.

Online presentation of story and vision could fail if:

- Technological infrastructure (e.g., bandwidth, sound) is not able to accommodate interactive online platforms;
- The presenter is not adept at using the technology; or
- The expertise of the presenter is too far removed from the realities of the participants.

Online discussions

The use of social norms, etiquette, and awareness that messages can be stored and referred to later requires learners and instructors to be far more conscientious and thoughtful when developing and preserving relationships online than they might be in face-to-face learning environments. In other words, the very nature of online environments motivates teachers and learners to practice the communication competencies that in fact develop good relationships. Twitter, blogs, instant messengers, and text messaging could be used for participant discussions. These tools all have the elements necessary to build good relationships and community—active listening, responding, and feedback. For example, a written or video case study could be posted by the instructor about a particular issue (e.g., a successful person with autism operating in the same discipline as the participants), and the above tools could be employed by the class to facilitate discussion.

Role assumption

This tactic could be applied as a culminating activity, based upon issues identified by the learners through their analysis of a case study. Role assumption requires the learners to engage in instructor-designed, uncomfortable situations. The experiences can be in the classroom (e.g., do a creative dance, create a song and sing it); even better, though, are real-life situations. For example, if the case study involved the factors leading to homelessness, the experiences could be a) preparing meals for the homeless down at the homeless shelter; b) working an evening at an overnight program that provides for homeless people to get off the streets and have a night's sleep; and c) an overnight hike in an outward-bound type of setting.

Role assumption provides learners with an opportunity to walk a mile in the shoes of another person (i.e., the singer, dancer, homeless person, hiker) and to increase their understanding of others' lived experiences. In addition, this tactic provides learners with a new perspective on what they can and cannot do, as well as their limits and possibilities for learning, their likes and dislikes, their hidden talents, and their behaviours and responses in new situations.

The teacher's role is to pour meaning into the experience through questions that ask learners to identify their actions (Can they see clearly how they responded?), reasons for their actions (values, ideologies, tacit bias, etc.), and how their behaviour may or may not have affected others (see [Appendix III](#) for Socratic dialogue). What did they pay attention to in the experience? What did they understand about the experience that they had not understood before? What value did they find themselves placing on the experience—good–bad, scary–not scary, frustrating–not frustrating—and how will they act in the future, if in a similar situation?

Role assumption works effectively to nurture learners to:

- Identify talents and gifts they were previously unaware of;
- Empathize with those in situations and contexts different from their own; and
- Extend their normal range of behaviours and responses into new territory and therefore new awareness of gifts and talents.

Role assumption could fail if:

- The new situation produces undue anxiety;
- Learners do not see the value in the experience; or
- Learners adhere to a cultural perspective that devalues those who are disabled.

TIPS FOR CASE-STUDY LEARNING

Participant communicates	You respond
"This case study is far removed from my experience."	"It was designed that way. You learn a great deal when you analyze others' situations that are very different from your own; you hopefully gain differing insights and perspectives that otherwise would not be possible."
"I am feeling very vulnerable and insecure about the personal nature of these activities."	"You are not required to do anything or write or say anything that would make you feel vulnerable. Whatever you do write will not be read by anyone else, including me."
"This is discouraging; I think that I might be a psychological mess."	"You have your human-being membership card out. You are no more a mess than me or anyone else in this class. Welcome to the human race."
"What can I do with the insights I am gaining about myself?"	"Journaling is useful. Conversations with trusted friends (not critical friends) can be useful as well."

Education is not preparation for life; education is life itself.

–John Dewey

Tactics for Inquiry

Inquiry is usually an approach to solving real problems, discussing real issues, and addressing real questions. Inquiry is more than an instructional methodology; it is a disposition to learning that should be modelled by instructors and encouraged in learners. Instructors need to be highly skilled in designing lesson or unit plans that utilize teaching strategies that foster a disposition of student inquiry.

Inquiry as a methodology is the systematic investigation of a problem, issue, or question. The distinguishing feature of an inquiry-based learning experience is that the lesson develops from student responses, and therefore the problem, issue, or question being investigated may open up into new questions, issues, and problems. If an inquiry is allowed to be open-ended, the teacher should accept that, at least for the time being, for the student there is no right answer, and no conclusion is required to end the inquiry (Davis, 1993). Inquiry can continue.

Online discussion

The online environment is suited to the investigation into or inquiry about a topic of interest since there are multiple opportunities for learners to hear and respond to other learners and experts interested in and inquiring about the same topic. In an online environment, conversations can take place in a wide variety of synchronous and asynchronous ways (e.g., cafés, forums, back-channels, live video calls, etc.).

Online discussion works best for participants to:

- Learn from experts not available to the class in person;
- Learn about differing perspectives, including those from different communities and nations; and
- Apply what is learned to their experiences and contexts.

Online discussions could fail if:

- Technological infrastructure (e.g., bandwidth, sound) is not able to accommodate interactive online platforms;

- The presenter is not adept at using the technology; or
- The expertise of the presenter is too far removed from the realities of the participants.

Metacognitive reflection

Metacognitive reflection (metacognition) is a process that guides learners to think about their own thinking. It facilitates the understanding of individuals' own thinking processes as they develop and/or implement specific strategies of inquiry.

To facilitate metacognitive reflection:

- Model your own thinking process aloud or through written work as you engage in inquiry;
- Model effective questioning strategies and acknowledge skillful thinking;
- Encourage learners to listen actively, respond to each other, and encourage each other to express ideas;
- Encourage conscious planning, monitoring, and evaluation of thinking processes on a daily basis; and
- Encourage the use of a thinking log to record reactions to and reflections about learning that has occurred.

Metacognitive reflection works best for participants to:

- Examine their own thinking processes, leading to a greater control over thinking and behaviour;
- Identify their strengths and areas for growth;
- Make connections to prior knowledge and past experience;
- Transfer their skills and knowledge across different situations and settings;
- Recognize that their colleagues have different ways of thinking and problem-solving than they do;
- Set goals and plan actions (e.g., “Did I use a successful strategy the last time I encountered this problem? What should I do now?”);
- Monitor progress and adjust performance (e.g., “What are some other solutions to this problem?”); and
- Evaluate the outcomes (e.g., “What have I learned from this experience?”).

Metacognitive reflection could fail if learners:

- Have difficulty thinking introspectively; or
- Have not developed the vocabulary to describe their thinking processes (Marfo, Mulcahy, Peat, Andrews, & Cho, 1991; Ontario Ministry of Education, 2002)

Design a poster

As more information is gathered about the topic of inquiry, learners can consolidate and, at a given point, display the learning that took place as a result of the inquiry project. Text, photos, videos, sound files, and other digital artifacts can be displayed using Glogster (www.glogster.com/) (Gullen, & Zimmerman, 2013).

Global feedback

Never before in history have learners been able to seek fast and current global feedback from issues that they are learning about. Posters, videos, and digital displays can all be posted publically (e.g., blogs, YouTube, Twitter, LinkedIn, Facebook), and learners can receive feedback. (See [Section IV](#) for information concerning specific web applications.)

TIPS FOR INQUIRY

Participant communicates	You respond
"I posted my video online but am now receiving comments that are not helpful."	"You may want to be more selective in how you post your videos. Why not solicit advice and opinions from those you know who are knowledgeable in this area? Investigate the privacy settings for a few moments, and then let's continue the discussion."
"There is SO MUCH information about _____! How can I know what is reliable, useful information?"	"Well, you have identified a real issue with the web. One way to screen information is to investigate the source. Here's one resource that explains how you can investigate whether or not a source is credible (there are many others): http://uknowit.uwgb.edu/page.php?id=30276 . This in itself is an inquiry project!"
"How can I organize all this information so that it makes sense?"	"I know you think well visually—have you considered using a graphic organizer? Here's a site that shows you how to do this: http://mind42.com/ ; there are many others. I'll come back to you in a few minutes to see if using these tools is helpful to you."

We learn more by looking for the answer to a question and not finding it than we do from learning the answer itself.

—Lloyd Alexander

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Questions to Guide Design of Technology-enhanced Learning Environments

Suggestions for Reading This Section

Technology is changing the way we teach. It is connecting us to information and to each other. The options available to us are boundless and somewhat overwhelming. [Section IV](#) is written as a series of answers to commonly asked questions. This section provides practical, concrete ideas for teachers to use in their lesson planning. The answers to the questions in this section have been tried and found true. The answers offer suggestions for teachers on how to be successful implementers of lessons when drawing from a model in question (e.g., transmission). We suggest that you create a blog in which you document the development of your resource of teaching tips for each model.

Marriage can wait; education cannot.

–Khaled Hosseini

How can you use technology to teach a physical or psychomotor skill?

(Applies to Model I: Transmission/Direct Instruction; and Model VI: Training)

People often wonder how technology can be used to enhance the practice of a physical or psychomotor skill, such as operating a machine or learning a sport-specific skill. Obviously, nothing can replace the actual act of demonstration by the expert/teacher and practice by the student, but technology can support the delivery of the “how-to,” the feedback or coaching, and the distribution of training and lessons across geographical distances.

Most phones and tablets come with decent-quality video features that can easily be integrated with a variety of apps for editing and producing, such as iMovie (for iOS systems) or MovieMaker (for PC). By uploading recordings to a learning-management system—such as Moodle, D2L, or Blackboard—or making them available through TeacherTube or another social-media format, students can view both expert performance and their own recorded performance. Sharing these videos with colleagues allows for feedback and reflection.

Technology	What is it?	Link
Teacher Tube	Video-sharing website designed to allow those in the educational industry, particularly teachers, to share educational resources, such as video, audio, documents, photos, groups, and blogs.	http://www.teachertube.com/
iMovie	Easy-to-use movie-producing application for iOS (Mac) systems.	http://www.apple.com/mac/imovie/
MovieMaker	Easy-to-use movie-producing application for Windows (PC) systems.	http://windows.microsoft.com/en-us/windows-live/movie-maker#t1=overview

How can you use technology to extend the reach of a critical question?

(Applies to Model III: Guided Discovery; Model V: Insight-generating; Model VII: Shared Praxis; and Model X: Inquiry)

Good teachers know the power of a question to foster reflection, uncover assumptions, and cause things to be viewed from new perspectives. A good critical question can drive straight into the heart of an issue. Technology can support questioning in several ways. Deep reflection requires time, collaboration, and perhaps some research. A well-designed learning environment will make use of the technology available to support these requirements. An online forum is a very effective way of providing both time and collaboration for students. For example, have students work in online tutorial groups, where one student takes on the role of leader each week and poses a critical question about some shared experience. Students can use

research tools to bring additional information and perspectives to the conversation and springboard further discussion, inquiry, and insight-generating. Reflective journaling can be easily collated in an e-portfolio or learning-management system. In addition, collaboration can be supported with myriad cloud-based software. Here are two templates for supporting critical questions:

The 4R Model of Reflective Thinking (Ryan, 2011)

1. **REPORT** what happened or what the issue or incident involved. Why is it relevant? Respond to the incident or issue by making observations, expressing your opinion, or asking questions.
2. **RELATE** or make a connection between the incident or issue and your own skills, or professional or discipline knowledge.
3. **REASON.** What are the significant factors underlying the issues? Explain or show why they are important to an understanding of the incident or issue. Refer to relevant theory and present relevant literature to support your reasoning. Consider different perspectives. What are the ethical considerations involved?
4. **RECONSTRUCT** or reframe future practice or professional understanding. How will you deal with it next time? Are your ideas supported by theory?

Role of the Discussion Leader

As discussion leader/facilitator, you will be responsible for leading your small group in reflection and collaboration regarding a set topic. The role of the discussion leader is to do the following (Maor, 2008):

1. Present critical questions based on the reading(s).
2. Supplement the reading with links to other resources.
3. Focus the discussion and move it forward.
4. Scaffold the discussion, if appropriate.
5. Give feedback and encouragement.
6. Sum up and debrief.

Critical questions are those that ask learners to:

- Identify underlying assumptions and values;
- Check the validity of authorship;
- Link to personal experience;
- Predict the implications of reasoning; and
- Empathize with multiple perspectives.

How can you use social media to reach your students or participants?

