ADDING SOME TEC-VARIETY

100+ Activities for Motivating and Retaining Learners Online

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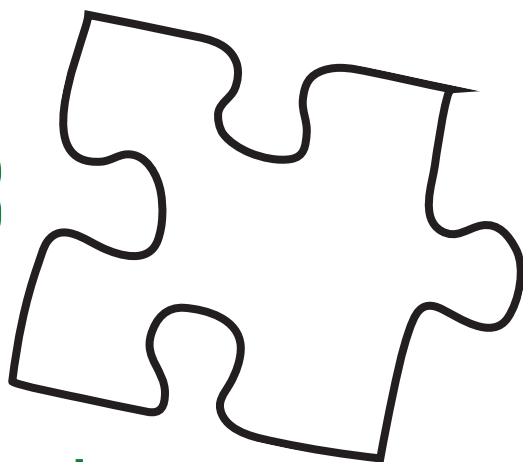
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CHAPTER SIX

PRINCIPLE #3 CURIOSITY

(Includes Surprise, Intrigue, and Unknowns)

> We keep moving forward, opening new doors,
> and doing new things, because we're curious
> and curiosity keeps leading us down new paths.
>
> —Walt Disney

The first two principles of the TEC-VARIETY framework lay the groundwork for a high-quality course. First, you want learners to feel comfortable in the online course or training experience (Chapter Four, Principle #1). Second, you want to provide feedback, encouragement, and timely support for what they are learning (Chapter Five, Principle #2). While those first two principles are vital for student motivation, the third component of the TEC-VARIETY framework is essential for most courses and learning situations. Curiosity is said to have killed the cat. Put more positively, it is the spark of life for tens of thousands of learning situations taking place around the globe as you are reading this very page. In some ways, curiosity is what learners live for.

Our microbiologist friend, Brian J. Ford from Cambridge University, cautioned us against mentioning that old cat saying. When we spoke with him, Brian argued that "curiosity is actually the driver for humanity, the creator of society, the bearer of wisdom." He then took note of our book title and added, "The point about the Web (and e-learn-

ing access) is that it offers a way for people to satisfy their innate curiosity, irrespective of where or who they are."

Brian was spot on as usual. Curiosity arouses human interest in pursuing some intriguing piece of information or kernel of knowledge and the Web is filled with enticing resources and learning nuggets that can spark it. The satisfaction of our curiosity, temporary as it may be, brings deep-rooted pleasure to our lives. As Noble Prize–winning American chemist and peace activist Linus Pauling put it, "Satisfaction of one's curiosity is one of the greatest sources of happiness in life." If Pauling is right, this third component of the TEC-VARIETY model may be the most vital of them all.

Clearly, scientists, inventors, and world leaders recognize the importance of curiosity and inquisitiveness. What about educators and psychologists? In his 1996 book, *Motivating Others: Nurturing Inner Motivational Resources,* Johnmarshall Reeve proclaims that "Curiosity is a cognitively based emotion that occurs whenever a student perceives a gap in his or her knowledge" (p. 158). That sense of bewilderment or "gapness" nudges the learner into finding out more information. There is something intriguing about the content. Some unknown or missing piece of information that must be filled in.

Curiosity need not mean enjoyment. Steven Reiis (2004) contends that notions of intrinsic enjoyment exaggerate the importance of pleasure in motivation. He rightfully points out that highly curious people desire knowledge so much that they will overcome momentous challenges along the way, including a series of failures, extensive criticism, personal tension, and many forms of frustration. Still they march on to seek new information or some sense of learning accomplishment. People desire competence. This is universal.

Curiosity is internal. It is not some external coercion tactic. There are no carrots and sticks. Instead, there is a felt discrepancy between the knowledge that a learner possesses and that which he needs or desires to complete a task or gain a new competency or skill. There might also be a sense of wonder or suspense about something not previously known.

According to Paul Pintrich and Dale Schunk (1996), the discrepancies between the new information and what learners already know must be modest; large discrepancies are rapidly dismissed as highly implausible. Using Piaget's terminology, significantly different information is too difficult to assimilate or accommodate within our existing mental structures (Piaget, 1963). When a person, let's call her Rosie, expects something to happen but another event occurs, she enters a state of cognitive dissonance (Festinger, 1957). From there, curiosity and wonder are roused to life. Rosie may feel that her present state of knowledge is inadequate. At the same time, she is aware that she has the capability to learn more and overcome it. Such situations help bring Rosie to an optimal state of arousal for exploring her surrounding environment for the answer. And explore she does.

For decades now, researchers and educators interested in applying aspects of Piaget's theories of cognitive development to the classroom have relied on emerging technologies to exemplify certain principles in action. In particular, Piaget's ideas related to how learners construct and internalize new knowledge have been extensively explored (Pea, Kurland, & Hawkins, 1985). Remember back to Chapter Three, which referred to the allure of gaming as researched by Thomas Malone at the beginning of the personal

computer era. He noted the motivational appeal of hidden or secret information, uncertain events and outcomes, and event randomness. In a game, we do not truly know the winner until the end. In real life, elements of surprise as well as strange, novel events can challenge our thinking and force the evaluation of inconsistencies in personal mental structures. This sense of challenge to fill in the gaps creates an intrinsic need to push ahead and learn more in order to succeed at the task.

The instructor who wishes to spur learner curiosity and some sense of unknown has many techniques at his disposal. He can throw out questions that do not have clear answers at the present time (Stipek, 1998). For example, "If we are in the age of the Web 2.0, what will the Web 5.0 look like?" Instruction can also start with questions and hypotheses that students might want to raise (Brophy, 1998). The instructor can also ask his students to converse about their views, and during the discussion, he can incorporate different forms of media to illustrate unexpected results. As errors in their thinking become obvious, students will seek more information. As illustrated in the Rosie story, Piaget referred to this as being in a state of disequilibrium (Piaget, 1969; Reeve, 1996). Such cognitive conflict or dissonance can be unnerving at times; however, when events violate expected standards or norms, interest is aroused and this often leads to extended learning quests for additional information and answers.

Curiosity might be cultivated with highly open-ended tasks with many possible learning paths. For example, instructors might insert open weeks in the schedule, thereby allowing learners to select their content for the week. Exploring ideas beyond those presented by the instructor or course resources will expand viewpoints that the class can access. In addition, guest speakers might be invited to present in a synchronous session followed by an asynchronous reflection in a class discussion forum. Students may search for further information that the guest has discussed. Yet another idea for fostering curiosity would be to arrange for learners to be mentored electronically by peers and practitioners throughout the semester. With this assembly of diverse views, students will perceive inconsistencies in their thinking and find themselves in a state of cognitive dissonance—a situation which is ripe for curiosity and learning to flourish.

Technologies for Principle #3: Curiosity

Web-based technology can foster curiosity and a sense of the surprise, intrigue, and the unknown. There is quick hyperlinking from information node to information node. The thoughtful combination of audio and video streaming can stimulate the senses, and thus enhance learner curiosity. Examples of how Web technology can spur curiosity include instant messaging with peers on Facebook, scanning daily events in Yahoo! News, searching for current research in Google Scholar, online brainstorming in a wiki, listening to an author explain the premise of a newly released book in a podcast, glancing through questions posted by the instructor to a discussion forum, and reading blog posts of a research team after they have made an exciting new discovery. Such technology resources are increasingly common and can be quickly embedded in fully online and blended learning experiences.

There is much that an instructor can do today to maximize the curiosity principle. She might design a website portal for someone famous in history. The site could be loaded with information nuggets in the form of quotes, digital news clippings, and stories that students may not have been heard before. Another way to provide such intrigue would be to invite a mystery guest to an upcoming online chat or Webinar. During the chat, the guest expert could sprinkle in facts and stories that are interesting but not common knowledge. Yet another technology tool for fostering curiosity and intrigue is to assign students to watch a live event somewhere around the world via a Web stream. For example, in a European history class, students may have watched the royal wedding of William and Kate on April 29, 2011, as it took place live on BBC News or CNN International. Alternatively, they might view it later in archived footage found while exploring the Royal Channel in YouTube.