(Applies to all models in this book)

Social media come in many forms, but they all share a few things in common: connection, sharing, interaction, and networks. Twenty-first-century

learners are accustomed to using social media on their mobile devices and computers, so it is important for course designers to leverage this technology to reach and engage students to improve learning. In education, social media are used by teachers and students to collaborate on projects, generate all forms of content, ask questions, share ideas, provide reminders, request immediate information, comment and give feedback, and play games. Almost all education platforms have social-media options included. Even learning-management systems, such as Moodle, can be considered social-media platforms, as they offer news forums, live chats, and user-generated content.

A simple way to get started with social media is to create a Twitter handle for your course and have your students subscribe to follow it. This way, you can push ideas, links, or short comments to them regularly.

Another option is to have a class Facebook account. If you don't want to use Facebook, there are other options, like Schoology and Ning. Compared to Twitter, these allow you more space to write, post photo albums, send notifications, and set up events.

Finally, just a simple Remind101 account is helpful for sending reminders to students about assignment deadlines, special dates, or things they may need to bring to class. Remind101 is a simple text-message service that allows teachers to send messages straight to students' mobile devices.

You will find that most students today are prolific and comfortable users of social media; however, they are sometimes reluctant to use their social platforms for education. Do not assume that students will instantly engage with a classroom Facebook page, for example. When setting up a social-media platform for your class, is it important to give the rationale (i.e., do not use technology for technology's sake) and to establish boundaries for use. Often the administrator of the program has the option to approve comments and uploads before they are posted, which should be considered. Also, if you do not regularly use the social media platform, students are likely to stop checking it.

Technology	What is it?	Link
Twitter	Online social-networking and microblogging service that enables users to send and read "tweets," which are text messages limited to 140 characters.	https://twitter.com/
Facebook	Online social-networking and microblogging service that allows you to share news, photos, links, and connections with others who have been granted "friend" status.	https://www.facebook.com/
Schoology	A learning-management system and social network focused on collaboration that allows users to create, manage, and share academic content.	http://www.schoology.com/home.php

Remind101	A safe and free way for teachers to text-message students.	https://www.remind101.com/
Moodle	A free, open-source e-learning platform often used as a learning-management system.	https://moodle.org/
Ning	An integrated social platform that you can launch for your class or organization.	www.ning.com
Tumblr	Microblogging and social-media site owned by Yahoo!	https://www.tumblr.com/
LinkedIn	Professional networking space that includes discussion forums on specified topics.	https://www.linkedin.com

How can you use e-portfolios to create community?

(Applies to Model IV: Projects; Model V: Insight-generating; Model VII: Shared Praxis; Model VIII: Apprenticeship; and Model IX: Case Study)

An e-portfolio is a digital collection of student work gathered over time. It can have a multitude of purposes, including reflecting, showcasing, archiving, giving evidence of competencies met, and demonstrating the learning journey. In all cases, e-portfolios are comprehensive, personal, dynamic, and focused on a purpose. The act of creating e-portfolios develops communication skills, as students select artifacts and reflections made with a variety of media in order to say something to their audience. E-portfolios are also used in job applications and formal course assessments.

An e-portfolio is more than a personal filing system. It allows students to demonstrate the experience of learning and showcase their creative work. E-portfolios can be shared with others, allowing for viewing and comments. When building an e-portfolio, students must go through a process of selection and reflection, which can often be discussed with classmates. E-portfolios are not restricted to individual creation. They can also be used to create community in your online or blended course. Here are two options:

1. You can opt to share e-portfolios with others, either by providing a link or by connecting the e-portfolio to an established social-media platform. You can invite others to give feedback, learn from one another's work, and celebrate one another's success and progress in a course. Polished e-portfolios are also excellent for career networking on social-networking websites, such as LinkedIn.
2. E-portfolios can also be created by more than one person. For example, a group might use an e-portfolio to showcase their final product. Alternatively, a class might create an e-portfolio together as study tool. Each student could take a course objective and create a summarization of the major concepts in the form of an artifact, and the class leader could aggregate them under one e-portfolio or website.

Students need direction when given an e-portfolio task. Use the following questions to guide your design of an e-portfolio assignment:

1. What is the purpose?
2. Who is the audience?
3. What key questions do you want the students to address?
4. What competencies do the students need to demonstrate, and what constitutes evidence of those competencies?
5. What elements and artifacts should be included?
6. What media can be used?
7. What is the structure of the portfolio? Is there a template you can provide as a sample?
8. How will you direct the reflections?
9. How will you assess the portfolio?
10. Do students need to include evidence of progress (drafts, failed attempts, etc.), as well as final products?
11. Is this an individual or group task? Will the students collaborate?

There is a variety of free e-portfolio-specific software on the Internet. Alternatively, check with your institution or organization to see if it already holds an account or license with a commercial company. An e-portfolio can also be created with Google Docs, Google Sites, or a simple website.

Technology	What is it?	Link
Wix	Easy-to-use website-making tool.	www.wix.com
Weebly	Easy-to-use website-making tool.	www.weebly.com
Google Drive	File storage system provided by Google that allows users to create files and websites in the cloud.	https://drive.google.com
Foliofor.me	Free e-portfolio-creating tool based on the Mahara system.	http://foliofor.me/

How can you use cloud computing to connect people and allow for collaboration beyond classroom walls?

(Applies to Model IV: Projects; Model VII: Shared Praxis; Model IX: Case Study; and Model X: Inquiry)

“Cloud computing” is the term used to describe the storing of files and applications on the Internet rather than on a device or network drive. Documents, projects, and discussions can be accessed anywhere, any-time, and often on any device. Cloud software is often free and easy to set up, and it provides a great way for students to work on the same

project together, often simultaneously, even if they are not in the same geographical location.

Cloud computing is all about collaboration and sharing and is, therefore, ideal for building community in your online or blended course. Students can work together despite being geographically isolated. Students can connect with others on the other side of the world. Cloud computing allows students to review, edit, and comment on peer work, and it facilitates easier teacher/instructor feedback. It also allows for efficient group planning.

When setting up a shared document or file for collaboration, you may need to do some work up front to register your students and assign user names and passwords. When students work together on the same document, often simultaneously, group protocol regarding iterations will need to be established, especially when it comes to deleting work. Most applications have the option to track and approve changes and add comments, rather than just delete previous work.

Cloud software comes in many varieties, from a simple shared Word document to recorded-voice discussions. Check out the following:

Technology	What is it?	Link
PBworks	Professional, online, team-collaboration tool that allows participants to type, post, and record audio.	www.pbworks.com
VoiceThread	Software that allows users to communicate through voice messages left in the cloud.	http://voicethread.com/
Google Drive	File storage system provided by Google that allows users to create files and websites in the cloud.	https://drive.google.com
Wikispaces	An online classroom workspace that is kept in the cloud. Teachers can monitor student contributions and collaborations.	http://www.wikispaces.com/
Popplet	A site that allows users to collaborate on ideas, inspirations, and mind maps.	http://popplet.com/

How can you use online polls to engage students in your content?

(Applies to Model I: Transmission/Direct Instruction; Model II: Nurturing; and Model III: Guided Discovery)

In a traditional classroom, teachers often ask students to raise their hands to indicate preference or opinion on something. This can be difficult for shy students, or students who feel intimidated by providing a potentially “wrong” answer. This method is obviously impossible when students are dispersed, either because they are taking an online course or because they are working on a problem at home.

There are several options for digitizing this process. Schools and institutions that invest in interactive whiteboards often spend the extra money to buy student-response devices (clickers) as add-on features. The whiteboard comes with software that allows users to enter questions that can be answered on the handheld clickers, and the results are collected by the program. Students often love the novelty and perceived anonymity of this system.

There are also some free online applications that collect students' responses from their cell phones or other mobile devices, such as Poll Everywhere. As well, you can set up a survey in the cloud with a free platform, such as SurveyMonkey or FluidSurveys, and then distribute the access URL through an e-mail or learning-management system. Finally, many synchronous-lecture broadcast applications include student polls that can be used to collect student responses during a webinar or live online lecture.

When lecturing online, it is important to engage your students through some interactivity about every 10 minutes. Conducting a simple online poll can provide this break, simultaneously providing a way to connect content to student opinions and ideas.

Collecting student responses is an excellent way to build community in your classroom. For a geographically distributed class, polls can give the sense of collective opinion. Through polls, you can also identify students who agree or disagree with you on a particular topic and use that to further discussion and questioning.

Collection of student responses can also be used as a formative assessment tool to see where misconceptions exist. You can conduct a poll in the middle of a lecture, at the end of a reading, or as a homework assignment. Some teachers use an anonymous poll to conduct peer assessments of projects and presentations.

Technology can make life easier and improve learning, yet often the simplest way to collect responses from your students is to ask them to raise their hands or collect responses on a paper ballot. A lot of time can be wasted using digital systems needlessly. However, using clickers is a very engaging and fun way to invite student participation in a discussion or to gauge the depth of collective understanding of a concept from your class as a whole. When using clickers, questions need to be entered into the software in advance of the lesson. A well-designed online survey can also provide anonymity for students to safely express their opinions on topics. Designers of surveys should consider principles of good questions and the collection and interpretation of data.

The tool you choose to collect student responses electronically will depend largely on your access to certain devices. See below for a list of possible applications and the technology required. Also, many learning-management systems have built-in polling applications.

Technology	What is it?	Link
Poll Everywhere	Post a question to your class and have students text their answers to a number that you give them.	http://www.poll everywhere.com/
SurveyMonkey	Web-based survey tool that has both free and subscription accounts.	www.surveymonkey.com
FluidSurveys	Web-based survey tool that has both free and subscription accounts.	http://fluidsurveys.com/
Socrative	Application for iPad, iPhone, or iPod that gives users the chance to vote on a question or topic.	http://www.socrative.com/

How can you connect students to projects from around the world?

(Applies to Model IV: Projects; Model VII: Shared Praxis; Model IX: Case Study; and Model X: Inquiry)

It is easy to extend the reach of your course beyond the classroom and into an international context by connecting students to ideas, people, and projects around the world. Platforms exist to bring people together from different countries and cultures to collaborate on topics and issues. Skype in the Classroom has an easy-to-use platform that allows you to search for an existing project by refining your parameters for age (including adults), topic, type of project, and language. Alternatively, you can post a project that you would like to invite others to join. All that is needed to join a project is the Internet, a Skype account, and access to a webcam.

Alternatively, there are endless options to use video conferencing or live feeds to connect your students to an expert or project in a remote location. You will have to set up the connections yourself, but there are plenty of technology tools that make it easy. Skype is accepted around the world as a tool used to connect live video and audio. You can also set up a Google+ Hangout and invite your peers or colleagues to freely join a conversation and discuss a topic or share resources and ideas. When you pair these technologies with a cloud-based text tool, you can easily record and share content and produce artifacts collaboratively.

Technology	What is it?	Link
Skype in the Classroom	Touted as the world's largest classroom. Teachers can start projects or join existing ones that connect users from all over the world with video chat.	https://education.skype.com/
Google+ Hangouts	A social-networking service provided by Google that allows users to invite others to a video chat or conference and share links and files.	http://www.google.com/+learnmore/hangouts/

How can you build self-efficacy with technology?

(Applies to Model II: Nurturing; Model III: Guided Discovery; and Model VIII: Apprenticeship)

It is important to make sure that students and training participants feel competent with the technology that you ask them to use. Many adult students do not have high self-efficacy when it comes to using new technologies. It is often overwhelming for them to keep up with the latest gadgets and software, and sometimes the online learning environment can be a source of great stress. Course designers have a responsibility to provide support for students so they may gain confidence and the skills to use technology.

Course designers should consider the following tips to build self-efficacy in their students:

- Make instructions clear;
- Use screen-capture software to make instructional shorts;
- Build confidence early in the online course; and
- Be available for assistance.

Here are some options for screen-capture software, which will help you develop training videos for your students.

Technology	What is it?	Link
CamStudio	Free software that records on-screen video tutorials for training and presentations.	http://camstudio.org/
Snagit	Software for purchase that allows you to “snag” what is on your screen, enhance it with effects, and share it with others.	http://www.techsmith.com/snagit.html
Educreations	A recordable interactive whiteboard application for iPad that allows users to create mini-lessons and tutorials and upload links to a learning-management system.	www.educreations.com

How can you easily “flip” the classroom?

(Applies to: Model I: Transmission/Direct Instruction; Model V: Insight-generating; Model VI: Training; and Model VIII: Apprenticeship)

“Flipping” the classroom is a form of blended learning consisting of two parts. First, the teacher assigns direct-instruction activities to be completed outside class time, such as watching a movie or listening to recorded lectures. Then, class time is used to come together and engage in discussion, practice problems, or work on a project collaboratively and face to face. Social constructivists believe that this form of teaching makes the best use of time together. It also changes the role of the instructor to more of a coach or mentor and facilitator of learning. Access to technology and more pre-recorded content online has made flipping the classroom easy.

Start with a learning-management system that can hold links to your assigned readings and videos or podcasts. Then, determine what information in your course can be strictly delivered to students effectively without face-to-face engagement. For example, students do not need to sit together to watch a film, because normally one watches a film in a silent, individual manner. A brief introduction to a concept might be captured on video and given to the students as an advanced organizer. A short clip from YouTube or Vimeo might get students thinking before they come into class. Alternatively, the core content can be delivered this way in advance, and then the entire class time can be devoted to discussion, problem-solving, practice, or extending the content.

Preface the content with a leading question or instructions for students to engage with it in a certain manner. You may ask students to stop the viewing or reading at certain sections and have specific questions or tasks for them to attend to at those points. Make sure you include an accountability piece for the assigned task to ensure students watch or read the material, such as using the class time to speak directly to that particular content. Students need to trust that what they are required to do will be relevant for the ensuing class.

How can you use technology to help students construct meaning during direct instruction?

(Applies to Model I: Transmission/Direct Instruction; and Model VI: Training)

There are numerous ways to deliver a lecture that do not involve gathering students together in a physical classroom. Technology allows us to broadcast and record lectures, capture what is happening on a screen, develop self-paced lessons that students can do in their own time, and, most important, engage students in the content that you are delivering in real time. Software is also available for two-way communication between students and teachers. Lectures and lessons can be easily embedded into learning-management systems, or put on the Internet and sent as a link. Such options give students access to video- and audio-recorded lessons outside the class for extra review/reflection, at their own pace. Teachers can also make short screen captures that show how to reach the solution of a math problem, or record a mini-lesson that can be left for a substitute teacher, or deliver a lesson from far away.

Many of the broadcast platforms allow for live chat or polling during the lecture. This means that students are able to ask questions, make comments, or discuss what is being said in real time, during the lecture. This is sometimes called back-channelling, and if there is a moderator available he or she can feed misunderstandings and questions to the lecturer. Even if your webinar tool does not have this option, you can use free web-based software, such as TodayMeet or Tinychat. Being able to record

and create lessons has made available the option to “flip” your classroom: students watch the lesson at home and then come to school to work collaboratively with each other and their teacher to practice the problems.

Webinars and podcasts are less forgiving to the unprepared teacher than they are to the classroom. Moments of distraction, bumbled speech, and loss of flow or momentum are exaggerated when recorded for a screen. Here are some strategies to create an effective webinar:

- Identify your goals for the lecture and make them explicit to the students;
- Provide an outline or roadmap for the students to follow as you talk;
- Use an advanced organizer to provide context and connect to prior knowledge;
- Identify your expectations for what students should do/think about during the webinar;
- Organize your lecture into meaningful chunks;
- Stand while delivering your webinar;
- Make your slides visually professional;
- Break up the lecture with polling, questions to consider, and/or moments to reflect;
- If your webinar is live, have a moderator stream key questions or themes arising from the text chat to you;
- Use the options in your synchronous classroom tool, such as attendee list, status indicators/emoticons, chat, share area, annotation tools, breakout rooms, and file sharing;
- Be available 15–20 minutes before the webinar to text chat with students; and
- Before the webinar, rehearse, rehearse, rehearse.

A good way to wrap up a session of direct instruction is by asking students to complete this statement: “If I could only remember one thing from this session, it would be _____.” Or have students summarize the message of your lecture in one sentence. You can collate these statements in a cloud-based tool, or with a creative-publishing tool.

Technology	What is it?	Link
Tinychat	A back-channelling tool that allows users to set up a “room” and then distribute the link, allowing others to join and ask questions.	http://tinychat.com/
TodayMeet	A back-channelling tool that allows users to set up a “room” and then distribute the link, allowing others to join and ask questions.	https://todaysmeet.com/
Adobe Connect	A professional web-conferencing platform.	www.adobe.com/ca/products/adobeconnect.html

AnyMeeting	A free web-conferencing platform.	www.anymeeting.com
Blackboard Collaborate	Professional lecture-casting and webinar software.	www.blackboard.com/platforms/collaborate/overview.aspx
Polycom Video and Voice Conferencing	Hardware and software for professional video-conferencing.	http://www.polycom.com/content/dam/polycom/www/includes/site-selector.html?urc=CA
Adobe Captivate	An e-learning authoring tool with quiz and branching-scenario options.	www.adobe.com/ca/products/captivate.html
Articulate	An easy-to-use e-learning authoring tool.	www.articulate.com
SMART Bridgit	Software that allows users to connect remote SMART Boards together so that when you use one, the text and desktop appear on the others.	http://www.smarttech.com/bridgit

How can you leverage technology to create lessons where students generate insight together?

(Applies to Model V: Insight-generating; Model VII: Shared Praxis; and Model IX: Case Study)

Insight begins to unfold in learners over time, under the right conditions, as they are guided to pay attention to the data of their lives, to see events, circumstances, and people differently, from new perspectives and with new eyes. The right conditions include opportunities given to the learner to pour meaning into the data of their lives and to construct new meaning about both big and small events. Insight-generating takes time; it is not a technique-driven result. Insight-generating takes conversation and cognitive dissonance, and technology can support these two things. Time can be given to learners to read new posts from their peers, view media that provides different perspectives on some event, receive feedback from the teacher, and reflect in journals or online in chat rooms. Technology-supported learning provides learners with enough psychological safety to read a post or view a video that could produce the cognitive dissonance required for insight-generating. Technology-supported learning environments provide opportunities for learners to establish equilibration by quietly challenging a post, asking a colleague for his or her perspective on things, and seeking clarification, all in the perceived safety of online conversations. In a recent course for graduate-level seminary students, for example, we posed a question that caused the students to look differently at the meaning in written documents, including scriptures. We created significant cognitive dissonance by claiming that there is no inherent meaning in a written statement other than the one meaning intended by the sender of the message. Therefore, meaning is socially constructed, and one can never be sure of the “truth” or

intended message. For eight weeks the students posted comments to our claim, sometimes challenging it and sometimes confirming it. Insight was being generated on how meaning is made, where meaning resides, and how people come to know what they know. The insight being generated would not have had the same opportunity in a face-to-face class.

Most learning-management systems offer an online forum, and the course designer should leverage this option to give students the time and space to reflect on personal events and meaning. Make sure you provide clear guidelines and expectations for postings. You may require students to post an initial thought followed by a considered response a week later. I require students to show explicit intellectual engagement with the postings of their peers.

How can you provide multiple ways for students to express and show what they have learned?

(Applies to Model IV: Projects; and Model X: Inquiry)

At the end of a major project, teachers often require their students to create a finished product that is presented professionally and creatively. Prior to the Internet, the tools for creating such products were limited to word processing, hand-drawn posters, and oral presentations. Now, the options are nearly endless. Students are able to create digital posters, movies, music, games, comic strips, books, infographics, professional-looking documents, word art, slide presentations, and blogs, just to name a few. Most of these can be stored in the cloud, making them available for collaboration and easy to share with teachers and peers.

Publishing with digital technology promotes the development of a learning community in the following two ways: project collaboration (including peer feedback) and sharing of finished products. Most publishing software is set up for students to work together on the same project by storing the work in the cloud and allowing multiple-user access. Even for individual projects, students can often invite peer feedback and comments to be posted on their work, so that iterations can be improved. When presenting finished work to an audience, students can make use of links, which can be embedded into e-portfolios or e-mails, or posted in a learning-management system, which allows for work to be shared across distances.

Tips for using publishing software in your class:

- Be clear about your objectives and what needs to be demonstrated;
- Outline the standards and expectations for the presentation, preferably in the form of a rubric;
- Help students focus on the objective rather than waste time flipping through images, music, and templates; and
- Identify the audience.

Technology	What is it?	Link
GoAnimate	Free software for making animated videos.	http://goanimate.com
Audacity	Free, open-source digital audio and recording software. This software has lots of editing and playback functionality.	http://audacity.sourceforge.net/
iLife	A powerful and easy-to-use software application that includes iPhoto, iMovie, and GarageBand for Mac platforms.	http://www.apple.com/creativity-apps/mac/
iBooks Author	An e-book authoring tool that incorporates rich visuals and interactive pieces.	http://www.apple.com/ca/ibooks-author/
Glogster	A free tool for creating digital interactive posters.	http://www.glogster.com/
Tagxedo	A free tool for creating visual word clouds out of text that you upload.	http://www.tagxedo.com/
Piktochart	A free infographic-creating tool that includes basic templates that you can use for your own content.	http://piktochart.com/
Tiki-Toki	Free web-based software that lets users create interactive timelines that can be shared.	www.tiki-toki.com
WordPress	A popular and free blogging tool and website creator.	http://wordpress.com/
Toonlet and Toondoo	Free cartoon-strip creators.	http://toonlet.com/ www.toondoo.com
Audioboo	Digital audio and recording software.	http://audioboo.fm/
Capzles	Free social and digital storytelling software.	http://www.capzles.com/

What tools can help develop critical thinking in a learner?

(Applies to Model V: Insight-generating; Model VII: Shared Praxis; and Model X: Inquiry)

Critical thinking is about asking good questions and knowing how to apply research and reasoning to the search for an answer. It requires students to look at an issue from multiple perspectives and to design criteria to make judgments and reach conclusions. Technology can provide students more time and space to collect data, to analyze, and to reflect. With the help of technology, your research can reach far by easily connecting to other opinions and ideas.

A learning-management system can be used to pose a critical question and direct the students to research data and information they can use to address the question. You can also post a reading and have students address the following questions:

1. Why am I reading this?
2. What are the authors trying to do in writing this?
3. What are the authors saying that is relevant to what I want to find out?

4. How convincing is the authors' argument?
5. In conclusion, how can I use this information? (Wallace & Wray, 2011)

As well, you can build a debate in a discussion forum and provide direct feedback to students about their arguments.

It is important to teach students to judge the validity of sources they find on the Internet, which builds important critical-thinking skills.

Moodle offers a branching-scenarios activity that can be used to work through case studies with a critical mind.

How can you reinforce long-term memory with technology?

(Applies to Model I: Transmission/Direct Instruction; Model II: Nurturing; Model VI: Training; and Model VIII: Apprenticeship)

During a face-to-face lecture, students who require time to reflect, or multiple modalities to engage with the content, often struggle to remember what they have been taught. Sprenger (2005) provides a helpful guide for supporting long-term memory:

Reach	If you can't reach them, you can't teach them. Provide emotional hooks and attention grabbers. Establish relationships, focus attention, provide relevance, etc.
Reflect	Think and talk about experiences. Take time. Visualize.
Recode	Self-generated material is better recalled. Summarize, compare, explain, interpret, classify, etc.
Reinforce	Feedback is vital to learning.
Rehearse	Rehearse in multiple ways. Make memories permanent and behaviours automatic. Assign homework.
Review	Manage memories (retrieve, rework, restore).
Retrieve	Retrieve information similarly to the way the material was first learned.

Technology makes it easy for teachers to provide options for students to reinforce their long-term memory with recordable whiteboards, ease of self-generated content, quiz-makers, mind-mapping tools, software for creative summarization, and opportunities for instant feedback. Remember that most learning-management systems also include quiz- and assignment-makers.

Technology	What is it?	Link
Educreations	A recordable interactive whiteboard that captures voice and handwriting on the iPad.	www.educreations.com
Quizlet	A free quiz-making tool that includes options for multiple-choice questions and flash cards.	http://quizlet.com/
ProProfs Quiz Maker	A quiz- and test-making tool that is developed for post-secondary and business training.	http://www.proprofs.com/quiz-school/

Don't want to reinvent the wheel? What can you use that is already out there?