Students could be pushed into dissonance or disequilibrium in online discussion forums. To prepare for these forums, instructors would assign them to particular perspectives or sides of a debate. As part of such an activity, they would be asked to propose and agree to a compromise position. When properly structured, online forums engage students with the voices and opinions that make up their particular class. Such voices will often ring out even when the class size reaches into the thousands or even tens of thousands of participants in a MOOC. In a MOOC, course participants can also be part of a world community discussing a controversial comment or an event in the news and their respective perspectives on it. Everyone reading that post or the associated news story undoubtedly would have an opinion to share.

The argument could be made that nearly everything that appears in the news each day can be used to spur dissonance and learner quests to know more. Some events are, of course, more heated than others. But any situation can arouse sadness, happiness, or other emotions in students. A view into the day in the life of a scientist, writer, or historian is now possible with videostreams of the news, audio files from a podcast series, live feeds from Twitter, interviews posted to a blog, and so on. Live science can stream to learner mobile devices and desktops from anywhere in the world. And when a Webcam can directly bring into your class a well-known scholar or team of researchers—who during the previous week announced an astounding discovery—many highly memorable learning activities are possible. Each time you turn on that Webcam, perspectives are shared, the relevancy of new findings can be explained, and intriguing questions for the future can be posed and discussed.

Questions and activities can wrap around each of the technology tools and ideas we have mentioned in ways that engage and arouse student learning. Perhaps the ideas of this chapter can unveil new ways to design learning environments that contain heavy doses of suspense, timely elements of surprise, and extended learning quests into the unknown.

Ten Online Activities in Principle #3: Curiosity

The information-intense world in which we live is filled with points of wonder and delight. Those teaching and learning online can tap into such wonder and delight on a daily basis. If you are a curiosity junkie, there is a fix awaiting your every keystroke or finger swipe. Many of us were born in the days of physical encyclopedias that often required us to borrow from a neighbor or hike to the local library to look up a fact or two. Today, there is much to quench our thirst for knowledge in the Web of Learning. We live in an age of fingertip knowledge, an age that we will someday come to call "The Learning Century."

Unlimited online resources and novel technologies are only part of the greater learning equation. In fact, Reeve (1996) cautions that effective instructors must also rely on deft pedagogical skill to raise learners' curiosity to an optimum level. For instance, instructors can foster suspense by leaving key pieces of information missing while presenting sketchy but enticing preview information, as is standard practice in any newscast before breaking for commercials. An instructor might also design games involving some form of guessing or predictions that have prompt feedback on the correctness of the guess. Whodunit mysteries, controversial issues and debates, and responding with contradictions to individual guesses and solutions all energize the learner to find additional information.

With proper course planning, we would have to wonder how someone would not be curious to know more in this age of information abundance. This third principle of the TEC-VARIETY framework is the starter fuel for many of the others described in this book—just as it is for most activities you hear about at conferences or read in reports. As with any motivational principle, curiosity is hard to bottle up, or constrain to a single chapter. You will find much to attract and engage your learners' attention throughout this book. Arousing curiosity, in fact, is part of the intent of the TEC-VARIETY framework itself.

Activity 21. Online Events in the News

Description and Purpose of Activity. It is likely that news of the day has been woven into learning for millennia, whether we were sharing information on how to fashion some type of stone tools, design a clay pot, or prepare a meal of fish, vegetables, roots, and nuts. News is engaging as it typically provides some unique piece of information and life interest stories that had not been known previously. And stories are easy to recall, put to use, and share with others.

You can likely find several news items relevant to your class each day. Not all of them will spark intense learner curiosity, but with some creative pedagogy most will. What if you were in the following three situations?

- You are an online instructor for a paleontology course in the fall of 2009 when a miniature version of a Tyrannosaurus Rex is reported. It was orig-

inally unearthed in northeastern China but secretly and unlawfully found its way to the United States. The tiny T. Rex disrupts much of the facts and theory related to the evolution of what we know about the gigantic version (Fountain, 2009). You could make use of this controversy about how the mini prototype Tyrannosaurus got out of China in the first place by sparking class discussion and debate about ethics in the field paleontology and related disciplines.