(Applies to Model I: Transmission/Direct Instruction; Model V: Insight-generating; Model VI: Training; and Model VIII: Apprenticeship)

Many courses and lessons are professionally produced and made available for free on the Internet. Some of these are provided by some of the top universities and institutions in the world. Using pre-produced courses and presentations allows you to “flip” the classroom with high-quality media.

Open-source presentations can be used in several ways that will enhance your classroom and improve the learning environment for students. For example, you can post lessons for students to watch in advance of a classroom tutorial. In other words, the students listen to the lecture at home and then come to class to apply their knowledge and ask questions of their peers and teachers. You can also post lessons for students to watch in addition to the lesson you give in class, which may reinforce the concept, present it in another voice, or provide a way for students to review the concept. And, finally, you can use the lessons that are freely available to provide a hook for your own lesson, extend bright students, add interesting information, or research a topic.

The best places to start when looking for professionally produced presentations are listed below:

Technology	What is it?	Link
Lynda.com	A paid subscription for courses on photography and design software.	www.lynda.com
SlideShare	An online slide-hosting service.	www.slideshare.net
TED	Short talks on technology, entertainment, and design.	www.ted.com
TedEd	An ever-expanding video library of lessons on a variety of subjects.	http://ed.ted.com/
Khan Academy	Short, simple explanations related to almost all high-school subjects.	http://www.khanacademy.org/
Coursera	Full courses that you enroll in and for which you receive recognition of completion from top universities.	https://www.coursera.org/
Udacity	Full courses that you enroll in and for which you receive recognition of completion from top universities.	https://www.udacity.com/
EdX	Full courses that you enroll in and for which you receive recognition of completion from top universities.	https://www.edx.org/
iTunesU	Full courses that you enroll in and for which you receive recognition of completion from top universities.	http://www.apple.com/education/ipad/itunes-u/
RSA Animate	Real-time visual note-taking of existing famous speeches.	http://www.thersa.org/events/rsaanimate

How can technology support project-based learning?

(Applies to Model IV: Projects; Model IX: Case Study; Model X: Inquiry)

“Project-based learning is a dynamic approach to teaching in which students explore real-world problems and challenges” (see Edutopia). Technology makes these authentic, critical-thinking projects easy to incorporate into your courses. Technology allows you to connect students to real research, real data, real workplace tools, real experts, and real contexts. It also easily provides the means for students to collaborate on a challenge, as they would outside of the classroom. Performance-based assessment and final products can be easily shared and be given feedback. For big projects, students can be exposed to project-management technologies such as Huddle, Zoho Projects, or Basecamp. There are also some very easy-to-use architectural and engineering design software solutions listed below.

Technology	What is it?	Link
Huddle	File-sharing, collaboration, project-management software.	http://www.huddle.com/
Zoho Projects	File-sharing, collaboration, project-management software.	https://www.zoho.com/projects/
Basecamp	File-sharing, collaboration, project-management software.	https://basecamp.com/
Google SketchUp	A 3D-modelling program that is available in both free and paid versions.	www.sketchup.com
Scratch	Easy-to-learn computer programming language developed by MIT Media Lab to support computational design.	http://scratch.mit.edu/
Floorplanner	Easy-to-use 3D room designer that lets users add in flooring and furniture.	www.floorplanner.com
LEGO Mindstorms	Robotics technology for kids and wannabe kids.	http://education.lego.com/en-us/about-us

How can you help your students use technology to stay organized?

(Applies to Model II: Nurturing; Model IV: Projects; and Model IX: Case Study)

While technology expands our learning environment, it also leads to information overload. Finding ways to organize your research, articles, tweets, notes, and anything else you collect on the web is made possible with some simple platforms. Collections of ideas and research can be easily shared with group members, peers, or students on the other side of the world.

Organizing information and research requires students to visualize the whole and how one might categorize and sort all the pieces. Before setting up a digital binder or organizational system, map out how it will look and consider all the possible kinds of information that you may

encounter and file away. When teaching students to organize their work, you can also highlight the importance of naming conventions and tagging so they can quickly retrieve information for themselves and share it with others.

Organization technologies also build metacognition and self-regulation strategies in students. When introducing software, teachers should also directly teach learning and thinking strategies. Most of the applications listed below allow for easy reflection, not only on the content but also on the strategies that work for each individual to improve his or her learning. In this way, students can build awareness and control over their abilities to learn and, eventually, self-efficacy.

The software you choose will largely depend on the information you are trying to organize and the degree to which you wish to share that information with others.

Software	What is it?	Link
MindMeister	Online mind-maps that can be shared with others; free and premium versions available.	www.mindmeister.com
Evernote	Online software for note-taking and archiving of photos, voice memos, documents, and webpages; free, premium, and education versions available.	http://evernote.com/schools/
LiveBinders	Three-ring binders for the web that can be shared.	www.livebinders.com
Flipboard	A collection of social media and web feeds presented as a magazine, for mobile devices.	https://flipboard.com/
Inspiration	A purchased software package for digital graphic organizers.	www.inspiration.com
Diigo	A web highlighting tool that collects and files everything you highlight.	www.diigo.com
Pinterest	An online pinboard that lets you manage and share ideas and links in folders and collections that interest you.	https://www.pinterest.com/
GoodReader	An iPad application that allows users to annotate PDFs.	https://itunes.apple.com/ca/app/goodreader-for-ipad/id363448914?mt=8
Trello	A cloud-based digital organizer for collating almost any content together on the iPad.	https://trello.com/

How can you use new media to create attention-grabbing presentations?

(Applies to Model I: Transmission/Direct Instruction)

Everyone has sat through a boring lecture or presentation that uses poorly designed PowerPoint slides to deliver content to the participants.

You don't have to have a design background to give powerful presentations that grab and maintain the attention of students. As an alternative to traditional PowerPoint, try the following easy-to-use presentation software solutions.

For more information on presentation design, check out the resources from Nancy Duarte (<http://www.duarte.com/>) and Garr Reynolds (<http://www.presentationzen.com/>).

For the super creative and artistic types, visual note-taking is gaining popularity as a way to support presentations. There are many cheap doodling applications available for the iPad. The work of Sunni Brown is helpful in supporting this unique way of presenting content or capturing discussions: <http://sunnibrown.com/>.

Software	What is it?	Link
Haiku Deck	Presentation software for the iPad that uses simple graphics and designs for a powerful message.	http://www.haikudeck.com/
Prezi	A nonlinear, cloud-based tool that lets users develop engaging storytelling presentations.	http://prezi.com/

How can you “gamify” your lessons?

(Applies to: Model I: Transmission/Direct Instruction; Model II: Nurturing; Model III: Guided Discovery; Model VI: Training; and Model VIII: Apprenticeship)

“Gamification” means including game-based elements in your course to enhance engagement, perseverance, creative problem-solving, and motivation. It is way of providing extrinsic rewards and a sense of competition to your students, and for this reason it remains controversial in learning. Regardless, research is showing that students respond well to game-based learning environments, and technology makes it easy to add this element to your course. To gamify your class, you just need to add badges, levels, points, a leaderboard, or some other reward for tasks completed. Sometimes, just a simple progress bar can be considered gamification. Competition does not necessarily need to be between individual students. In fact, you can have students collaborate together to compete against other groups or project teams, or against a challenge you put before them. The inclusion of web quests into your course is also considered gamification by some.

There are many people blogging about gamification at the moment, but perhaps the biggest advocate for a gamified education system is Jane McGonigal: <http://janemcgonigal.com/>. McGonigal argues that games provide emotional, motivational, and cognitive benefits to learners by engaging them with a task for longer than normal, with more optimism and more persistence.

Specific gamification technology is still in its infancy and mostly in the hands of game makers and software engineers. It won't be too

long, however, until the open-source community develops gamification options for Moodle and other content-management systems. Some subscription applications have built-in game elements that track and compare progress and report results. WordPress has several plug-ins that can add game elements to your class website. Two examples include: Achievements (<http://achievementsapp.com/>) and BuddyPress (<http://buddypress.org/>).

How can you use technology to increase “social presence”?

(Applies to all models in this book)

Social presence is the projection of personal characteristics into the community of inquiry in an online course, the presentation of oneself as a “real” person (Rourke, Anderson, Garrison, & Archer, 2001). Research shows that students who have a perception of being connected to one another despite geographical isolation do better in courses and feel more satisfied with their learning environment. Students who are ordinarily shy and withdrawn from regular face-to-face courses often feel more socially in touch with their peers in an online course. There are many technological options for supporting the development of social presence among learners participating in your online course.

It is important to provide opportunities for students to interact with one another informally as well as in formal learning situations. Creating a class Facebook site can help with this, and it provides students a way to share personal stories, photos, and life events. The instructor may want to distance himself or herself from this so that students have a space to be themselves.

The course discussion forums can also serve informal discussions. At the beginning of a course, you might post a question to the students, such as, “Describe what you see when you look outside your window” or “In what location do you most often engage with this course?”

Perhaps you could include map tools like Google Earth so students can indicate where they live. You could also create a space in a 3D immersive environment, such as Second Life, and have students create avatars that attend virtual meetings. This technology is still controversial, but more and more secondary institutions are exploring this option for training, simulations, and scenario-based lessons.

Software	What is it?	Link
Google Earth	Free map software that includes real satellite imagery, terrain, and 3D buildings.	http://www.google.com/earth/
Second Life	An avatar-based virtual online space.	http://secondlife.com/
Voki	A free tool for creating speaking avatars that can interact with one another.	www.voki.com

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Glossary of Terms

Apprenticeships (Model VIII) are commonly aligned with **Training** (see below) and the subsequent development of skills through observing experts at work in real-life situations, modelling the skills, and then in developmental, iterative ways, practicing the skills. **Cognitive apprenticeships** share many of the features of regular apprenticeships but differ in that the objectives are not skills but cognitive attributes—reading, problem-solving, and analytical thinking—gained through provision by the teacher or other learners of models, tutoring, scaffolding opportunities to articulate their emerging knowledge, and suggestions for ways to explore and transfer new knowledge (Woolfolk, 2009, p. 334). Implicit in this model is that a learned skill or cognitive attribute is situational and contextually relevant, but it can be transferred in positive ways to new situations.

Assessment as learning is the teacher practice of using classroom assessment to maximize learning (Earle, 2013). **Assessment for learning** is the teacher practice of using classroom assessment to decide future learning (Earle, 2013).

Case Study (Model IX) is a process wherein learners read a selected case, a particular instance of a behaviour or action, and then describe and analyze the events in the case to see what themes make up the event or behaviour. Case study-based learning tries to encourage “thick” description of the case (thorough as possible description of an instance of behaviour or action), analyses of the particular instance so that cause-and-effect relationships within the case are revealed (Pratt, 1998). Implicit in case-study learning is the opportunity for learners to let the case interpret them, for learners to allow the case to reveal what personal meanings reside within them, the learners, regarding the case’s main causes and effects.

Community is a particular way of being in the world that comes about through right relationships. When we are in the world in particular ways,

we bring about right relationships and bring about community. When power is exercised so as to bring about psychological control over a learner, right relationships are not brought about. When forgiveness for a mistake is asked for by a teacher, and in turn offered by an offended student, a right relationship is brought about. As learners in a course recognize a teacher's request for forgiveness, community develops.

Design of Learning Experiences is a metaphor that best captures what teachers do before engaging learners online or face to face; teachers are architects of experiences (e.g., lesson plans, conditions for learning, standards of conduct) that have been shown to lead to learning.

Guided Discovery (Model III) is the teacher-led systematic scaffolding of learners' attempts at a response, guesses at solutions to problems, applications of strategies, and understandings of ideas. A teacher uses guided discovery when he or she is trying to lead students to find and develop some idea, principle, notion, skill, or concept on their own. Implicit in this model is that the learner benefits cognitively (e.g., perception, apprehension, and memory) through discovery. When using guided discovery, the teacher is primarily an architect of both questions and hands-on experiences that guide learners to a discovery of what already exists. Guided discovery should not be confused with discovery.