- You are a retired general assisting in a course on military leadership or tactical maneuver training during the spring of 2011. On May 1, 2011, Osama bin Laden is killed in a firefight with US Special Operations Forces (CBS News, 2011). In a few simple Google searches you find extensive video clips, maps, drawings, timelines, interviews, and text to incorporate into your class.

- Your specialty is the culture, history, or religions of India. It is July 4, 2011, and, earlier that morning, you opened the local paper and read a short caption about a temple of gold in India with a treasure trove of items unearthed. Not much more was said. Curiosity piqued, you soon scavenge the Web for more details and read articles from the *New York Times* and other places. In them, you learn about a temple in the southern part of India from the sixteenth century called Sri Padmanabhaswamy where diamonds, coins, jewels, and sold-gold statues of gods and goddesses have been found in vaults beneath it. Initial estimates indicate that they are worth at least $22 billion (Bajaj, 2011). This is the largest such find ever in India. It is something out of an Indiana Jones movie epic adventure. Of course, if, instead of religious studies or history, your area is acting, screenwriting, or film production, a few moments of creativity might turn such news into a highly engaging online or blended learning activity for your class.

Online events in the news can help develop or support prime knowledge related to concepts and ideas from recent lectures or help draw interest in a presentation that is about to start. News events can also help with learner attention and comprehension of assigned readings. Students quickly understand that the course content has relevance and application in the real world. The news item can be used as an advance organizer for knowledge that will be presented later in the semester. It can also anchor that learning in a context. News, however, is often incomplete. There is only so much time available and news reporters cannot be experts on most of what they cover. As a result, they provide only a thin slice of any topic they write about—which can be an incentive for learners to find out more.

Skills and Objectives. Includes linking discipline knowledge to current events in the news, learner curiosity in content, encoding news information both verbally and visually, observational skills, and critical analysis and application of concepts. This technique extends the course to the real world and to facts, trends, ideas, and opinions that may not have been addressed otherwise.

Advice and Ideas. Innumerable activities can spin out of any news item. We often put online news events related to each week of our online and blended courses in a section of our syllabi that we called "tidbits." These tidbits are extensions of the required course

content into the real world. There are often 5–10 or more tidbits each week to select from. We have our students decide which ones to read and respond to in their weekly blogs or discussion forums, though there is often a targeted number of tidbits that they must read and reflect on by the end of the course. During the course, we notify students of current events in the news related to the class as they come up. Notifications can be sent via e-mail, announcements in the course website, the instructor blog, the class wiki, or in discussion forum posts.

Instructors can do many things with these articles, videos, or special reports. As indicated, you could require learners to refer to news items in their weekly discussion forum postings; items that link to course content might be highlighted or analyzed. And there could be competitions to see who can identify the most course-related concepts and principles in a particular news story. The instructor may also refer to the news articles during an online lecture or Webinar. Such content would then be fair game for later quizzes and examinations.

Variations and Extensions. You may prod students to venture beyond one or more current events stories that interested them, suggesting that they extensively research such topics for a final paper, report, or presentation. The news article, therefore, becomes a springboard to greater depth of learning. This approach fosters curiosity for each student on different feature stories or news items. Students could also search for trends buried in the news content or to predict future trends. To further spur curiosity, instructors could specifically mention the most intriguing pieces of an old news story or provide parts of that story that students might not be able to find online, building up to a climax when they uncover the rest of the story.

Key Instructional Considerations

> Risk index: Medium
> Time index: Medium
> Cost index: Low
> Learner-centered index: High
> Duration of the learning activity: Throughout the course or as needed

Activity 22. Live Science, Creative Expression, or Artistic Invention

Description and Purpose of Activity. Activities 22 and 23 will engage your learners with scientific discoveries, unique creations, and innovations as they are happening. In Activity 22, your class could attend an online ceremony for a new book or report, and then take part in a virtual book signing after the event. They could find out about discoveries announced in shared online video sources like the Discovery News Video, BBC News Video, Earthwatch on YouTube, National Geographic Video, CNN Video, or CurrentTV. Announcements could also be found online from an NPR station or some other radio show or podcast.