Inquiry (Model X) is the systematic investigation of a problem, issue, or question. The distinguishing feature of an inquiry-based learning experience is that the lesson may develop from student responses and therefore the problem, issue, or question being investigated may open up into new questions, issues, and problems. If an inquiry is allowed to be open-ended, the teacher should accept that, at least for the time being, for the student there is no right answer, and no conclusion is required to end the inquiry (Davis, 1993). Inquiry can continue. Implicit in this model is that the teacher need not determine or even know the end product of a learner's inquiry.

Insight-generating (Model V) is the deepening awareness of the importance of one's commitment to choosing actions consistent with one's real life and true self (Loneragan, 1972), arrived at through engagement with the data of one's life, understanding what that data means, judging (objectively) the value and virtue of that data, and choosing ethical actions accordingly. Implicit in this model is that insight lies compacted, amorphous, and waiting to unfold within a learner, and will do so in the presence of the teacher's skillful design of activities that guide the learner toward an understanding of the meaning of that data through broad analyses (i.e., historical, psychological, and spiritual), judging the value of the data, and being volitional (choosing wisely) based on the data understood and judged.

Logistics are what teachers do first, second, third, and so on in their work with students; logistics include how to group students, the sequencing of activities, when to enter into online conversations, how to assess and evaluate so as to motivate and not undermine learning, and when to pursue assessment as learning activities.

Methodology is a theoretical construct (a plausible theoretical explanation for some observable evidence).

Methods are the strategies, tactics, relationships, and logistics that teachers deliberately design into their programs of study.

Model is an ideational structure (a structure of ideas) that explains and encompasses some phenomenon (e.g., how people come to develop insights [explained and encompassed in the Insight-generating section]; how people come to choose ethical actions/behaviours [explained in the Shared Praxis section]; how people come to develop self-efficacy [explained in the Nurturing section]; how people can answer real questions, address real issues, solve real problems [explained in the Inquiry section]).

Nurturing (Model II) helps learners develop a sense of confidence, self-concept, and the evaluative part of that self-concept (self-esteem). Implicit in this model is that knowledge serves not its own end but the end of a learner's well-being. Nurturing puts emphasis on the learner, in particular on how he or she best develops competencies. In this model, the teacher is an architect of learning experiences designed for a person to become more self-aware, set goals, practice self-control, and become pro-social.

Pedagogic Relationships include intentional decisions teachers make to be appreciative of the unique gifts and predispositions of each learner.

Projects (Model IV) are student-led investigations into a topic and presentation of findings regarding a topic. As they work on projects, learners are in charge of the procedures used in their investigations. The purpose of projects is for students to experientially understand that there are solutions to problems, answers to questions, and better and worse ways to address issues. The outcome of projects is deeper understanding of and a broader knowledge base regarding a topic. Implicit in this model is that learners learn best and most broadly through the various elements of a project: conception, design, resource-gathering, advice-seeking, implementation, presentation, and feedback.

Shared Praxis (Model VII) means coming to know or understand something through deliberate reflection on one's previous actions and behaviours, and then choosing ethical actions that are consistent with that new understanding. In this form of experiential learning, a student, through

teacher-questioning, returns to a previously experienced action and, with the teacher's careful guidance, re-engages with that action by considering critically how some teacher-introduced new information calls into question (or not) the student's actions and reasons for the actions. What is produced is a way of knowing that the Greeks called *praxis*, a word that roughly means "knowing through reflecting critically back into some social engagement" (Groome, 1981). Implicit in this model is that knowing, as well as the activity of "coming to know," are neither simply theoretical or practice based but are dialectical (i.e., synthesis) and based on interpretation.

Strategies are the back-room designed plans teachers write to guide their work with learners.

Tactics are the "in the heat of battle" decisions, choices, and activities that have been designed for and are implemented with learners.

Training (Model VI) is the systematic shaping of observable behaviours through the planned use of reinforcers. Implicit in this model is that learning is a behaviour and that learning cannot be said to have occurred without some form of behaviour change. Implicit in this model is that a teacher needs to catch learners engaging in a desired behaviour, or an approximation of a desired behaviour, and then appropriately reinforce that good behaviour to increase the likelihood that the behaviour will happen again in the future.

Transmission/Direct Instruction (Model I) is the presentation of content (information) to learners. Implicit in this model is that there exists a stable body of knowledge that can be "accurately and efficiently" (Apps, 1991, p. 40) delivered to learners. The emphases are on the teacher and the content to be transmitted, and how efficiently the teacher can be an "architect" of learning experiences through transmitting information in lectures, stories, visuals, videos, PowerPoint presentations, demonstrations, and reading.

Principles of Learning and Planning

Principles

Theories provide, in many cases, detailed explanations about mechanisms that underpin learning. Instructional models are generated when these theories are applied to teaching. Generalizations about the learning process can be derived from the 10 instructional models described previously. These generalizations can be considered “principles of learning.” Principles identify and explain what factors are important for learning and teaching and tend to be stable over time. Theories tell us why these factors are important (Ormrod, 2012).

What then, are some basic, fundamental principles of learning that can be applied to the design of learning experiences no matter what instructional model you choose to use, and can be applied to both adults and children? In our experience, the fundamental principle of learning is that:

- New information *must* be connected to what is already known in order for learning to take place.

Four more key principles, stated simply, are:

- People learn in different ways;
- People learn at differing speeds;
- Learning is active; and
- Learning is strategic.

A teacher who keeps these principles in mind as she or he designs learning experiences will be successful. These principles apply to all aspects of teaching: planning processes, design of instructional activities, choice of assessment approaches, ways of supporting positive behavioural change, leadership styles, motivational techniques, dealing with people with learning difficulties, and so on.

Designing learning experiences

A recent online publication bemoans the fact that “the elements of a well-structured lesson have been marginalized or ignored in most schools” due to the time required to implement “successive waves of (mostly) unproven innovation and policy requirements” (Schmoker, 2013a). We would take this thought even further. It is crucial that lessons be designed based upon sound instructional theory and learning principles; if not, a disservice is being done to the learners. For instructors, the ideal should always be the goal; specifically, a lesson framework should be so robust that it applies to any lesson and all instructional approaches. Lessons designed to this level include the following crucial components (Schmoker, 2013a; Schmoker, 2013b; Marzano, 2007).

- Clearly stated objectives, including a rationale as to why the content is important to learn. For example, because decision-making behaviours are different in different cultures (e.g., a straightforward “No” is not often a response to a bad idea in many cultures we have worked in), adults attending an orientation session before a travel experience should know why they are learning about the destination culture’s different way of making decisions;
- Information about how the objective will be assessed, perhaps through the use of, or generation of, rubrics. See below for an example of a presentation rubric.
- Explicit instruction, usually supplemented through teacher modelling or demonstration as to how the learning objectives will be reached;

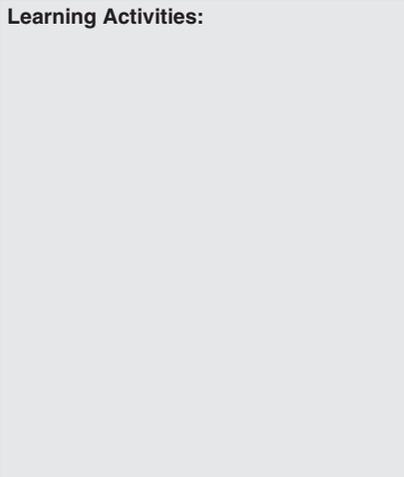
Category	Communication	Presentation/Delivery
Exemplary	Exceptional ability to communicate ideas and interrelated concepts through language and other media.	Exemplary facilitation of activities that reinforce concepts about the topic and engage the audience.
Proficient	Proficient ability to communicate ideas and concepts through language and other media.	Effective facilitation of activities that reinforce concepts about the topic and engage the audience.
Intermediate	Adequate ability to communicate ideas and concepts through language and other media.	Satisfactory facilitation of activities that support concepts about the topic and attempt to engage the audience.
Beginning	Limited ability to communicate ideas and concepts through language and other media.	Basic facilitation of activities that introduce concepts about the topic and attempt to engage the audience.

- Recursive guided practice of the skills that are needed to reach the stated objectives. This includes increased scaffolding, modifications and/or adaptations made for individual learners so that they are able to experience success; and
- Explicit real-world extensions/applications of what has been learned.

Assuming that you include the above components, one simple yet elegant lesson-designing framework that can be applied to any of the 10 instructional approaches described in this book includes just three major components:

Preparation for Learning:

Learning Activities:



Consolidation/Extension:

Template: Preparation for learning

1. Preparation for learning;
2. Learning activities; and
3. Consolidation/extension.

Preparation for learning

This is the lesson introduction, the place where the teacher begins to relate the new concept, information, or skill to what the students already know. It is the place where the “hook” is presented, when the rationale for learning is emphasized. The following components are key at this stage:

- Clearly stated objectives, including the rationale as to why the content is important to learn;

- Information about how the objective will be assessed, perhaps through the use of, or student-generation of, rubrics; and further,
- Techniques that explicitly relate new content to participants' own experiences and allow that content to augment said experiences. This is particularly important for adult learners, since they learn by making mistakes or learning about others' mistakes.

Learning activities

The learning activities are chosen from the teacher's repertoire of methodologies, activities, and resources according to the instructional goals and are tailored to the needs of the students.

- Explicit instruction, usually supplemented through instructor modelling or demonstration as to how the learning objectives will be reached;
- Recursive guided practice of the skills that are needed to reach the stated objectives; this includes increased scaffolding, modifications, and/or adaptations for individual learners so that they are able to experience success; and,
- Active learning exercises, since mature learners tend to learn by doing, by taking an active part in the learning process.

Consolidation/extension

A teacher knows that learning has actually taken place if the knowledge, skills, or concepts can be demonstrated by the students in different situations and settings than the original context. For example:

- Explicit real-world extensions/applications of what has been learned. Older students and adults, due to their developmental level, have this ability to transfer newly learned content to personal situations. This characteristic should be taken into account in the lesson design; and
- Often adults learning new content will be accountable to apply what has been learned to their work situation; this is the place where they should be encouraged to do so.

Lesson planning: Three continuums

In earlier sections of the book we have shown that the 10 instructional models have strong theoretical support from the fields of psychology, learning theory, and research about effective teaching and learning. Our hope is that you are now convinced of the importance of theory and its application to the art of teaching. A skilled teacher not only knows how to teach (methodology) but also articulates why he or she chose to teach

in a particular way (applied theory) with a particular group of learners to support their reaching specific, articulated goals.

When designing learning experiences, there are three other important factors to explicitly keep in mind. The following explanations, which follow “continuum thinking” should help you as you begin designing your course.

1. Learner autonomy

The 10 instructional models presented in this book can be thought of as adhering to an instructional continuum based on the “source of control of learning,” which directly interacts with the degree of learners’ autonomy provided by the instructor’s lesson design. This analysis should help you decide when to use the various methodologies and with whom. The continuum shown below illustrates that instructor-led methodologies provide the lowest level of participant autonomy, whereas learner-led instruction is best applied to those who have the skills and motivation to learn at their optimum when provided with autonomy.

LEARNER-AUTONOMY CONTINUUM



2. Technology utilization

Over the past two decades, the differences between learning settings have become greater and greater in terms of the utilization of technology to support learning. Some sites, as you know, do not use any technology, while others demonstrate a ubiquitous use of technology. In our view, sound teaching may or may not be related to the use of technology; effective teaching can take place with or without the support of technology. A question to ask yourself before implementing a technology in your course design is, “Will my teaching be enhanced or extended through the use of this technology?”

One way to conceptualize instruction is to think of the infusion of technology supporting teaching on a continuum. For example, the following continuum illustrates the changing environment from face-to-face to technology-enhanced learning to online instruction, with the

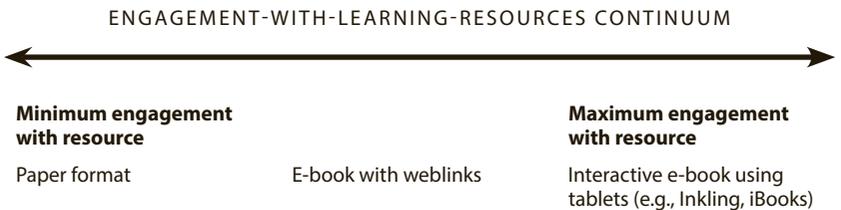
level of harnessing technology in support of instruction increasing along the continuum from left to right.



No matter where an instructor sits on this range, well-designed lessons include both the crucial components mentioned above and also apply principles of learning in their course designs.

3. Engagement with learning resources

Another component of instruction in the 21st century is the choice of learning resources used. Assuming they have access to the Internet and the technology to utilize this access, never before have teachers been able to utilize seemingly unlimited information, in so many formats. To illustrate, books are now produced in multiple formats; the continuum below categorizes learning resources according to their design for reader engagement.



Lesson planning: Synthesis of continuums

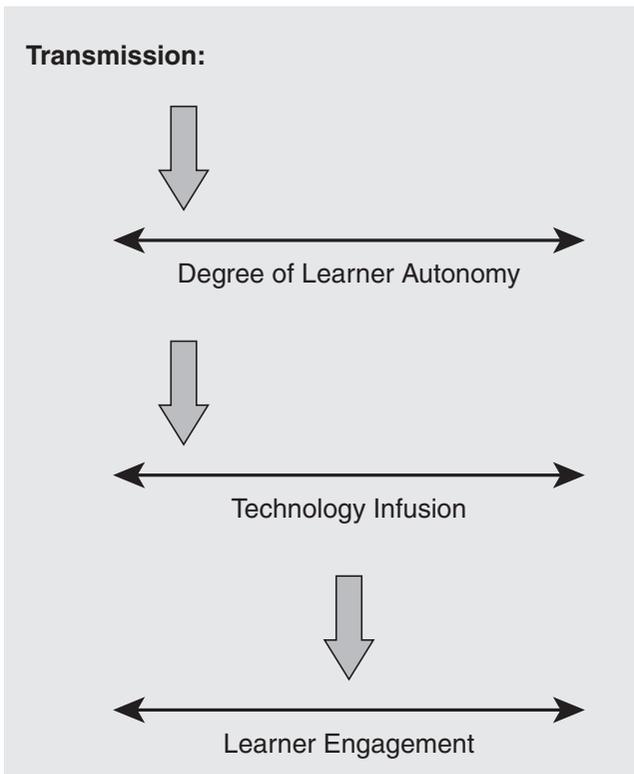
Using the example of transmission, the following shows how you might synthesize the above continuums in your lesson planning. To revisit, “transmission” is the presentation of content (information) to learners. Implicit in this definition is that there exists a stable body of knowledge that can be “accurately and efficiently” (Apps, 1991, p. 40) delivered to learners. The emphases in transmission are on the teacher and the content to be transmitted, as well as on the efficiency of the teacher as an “architect” of learning experiences.

Based on the above definition, transmission may be analyzed (somewhat subjectively) as having a relatively low level of learner autonomy. This means that an instructor’s design goal must focus on how to enhance learner engagement. Thinking of the other two continuums

presented above, one can do this either by using instructional techniques/strategies and/or by increasing the level of technological infusion in the classroom.

The three continuums above interact with one another. For example, if a learner exhibits little independent learning due to difficulties sustaining attention, then assume that he or she requires either a greater level of structure and/or a higher level of stimulation. Both of these factors can be taken into account by choosing instructor-led methodologies, thereby increasing structure; and/or technology-enhanced learning that increases stimulation; and/or the use of interactive e-books, which also increase stimulation and engagement.

The example lesson plan illustrates a setting where the infusion of technology is not possible, and so the presenter uses multiple instructional approaches in order to maximize the participants' engagement.



Transmission

Particularly when working with adults in training settings, transmission is often the methodology of choice. When is it best to utilize transmission with your learners? When:

- The goal is to efficiently present new information;
- The content is motivational and/or inspirational;
- The content must be delivered in a short time;
- The group of participants is large; and,
- You wish to model behaviours for the participants.

There are some underlying assumptions that should be taken into account when you choose transmission for your lesson design. Specifically, for busy adults, the participants are there to gain new knowledge, and your role is to disseminate information.

When you choose transmission/direct instruction, you must ask yourself, “How can I be most effective using this methodology?” The lesson plan presented next assumes that learning is active, learning is strategic, and people learn in different ways.

Example lesson plan for transmission

Preparation for learning

These tactics prepare participants for learning, helping them to relate the new information that is being presented to what they already know. At this stage, teachers should use:

- Personal illustrations/applications; this helps build relationships. Learners relate to you as an individual, not just as a “presenter of knowledge”;
- Quotes, particularly from people who the participants would admire;
- Small-group responses (e.g., turn to your neighbour on your right and discuss . . .) at the outset, asking participants to discuss their past experiences with the topic under discussion.

LEARNING ACTIVITIES

Learning activities used in transmission to a large audience are embedded within the delivery. During the process of content-based delivery, teachers should utilize techniques that elicit participation by the learners. For example:

- Prepare handouts with an outline with note-taking space and/or “fill in the blanks” sections. Refer to the handout and provide time during your instruction for the participants to complete the handout;
- Smile, show enthusiasm, and make eye contact;

- Use humour;
- Design built-in memory strategies, such as key-point mnemonics, guided visual imagery, or responses that involve movement;
- For important points, review or recap;
- Minimize barriers between yourself and the participants (e.g., lecterns, tables); this enhances relationships;
- Ask group questions (e.g., Are you with me? Raise your hands if you are);
- Elicit group responses (e.g., How many of you _____ ?);
- Reward individual responses with group handclapping, modelled by yourself; and
- Move among participants, seeking eye contact and individual responses.

CONSOLIDATION/EXTENSION

This is the place where participants are asked to apply the new information to their own specific context. Personal reflection activities are appropriate here. One example would be “think-pair-share.” As presenter, you would ask participants to:

- Think: Spend two minutes thinking of two examples of how you can apply what has been learned to your position at work;
- Pair: Turn to the person beside you and share these examples; and
- Share: Be ready to share your thoughts with the larger group.

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Digging Deeper: Nurturing, Shared Praxis, and Apprenticeship

Nurturing

Digging deeper: Designing success to build confidence

These tactics are applicable to the teaching of full-term courses, although some of the techniques can also apply to shorter presentations.

1. Empathetic Encouragement

First, communicate that you understand the difficulty the learner is experiencing, and then urge participation. This approach involves the following steps:

- a. Express an understanding of the learner's feelings and behaviour.
- b. If appropriate, tell the learner that you can see that his or her point of view makes sense.
- c. Express your alternate view, with supporting reasons and probable outcomes.
- d. Express that it will take a while to resolve the situation.
- e. Urge the learner to tentatively try to participate.

2. Threat Reduction (to reduce learners' anxiety and tension)

A. General guidelines:

- a. Recognize achievement. No achievement or improvement, no matter how small, should go unnoticed, whether the achievement is academic, musical, artistic, athletic, or even social. Implement multiple ways that learners can receive recognition.
- b. Making mistakes is okay. If learners interpret mistakes as positive proof that they can't do anything right, help them to learn to accept mistakes as a natural part of learning. Explicitly show them how to build upon mistakes as a learning experience.

- c. Focus on past success. Every learner has had some success, no matter how small. Build upon the little successes to turn them into major achievements.
- d. Make learning tangible. Clearly concretize progress. This can be in the form of charts, diagrams, conversations about what has been learned, and so on. For example, a feedback chart provides a visible display of progress and can also generate valuable data to help you make educational decisions.

B. Specific suggestions:

- a. Extend the time span for completion of tasks.
- b. Present a series of tasks at differing levels of difficulty. Allow the learner to complete the first task at his or her own pace. Gradually introduce time limits. Have learners record their progress and self-reward steps of progress. When the speed of completion has reached an acceptable rate, gradually increase the level of task difficulty.
- c. Provide learners who avoid tasks with incentives. For example, provide them with assignments that are already partially completed.
- d. Allow learners to choose from a variety of activities within a skill area. This provides them with the opportunity to partially select their own work rather than having it “forced on them.”

3. Social Reinforcement (to increase engagement)

Social reinforcement consists of offering praise, approval, or attention to learners who exhibit positive behaviours. Examples of social reinforcers are:

A. Non-verbal encouragers:

- a. Smiling;
- b. Proximity;
- c. Looking interested;
- d. Nodding;
- e. Giving a pat on the back;
- f. Laughing; and
- g. Giving applause.

B. Verbal encouragers:

- a. “Thank you. You really must have been attending.”
- b. “That’s right. Clear thinking.”
- c. “I’m pleased that you chose to do that. Good.”

- d. "I like the way you're _____. That was very kind (friendly, etc.)."
- e. "Perfect. Good Answer."
- f. "Wow! You did a great job!"

Pairing less-motivated participants with productive ones may be socially reinforcing for the learner who is less productive and may improve her or his performance.

4. Group Reinforcement

Provide a reward to the entire group based on the performance of individual participants. Ensure that the reward is meaningful and desirable to the entire group, so that members are likely to put pressure on one another to raise the bar.

A more subtle approach for using group reinforcement is to reward a class for an individual's accomplishment without advance warning to the class, and on a random schedule.

Shared Praxis

The following running dialogue illustrates what Socratic dialogue looks like (I = instructor; P = participant):

1. Start With What is Known (to introduce or change topics)

I: What can you tell us about effective ways to prepare for writing your exam?

P1: Well, I begin to review about one month ahead of time. I make a daily timetable to make sure that I study all my subjects and not just concentrate on what I do well in. I schedule in a greater amount of time for my weaker subjects.

2. Ask for Multiple Examples

I: Those sound like really fine organizational approaches. I really like the way that you try to make sure that you focus your studying where it is most needed. When you're actually down to the studying, can you describe what ways you approach revising the material?

P1: Yes [long wait-time]. For example, in food preparation, I turn to the questions at the back of each chapter and write them on a separate sheet of paper. Then I try to do the questions. I check, using the key at the back of the book, after I'm finished, to see if I got them right; if I didn't, then I turn to the text to find out what went wrong.

3. Formulate General Rules from Specific Cases

I: Okay. That sounds like it might be one effective way to study food preparation. What would you call that approach?

P1: Well, the “using examples” strategy?

I: “Using examples” [writes on board]). Is this a strategy that might apply to other subjects? Do any of you use this strategy?

P2: When I’m studying how to write essays, I look at my old tests and especially focus on the paragraphs that were given high marks.

I: Great. Do you agree that the “using examples” strategy, then, might apply to more than one subject?

P2: Yes, it should.

4. Pick Counter Examples When Insufficient Reasoning is Displayed

I: I agree that it might be a good strategy to use for more than one subject. However, is just going over examples enough? Is it possible, for example, to memorize formulas by doing many examples from a book, but not to understand either what is being asked or why the formulas work?

P3: [Long wait-time] This isn’t a formula, but it might show the same thing. I can read some words, based on what I’ve memorized about how sounds go together, yet I don’t necessarily understand the words. Is that like memorizing formulas?

5. Probe for Differences

I: Great question and example. From what you said about reading, and what I said about formulas, it sounds like it’s possible to review multiple examples—to memorize—but that doesn’t necessarily mean we understand. What is the difference between memorizing and understanding? How can we be sure that we understand something?

P4: I think that when it comes to academic work, once you’ve memorized something you must understand it. After all, we learn it here, and then we memorize it at home.

6. Use Extreme Cases to Illustrate a Misapplication of a Concept

I: I’m dreadful with formulas such as those in mathematics and physics. That’s one reason why I teach English, and why I chose the formula example. (Using that study method is how I got through, but I still don’t understand it!) I can tell you that $E = mc^2$ and that this formula has something to do with time, but there’s not a lot more I can tell you about it; oh, yes, Einstein was the first to come up with the formula. Now that’s an example

of something memorized but not understood. Can you think of other examples?

[Discussion continues until the lesson summary below.]

7. Ask for Predictions

I: Over the past hour, we've come up with several study strategies that you use to prepare for exams. As well, you identified the specific strategies that you think are most applicable to the way you learn, as well as to the English content. Now, are you willing to take part in an experiment? Assuming that you're going to follow the study plan that you've made, and you are going to try the new strategies that we've learned over the past few weeks, do you think your performance will improve? By how much?