Want more? Well, there probably are podcasts of interviews with writers, scientists, poets, musicians, and inventors. A much-heralded and unique musical performance or play could be streamed live to students' desktop or mobile units. Perhaps there is an

exciting new finding from an ancient burial chamber in Egypt or Mexico (Huffington Post, 2011). Or maybe you are about to watch the first live Webcast of a brain dissection (Chronicle of Higher Education, 2009). Still need more? Well, in 2010, there was an announcement of more than 40 new plant and animal species found in Indonesian waters as captured by robotic vehicles and high-definition cameras (Associated Press, 2010). Two years before that, there was a news story about a colossal squid that was accidently caught in Antarctic waters and was being examined by scientists after being on ice for nearly a year (Black, 2008). It was the first discovery of its kind. Such scientific, artistic, and cultural events are increasingly common.

Take the case of Dr. John Ballard, a former US Navy officer and professor of oceanography at the University of Rhode Island. Ballard is an explorer and underwater archaeologist who has a history of locating famous shipwrecks including the Titanic, the World War II aircraft carrier USS Yorktown, and John F. Kennedy's PT-109. Today, he is heading up the Nautilus Live project. As an example of live or "immediate" science, there are researchers and scientists on board the Nautilus Live. Students can ask questions via the Web about various aspects of their expeditions, including encounters with sharks, monkfish feeding, ancient ship and artifact locating and recoveries, and more. Each event is designed to captivate students' imaginations about the real world.

Skills and Objectives. Includes connecting content knowledge from books and lectures to the real world, identification of key concepts and terms, appreciation of expert viewpoints and insights, and curiosity and engagement. A key goal of such an activity is to apprentice students into the field and give them a taste for what is presently interesting or exciting to leaders in the field.

Advice and Ideas. Given the endless stream of news at one's fingertips from around the planet today, there will come times when some of it will be directly related to the class or training event that you are teaching or online programs you are administering. You must plan ahead, therefore, for how that course, module, or program might take advantage of live news feeds and events. Many tasks and activities can be connected to the live event, including student-generated podcast reviews, compilations of students' reflective writing, student and instructor blog postings, and online class discussions. The exact form of the activity chosen may vary quite significantly each time.

Variations and Extensions. Assign students to search for live science, creative expression, or artistic invention events. Each must come up with one such event during the course or training experience. They should post a link to it in the course website and make an announcement to the class. Attending the event may be optional or you may request students to attend a set number of them during the class. A short reflection paper can be assigned requiring students to link concepts, themes, and ideas in the course to the live event. Unique connections and insights might be acknowledged and praised. Once again, students could be given bonus points or be allowed to delete any one assignment if they contact the original researcher, artist, or inventor. Any response from that person that is shared with the class would be worth additional points.

Key Instructional Considerations

Risk index: Medium
Time index: Medium
Cost index: Low (assuming any videostreamed activity is free to attend)
Learner-centered index: Medium
Duration of the learning activity: 1–2 weeks

Activity 23. Live Scientific Discovery or Invention

Description and Purpose of Activity. As seen in the previous activity, new discoveries and inventions occur each day. Increasingly, however, researchers, institutions, and publishers work together to synchronize the announcement of a unique finding, life-saving product, or controversial new theory. In effect, science can be immediately felt in the classroom and in everyday life. A snowball of activities can occur that make it seem that the idea, concept, species, entity, principle, theory, and so forth had been known for some time.

As an example, immediate science took place on May 19, 2009, when Dr. Jørn Hurum, a paleontologist from Oslo University's Natural History Museum, announced what appeared to be a vital missing link in human evolution called "Ida" (Randerson, 2009). Across the ocean that same day, one could walk into Barnes and Noble, Borders, and many other bookstores throughout North America and find a brand-new book on display at the front of the store called The Link (Tudge, 2009). If a reader did not understand aspects of the book, a website for the discovery went live as well on May 19, 2009, and could explain many aspects of Ida.

For scholars interested in what the discovery meant, a research article on Ida was simultaneously published in the Public Library of Science (PLOS) (Franzen, Gingerich, Habersetzer, Hurum, von Koenigswald, et al., 2009). Importantly, all PLOS articles are free and open to the world community. To better understand the finding, photos were released on the homepage as well as a video from Sir David Attenborough that explained the importance of the finding.

At about the same time, *National Geographic* discussed aspects of the finding while posing serious questions and concerns. It also added to the mix of immediate learning possibilities with a link from their article to an interactive prehistoric timeline on the Web (National Geographic News, 2009). So much occurred on that one tiny day in May! Science was finding its way into K–12 and university classrooms as well as research labs around the planet on that same day. Young students learned about Ida exactly when most scientists became aware of the findings—not months, years, or decades later, as is often the case. With such activities occurring regularly online, there is much opportunity for fostering student curiosity and motivation. The Web certainly offers remarkable opportunities for surprise, intrigue, discovery, and sharing. Take advantage of it and you too will spring to life with learner curiosity.

Skills and Objectives. Includes connecting course content knowledge from books and lectures to the real world, extending knowledge to the edges of the field, appreciation of expert viewpoints and insights, multitasking, and learner curiosity and engagement. A

key goal of such an activity is to apprentice students into the field and give them a taste for what is presently exciting people.

Advice and Ideas. Students can be tasked with exploring different aspects of the finding or invention. They could also work in teams, with one student reviewing available multimedia of the finding or invention (e.g., pictures, audio, or video resources), another finding and reading primary news reports and blog commentary, and a few other students reading and summarizing any available research reports or books on the topic. You could require this team of students to come up with a report, critiques, or reaction papers on the discovery or invention.

Variations and Extensions. Students could write to the scientist, explorer, inventor, or members of the research team for additional information, with the goal of pushing into areas beyond what has been reported in the news. As part of this project, they might produce individual, group, or entire class blog posts or podcasts about the discovery or invention.

Key Instructional Considerations

Risk index: Medium
Time index: Medium
Cost index: Low (assuming accessing information related to the event is free)
Learner-centered index: Medium
Duration of the learning activity: 1–2 weeks

Activity 24. Just-in-Time Syllabus

Description and Purpose of Activity. The previous activity relied on current events in the news to spur student curiosity and course interest. It was just a small taste of what is now possible with online resources for this third principle of TEC-VARIETY. Back in 2002, Shyamala Raman from Saint Joseph College, Jean Shackelford from Bucknell University, and Kim Sosin from the University of Nebraska Omaha, coined the term "Just-in-Time Syllabus" (JiTS). In their undergraduate economics courses, they would incorporate time-sensitive data from the real world as it occurred. As economic conditions changed, so did their syllabus.

According to Raman, Shackelford, and Sosin (2002), their innovative use of online materials enriched and energized traditional textbook content. In economics, as with many other disciplines, information is quickly outdated. Worse, it is often presented in a boring manner. If, however, a syllabus is designed as a shell with key themes outlined, additional content and applications can be infused into the course according to student interests as well as prevailing societal trends and conditions.

For example, students majoring in business management might have different examples and case situations from those in public policy or environment science departments. Concepts like supply and demand and elasticity might be linked to breaking news from the Gulf region with protests and potential leadership changes from Oman or Bahrain, rolling blackouts in California, or the infamous BP (Deepwater Horizon) oil spill of 2010. Over time, sets of articles on a particular topic could be handled by different students or groups in the course and each person or group would have to glean from these

resources relevant information to make sense of the situation from an economics stand-point. They could discuss price elasticity or the determinants of supply.

When the three scholars mentioned earlier designed their JiTS approach, the Web was still in its infancy. Today much more is possible. It is important to point out that Raman, Shackelford, and Sosin were attempting to foster student critical thinking and the sharing of perspectives. Other skills and competencies they targeted included collaboration, synthesis, literacy, and responsiveness. They also hoped to foster four levels of thinking from receiving information (Level 1), to observing and comprehending it (Level 2), to personally developing alternative interpretations (Level 3), to analysis and synthesis of it (Level 4).