Leading a discussion consciously using Socratic dialogue is not an easy process; it takes time and practice. It may be worth considering making a cue card from the guidelines (see figure below) then clipping it into a notebook or clipboard. By referring to the guidelines on the card during a discussion, you can practice both consciously varying the kinds of questions that you ask and using the full range of questions.

Socratic Dialogue

- Start with what is known.
- Ask for multiple reasons/examples.
- Ask for intermediate steps in reasoning.
- Formulate general rules from specific cases.
- Pick counter-examples when insufficient reasoning is displayed.
- Use extreme cases to illustrate a misapplication of a concept.
- Probe for differences.
- Ask for predictions.

Cue card: Socratic dialogue

Other key behaviours and attitudes work in tandem with the Socratic form of questioning. Specifically, these behaviours and attitudes include:

- Providing adequate wait-time after a question is asked, at least 5–10 seconds; do not expect nor promote immediate responses;
- Accepting and building on responses;
- Integrating responses with other information;
- Extending the ideas provided by the discussants;
- Clarifying responses, either by rephrasing or by asking a clarification question, and/or encouraging the asking of clarification questions by participants, if communication is unclear; and,
- Adding or asking others for supplementary information (French, 1985).

The kind of questioning used has an influence on thinking and achievement, in either a positive or a negative sense. Socratic dialogue, then, is one way to facilitate reflective, deep thinking, one way to engage in shared praxis.

Class blog

A class blog can be a powerful tool for encouraging the participants to engage in shared praxis. To illustrate, following is an edited e-mail from the teacher of a combination grade 10–12 English class (T. Wolinsky, personal communication, October 9, 2013) in Canada. The novel under discussion was *Things Fall Apart* by Chinua Achebe.

From: Tammy Wolinsky

Sent: Wednesday, October 09, 2013 10:28 AM

Subject: Socratic Dialogue

For those who are interested in continuing Socratic dialogue with their students, below is a copy of last night's homework . . . grades 10, 11, and 12 engaging in Socratic dialogue using the same expectations as in class, but online. I know there are many who have continued to use Socratic seminar in their classes, and I thought you might like to take it to yet another level. Food for thought.

What are the “things” in *Things Fall Apart*?

Michael B. said yesterday:

Considering the context of the poem and Yeats' ideology shown in Notes (4), the “things” may refer to advanced civilizations that will crumble due to the attacks from what are considered “uncivilized” nations. Personally, though, I believe Yeats used the general word “things” to demonstrate that this inevitable collapse does not pertain to only one aspect of our lives but instead can and will affect many areas of our global society.

Vanessa L. said yesterday:

That's an interesting thought about it, Michael! Just to add another thought, I feel that “things” refers to the events that contributed to Okonkwo's life falling apart, like how his son left him and how he was banished for seven years.

Kayla K. said yesterday:

I would like to add this:

There are a few things/possibilities.

The first idea is found on page 176: “He has put a knife on the things that held us together and we have fallen apart.” This seems to say that when ideas and traditions are questioned/compromised and change alters a previous solidity, things fall apart because of misunderstandings, a crossfire of opinions, and blurred truths.

The second idea I found on page 183. Okonkwo “Mourned for the clan, which he saw breaking up and falling apart . . .”

And to complement that last quote, there is another one on page 207: “Then they came to the tree from which Okonkwo’s body was dangling, and they stopped dead.” I am led to believe that Okonkwo killing himself was the final thing to “fall apart.” Up until the point in the story, he was the tough man desperately trying to save his clan from the new ideas, and when he died, it was like all the strength died with him. To me, it seemed like a constant inward battle for Okonkwo, in that he continually fought for the status quo of his clan and lost when he was the only one left standing for what he saw best. In other words, the “strong man” wasn’t strong enough in the end.

So, what fell apart? Well, everything, down to the last ounce of strength. What fell first? Well, what came first, the chicken or the egg? In terms of possibilities, it could have been the clan when people of wisdom started dying; it could have been Okonkwo, who died mid-fight; and yet, at the same time, it all happened together. Chain reaction. So, “things,” as Michael mentioned above, could have been many things, but I believe that indirectly/implicitly, the author was focused on the clan’s weakness and Okonkwo’s death as the main instigator of the title of the story.

Harsupreet S. said yesterday:

That’s an interesting point, Kayla. I’d just like to summarize what you put down in the way I interpreted it.

That the author is showing their weaknesses, which they were holding inside of them falling apart to make them more vulnerable.

What I would say is that as the novel progresses, Okonkwo’s (and the other village members’) strengths are put to the test, and it’s almost like they can’t handle them, so their strength starts to break down and fall apart.

Megan W. said yesterday:

I would go so far as to even say that it is not just Okonkwo’s life but his whole entity that falls apart. He spends the entire novel building himself up to be an extremely strong and masculine person so as to divorce his fate from that of his father’s, but the ultimate irony is that he ends up in even worse shame than that of his father due to his suicide. The “things” could be how Okonkwo is almost watching his life fall apart around him until he, too, falls apart in the process.

Apprenticeship

What is cognitive modelling?

Cognitive modelling makes explicit “inner speech” as a means of guiding the learning of new skills. Students’ use of cognitive modelling allows them to use their own language as an aid for organizing their behaviour and/or materials and increasing their ability to focus as they learn a new skill.

Who can benefit?

- Learners who have difficulty sustaining their attention due to distractibility or impulsiveness;
- Learners who engage in an excess of negative self-statements (e.g., “I’ll never be able to do that”); and
- Learners who approach the acquisition of new skills with a narrow range of learning strategies.

Two variations of cognitive modelling

1. Self-instruction

There are three instructional phases when using this tactic to teach a skill:

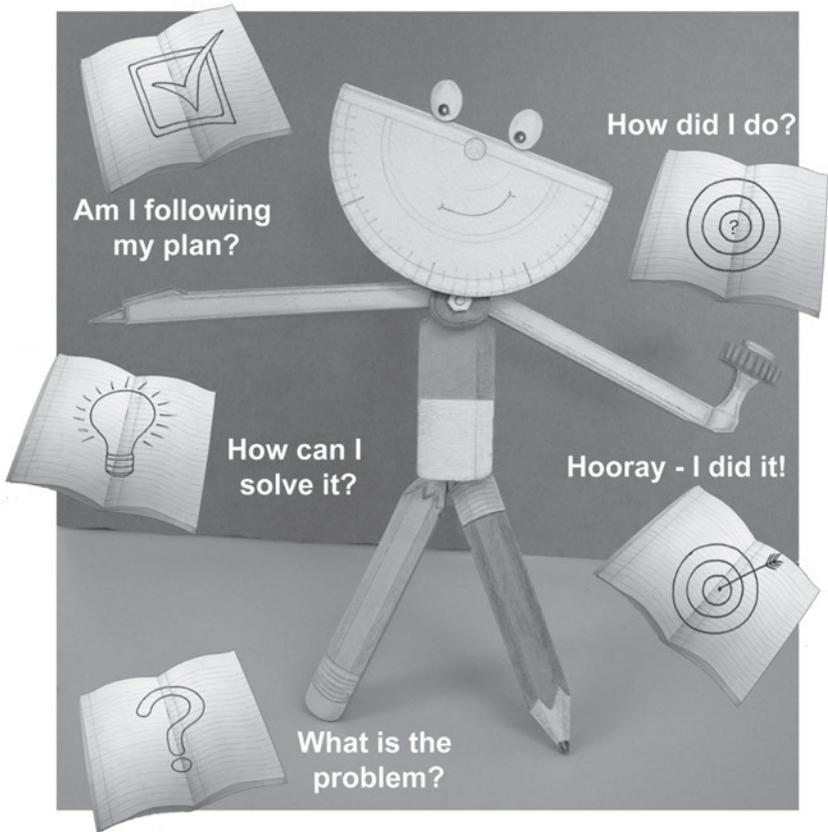
- A. Phase I: The instructor models the learning task while thinking out loud about what she or he is thinking while doing. The point of view should be first person.
- B. Phase II: Both modeller and learner complete tasks simultaneously, following the words of the instructor as she or he thinks out loud.
- C. Phase III: The learner performs the same tasks while thinking out loud, using his or her own vocabulary and dialect.
 - a. Once the learner is able to complete tasks by talking them through (Phase III), the following two modifications are gradually introduced:
 - i. the learner performs tasks while whispering; then
 - ii. the learner completes tasks while talking silently to him- or herself (sub-vocalization).

2. Self-questioning While Using “Scripted Visual Cues”

As above, learners talk through learning tasks, talking out loud. To support learners who have a lesser vocabulary or who have difficulty sequencing tasks, a visual and/or script of questions can be used as a guide for their speech. The questions and/or script focuses on improving the learners’ ability to self-monitor. Bash and Camp (1981) suggest using the following phrases:

- “What is my problem?” or “What am I supposed to do?”
- “What is my plan?” or “How can I do it?”
- “Am I using my plan?”
- “How did I do?”
- I’ve observed some learners who add a further step, a self-reward: “I did it!”

For classroom-based instruction, a poster, mounted at the front of the classroom, could illustrate these steps. The poster would serve as a visual reminder for the learners (and instructor) to follow as they think through tasks, either out loud or silently. The questions follow a general problem-solving model that can be used for both academic and social tasks.



A general problem-solving model. Illustration: Mark Nightingale, 2014.

What factors will enhance the successful implementation of cognitive modelling?

- Including in the modelling and training procedures all those involved in the education of the learner.
- Encouraging learners to apply the techniques in social as well as academic settings.
- Consistent use.
- Continuing training long enough to ensure that the pupils know the approach to the level of using it on their own.

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Overview of Models

Model	Goals	Core Value	Core Problem	Solution	Preferred Tactics or Technology	When Used in/for Community
Transmission/ Direct Instruction	Recall	Efficiency	Amount and pace of instruction	Chunking	Advanced organizers	Sharing the great idea
Nurturing	Self-efficacy	Safety; risk-taking; free from the fear of failure	Co-dependency develops; too close emotionally to another person to be able to be truthful	Keep the goal of nurturing in mind	Screen-casting to support technology integration	Bonds and intimacy form through experience of being cared for and in turn caring for others
Guided Discovery	Comprehension; personal meaning	Unfamiliar learned best from the familiar	Time taken to guide learner	Frame limitation questions into three types: what, how, if	Questioning that limits responses closer to desired terminal understanding	Building consensus in discovering solutions builds community
Projects	Student assumes accountability, authority, and responsibility for learning	Experiential learning better than brokering in abstraction	No real or authentic presentation or use of project's findings	Choose project topics that exist in the immediate world of the student	Cloud-based project management software	Working for something; being against something (e.g., project to end poverty in a neighbourhood) builds community
Insight-generating	"Aha" moments arrived at; deep structure or essence of a thing understood	Insight lies compacted, amorphous, requires right conditions to unfold	Time; insights may come quickly, but more likely come over a longer period of time	Iterative curriculum; return to previous learning experiences throughout a course, program, or training session	Initial response, considered response	Sharing insights and recognizing common themes within each learner builds community; we are more alike than we are different
Training	Skills and competency developed	Act our way into new ways of thinking	Scepticism regarding training; use of reinforcers	Vary reinforcers: feedback, praise, self-monitoring of performance, primary reinforcers (food), secondary reinforcers (grades)	Competency checklists, gamification	Teams build community; successful and well-trained teams build better community

Shared Praxis	Ethical action chosen	Knowing is dialectical and interpretive; ethical actions need to be developed	Experiences not trusted to have pedagogic value	Goal highlighted: to have more choices of ethical decision; ethically better experiences	Reflection on experience in online forum	In groups, being “for” an ethical way of being (decisions about how to do this generated in groups) builds community (e.g., working to provide clean water for people in low-income regions)
Apprenticeship	Enculturation into a way of being	Right and wrong learned in the presence of models of virtue and character	Confusion regarding similarities and differences among mentoring, coaching, training, and apprenticeship	Define terms	E-portfolios	Identification of something bigger and more important than one’s current way of life (doing things) creates transcendence; communities that last have a sense of transcendence
Case Study	Disinhibit; motivate to take up new and preferred ways of thinking or being	Narrative	Idiosyncratic nature of a case; debatable whether truths from one case can be applied to other cases and students’ lives	Thematic analyses of cases	Skype for Education	Stories create thinner borders of differences between and among peoples; they create a real sense of being together in this thing called “life”
Inquiry	Solve real problems; address issues; answer questions	Engaged learners are addressing real things in the world	Teacher has little control over learning outcome; authority, responsibility, and accountability for learning rest with the learner	Trust in integrity of the inquiry process to yield learning outcomes	Video-conference to connect with experts in the field	Being against something (often the best motivator for an inquiry project) is a powerful community builder

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Additional Reading

Transmission/Direct Instruction

Books

Pratt, R.M., and Palloff, K. (2007). *Building online learning communities: Effective strategies for the virtual classroom*. San Francisco: Jossey-Bass.

This book is a great resource for instructional designers who are building online courses and wish to deliberately plan for student engagement, teacher presence, and effective learning communities. It is a practical resource that includes case studies and ideas you can use in your courses.

Archer, A.L., & Hughes, C.A. (2011). *Explicit instruction: Effective and efficient teaching*. New York, NY: Guilford Press.

This book lays out how to design and deliver instruction in classrooms in a direct and clear manner. It provides examples of incorporation in classrooms, and contains many templates for use in executing the ideas the authors present.

Gagne, R.M. (1966). *The conditions of learning*. New York: Holt.

This book is the classic survey text for teachers interested in reading about the environments, strategies, tactics, and lesson-planning conditions necessary to facilitate learning when direct instruction is deployed.

Bennett, B., & Rolheiser, C. (2001). *Beyond Monet: The artful science of instructional integration*. Toronto: Bookation.

This book provides a description of ways—strategies and approaches—to integrate learning experiences and thread together curricular elements into lesson plans.

Bransford, J., Brown, A., & Cocking, R. (2000). *How people learn*. Washington, DC: National Academy Press.

This book, in particular this edition of this book, provides teachers with research about how people learn and ways in which teachers can design direct instruction to enable learning.

URL

<http://www.usask.ca/education/coursework/mcvittiej/methods/direct.html>

This website provides an extensive definition of direct instruction and the pros and cons of the method. The context is classroom teaching, and examples are given about how to use this method in an effective manner.

Article

Stein, M., Carnine, D., & Dixon, R. (1998, March). Direct instruction: Integrating curriculum design and effective teaching practice. *Intervention in School and Clinic*, 33(4), 227–233.

DOI: 10.1177/105345129803300405

This article discusses the defining features of direct instruction and focuses on the integration of the curriculum into this teaching method.

Nurturing

Book

Ayalon, A. (2011). *Teachers as mentors: Models for promoting achievement with disadvantaged and underrepresented students by creating community*. Sterling, VA: Stylus Publishing.

This electronic book walks you through the transformation that happens in two schools when a nurturing environment is introduced. The book focuses on the mentoring that teachers perform for the students and how habits of nurture are implemented and create change in these schools.

URL

<http://www.goodschoolsguide.co.uk/>

This website provides several help and advice pages that deal with nurturing in schools. Providing examples of nurturing environments in schools is the focus of this book.

Article

Aydon-Pou, V. (2010). Nurturing: An invitational approach to professional development. *Kairaranga*, 11(1), 29–32.

This article describes the professional development (PD) of a teacher through the application of a nurturing PD plan. The nurturing environment the teacher is placed in, and the corresponding results, are discussed.

Guided Discovery

Book

Lee, H. (2010). *Faith-based education that constructs: A creative dialogue between constructivism and faith-based education*. Eugene, OR: Wipf & Stock.

This book takes a Christian approach to constructivist education methods. Chapter 11 deals exclusively with the guided-discovery model. The book incorporates a Christian worldview but also discusses the science behind the guided-discovery method

URL

http://edutechwiki.unige.ch/en/Guided_discovery_learning

This resource reviews the definition of "discovery learning" (with "guided" being a narrower focus than general discovery learning). The site explains the defining features of guided discovery, as well as detailing some of the problems that occur when guidance is left out of discovery learning. An example in vocational training is also provided.

Article

Carillo, L., Lee, C., & Rickey, D. (2005, October). Enhancing science teaching by doing more: A framework to guide chemistry students' thinking in the laboratory. *Science Teacher (Normal, Ill.)*, 72(7), 60–64.

This article explains the MORE model (Model, Observe, Reflect, and Explain) of guiding students to discovering good chemistry thinking, but it could be applied to any academic field.

Projects

Book

Bellanca, J.A., & Stirling, T. (2011). *Classrooms without borders: Using Internet projects to teach communication and collaboration*. New York, NY: Teachers College Press.

This book focuses on collaborative groups and their importance, yet projects are also central to the book's focus and can be found in many places throughout the chapters. Several different types of projects are expanded on.

URL

<http://www.projectapproach.org>

This website includes discussion on what projects are and how they fit into the curriculum, and it provides examples of projects and the benefits of a project approach.

Article

Filippatou, D., & Kaldi, S. (2010). The effectiveness of project-based learning on pupils with learning difficulties regarding academic performance, group work and motivation. *International Journal of Special Education*, 25(1), 17–26.

This article focuses on the potential benefits of project-based learning (PBL) for students with learning difficulties, but it also provides an overview of the literature regarding what projects are and the use of projects in schools.

Insight-generating

Book

Rothstein, D., & Santana, L. (2011). *Make just one change: Teach students to ask their own questions*. Cambridge, MA: Harvard Education Press.

This book walks readers through how to help students design and refine good questions, ones that generate insight.

URL

<http://designthinkingforeducators.com/>

The “design thinking” concept the website explores is a method for creating insight-generation in students. This method is explored in a variety of ways and the reader is directed to the free toolbox available for designing an insight-generating experience for students.

Article

Sole, D. (1997, March). Johari’s window for generating questions. *Journal of Adolescent & Adult Literacy*, 40(6), 481–483.

This article explains the process the author went through to help her students generate insight into new material by using well-designed questions.

Training

Book

Gary, R. (2001). *Hands-on training: A simple and effective method for on-the-job training*. Williston, VT: Berrett-Koehler.

This electronic book walks the reader through different training methods and how to use them in a step-by-step straightforward manner. It is geared toward on-the-job training, but the methods and approaches discussed could very easily transfer to other classroom situations.

URL

<http://www.ibm.com/developerworks/rational/library/3810.html>

This website compares and contrasts training to teaching, and explores what it means to train someone not just teach them. The context is that of computer technology, but the content could be applied to any classroom subject.

Article

Rae, L. (1994, April). Training 101: Choose your method. *Training & Development*, 48(4), 19–25.

This article goes through six training approaches, including GAFO (Go Away and Find Out), Nellie and Fred, one-on-one instruction, coaching, delegation, and mentoring.

Shared Praxis

Book

Morlidge, S., & Player, S. (2010). *Future ready: How to master business forecasting*. Hoboken, NJ: Wiley.

This electronic book uses the term “forecasting” to describe the outcome of the praxis within a business sector. However, the framework is applicable for any school class where there needs to be a change, either in thoughts or practice. The book describes methods for troubleshooting and changing actions, like those found in the shared praxis model in this book.

URL

<http://www.infed.org/biblio/b-praxis.htm>

This website provides a definition of shared praxis and gives the breakdown of what it means to be involved in shared praxis.

Article

Cutter, J., Palincsar, A., & Magnusson, S.J. (2002). Supporting inclusion through case-based vignette conversations. *Learning Disabilities Research & Practice, 17*(3), 186–200. DOI: 10.1111/1540-5826.00044

This article provides an example of shared praxis being engaged by four teachers to help their students with special needs. The authors detail the process of shared praxis and give evidence that proves the positive effects of the process on the teachers' students.

Apprenticeship

Book

Dorn, L.J., French, C., & Jones, T. (1998). *Apprenticeship in literacy: Transitions across reading and writing*. Portland, ME: Stenhouse.

This book takes a cognitive-apprenticeship approach to teaching students how to read and write. Methods and examples are provided.

URL

<http://www.ebsta.org/TechLit/handbook/cogapp.html>

This website provides a variety of explanations of apprenticeship. A table is included that expands on the cognitive-apprenticeship model and provides examples of how to implement this method in a classroom literacy setting.

Article

Carlson, N.M., May, W.E., Loertscher, R., & Cobia, C. (2003, Spring). Apprenticeship: Applications in adult education. *Journal of Adult Education, 32*(1), 29–43.

This article defines apprenticeship and provides examples of both apprenticeship and mentorship. The positives and negatives of the method are also discussed.

Case Study

Book

Herreid, C.F. (2006). *Start with a story: The case study method of teaching college science*. Arlington, VA: National Science Teachers Association Press.

This electronic book has 63 essays about what case studies are, includes various types of case studies, and explains how they can be used in a classroom. It also describes how to prepare and assess the work related to case studies. The context for the book is that of undergraduate sciences, but the methods could be applied to other fields and education levels.

URL

<http://serc.carleton.edu/sp/library/cases/index.html>

This website is a homepage with many links to more information on case studies, including samples. The main page defines what the case method is and how it works, in a general way, in the classroom.

Article

Yalcinkaya, E., Boz, Y., & Erdur-Baker, O. (2012, June). Is case-based instruction effective in enhancing high school students' motivation toward chemistry? *Science Education International*, 23(2), 102–116.

This article provides a definition of case study and explores its application to a high-school chemistry class's learning.

Inquiry

Book

(2000). *Inquiry and the National Science Education standards: A guide for teaching and learning*. Washington, DC: National Academy Press.

This electronic book applies inquiry to classroom examples, and it explains how case studies can be used practically in K–12 classrooms.

URL

<http://www.usask.ca/education/coursework/mcvittiej/methods/inquiry.html>

This website explains what inquiry is, the reasons for inquiry, and the steps of inquiry lessons in a very straightforward manner that is easy to understand.

Article

Hood, K., & Gerlovich, J.A. (2007). Inquiring minds do want to know. *Science and Children*, 44(6), 42–44.

This article provides an example of an inquiry project while explaining what makes it an inquiry project. The inquiry project described also incorporates some clearly stated guided discovery, thus showing how the two models can be mixed.

Additional Resources Discussing Multiple Methods

<http://www.stu.ca/publications/teaching/spring2002/perspective.htm>

This website touches on the definitions of the direct-instruction, apprenticeship, and nurturing teaching models in a compare-and-contrast format.

<http://infed.org/mobi/encyclopaedia/>

This website looks at many aspects applicable to teaching, including the teaching methods of praxis and nurturing.

<http://www.slideshare.net/mickstravellin/how-to-create-an-insight#btnNext>

This website is a short slideshow of what insight means and how to generate it. It is made very simply and can be used as a reminder of how to foster insight-generation in a classroom setting.

Schmoker, M. (2013a). The lost art of teaching soundly structured lessons. *Education Week Teacher* http://www.edweek.org/tm/articles/2013/06/04/fp_schmoker_lessons.html

Schmoker, M. (2013b). *Focus: Elevating the essentials to radically improve student learning*. Alexandria, VA: The Association for Supervision and Curriculum Development, DOI: 10.1080/1059924X.2013.797375

Marzano, R.J. (2007). *The art and science of teaching: A comprehensive framework for effective instruction*. Alexandria, VA: The Association for Supervision and Curriculum Development.

Maor, D. (2008). Changing relationship: Who is the learner and who is the teacher in the online educational landscape? *Australasian Journal of Educational Technology*, 24(5), 627–638.

- Ryan, M. (2011). Improving reflective writing in higher education: A social semiotic perspective. *Teaching in Higher Education*, 16(1), 99–111. DOI: 10.1080/13562517.2010.507311
- Sprenger, M. (2005). *How to teach so students remember*. Alexandria, VA: The Association of Supervision and Curriculum Development.
- Wallace, M., and Wray, A. (2011). *Critical Reading and Writing for Postgraduates*. London, UK: Sage Publications.

Assessment as learning is the teacher practice of using classroom assessment to maximize learning (Earle, L., 2013). **Assessment for learning** is the teacher practice of using classroom assessment to decide future learning (Earle, L., 2013)