There are many ways that the idea of a JiTS might be incorporated into an online or blended course. Following are three examples.

- Suppose you are teaching a course on Middle East culture, civics, economics, or political science and there is a major political revolution or a so-called "Arab Spring." To you and your students' surprise, you locate an online interactive timeline of news events by date for each country in the Middle East as reported by the British newspaper, *The Guardian* (Blight & Pulham, 2011). Articles related to protests, political moves, international responses, and regime changes are noted in different colors as you scroll through time. In this way, the Arab Spring timeline and associated navigation bar provide a highly unique way to synthesize events of the past while dynamically adding new ones as they transpire. Clicking on any link in the timeline leads the user to a news story for a particular date and country. For instance, assume it is July 8, 2011. A link in the Libya timeline indicates that on that particular date there was a news story about Muammar Gaddafi threatening attacks on Europe (Smith, 2011). The news from Saudi Arabia, Lebanon, and Egypt was different that day. You soon realize that each node is an opportunity for student exploration, reflection, and discussion. The comprehensive timeline from *The Guardian* is like a supplemental reader for the course. Some instructors, in fact, might take it so far as to replace the standard course syllabus with that one interactive news timeline. As the timeline changes, so, too, would the course; it would be constantly evolving. This would be the ultimate JiTS.

- Imagine that you teach a course in physical geography, world cultures, or emergency preparedness. For each major earthquake, tsunami, or hurricane of the past decade, there are likely online maps, interviews, video footage, news articles, and live accounts that can be used to excite learners to complete particular course activities related to these events (Shahid, 2011). With geographical and climate information in the news each day in addition to thousands of relevant blog posts, resources like Earthwatch and National Geographic, and portals of images online in Flickr or Picasa, a course could tap into a rich tapestry of supplemental resources each week. And that course would evolve day by day.

- Similar possibilities arise for a course on emerging technology for learning intended for undergraduate pre-service teachers as well as graduate

students. Each day is replete with technology news from CNN, the *New York Times,* eCampus and eSchool News, and other online resources. As a result, there could be links each week to new research reports, technology announcements, and interesting tools and applications related to content in the course; the course would thus evolve depending on news related to learning technologies. For instance, an article appeared about the South Korean government's committed $2.4 billion to a project that would see all K–12 textbooks digitized by 2015 (Haq, 2011). Students could discuss the ramifications for the world as well as issues of mass adoption and scalability to other emerging technologies. Then the instructor could provide the following quotation from the article, "The digital conversion is part of a project to create 'smart schools' across the country, according to South Korea's Education Ministry. The state says it plans to incorporate 'smart' features such as video, animation, virtual reality, and hyperlinks, in its digital curriculum." With that new information, students would discuss the theoretical underpinnings of each form of technology. They might even create prototypes of a "smart school" project or write to members of the South Korean government for sample content or virtual demonstrations.

Skills and Objectives. Includes analysis and evaluation skills, multitasking, linking new knowledge to current events in the news, learner curiosity in content, encoding the news information both verbally and visually, flexibility in thinking, and critical analysis of concept application. This technique provides the skeleton, shell, or base knowledge extending to online information in the form of news, research reports, trends, or opinions.

Advice and Ideas. We place our syllabi online for our students. Such online documents are especially handy to look things up, even when not teaching the course. As new articles and resources appear, they can be added on the fly to that online syllabus. New course activities can spin out of those recent resources. Though highly engaging, such an approach requires much time, effort, patience, and persistence to generate and maintain. To save some time, you might consider allowing one or more students in the course to drop one assignment in return for helping you review and update the online course syllabus and associated contents.

When you rely on evolving trends to augment and supplement traditional course materials, you are taking a risk regarding the content that will come up. Perhaps the exact example you were hoping to embed in the course will not appear in the news that semester. Be honest with your students. Tell them that you may alter your plans based on what is available online to supplement the course.

As more materials are placed online, the role of the instructor shifts from that of deliverer of content to online concierge and curator of content. Such a shift is simultaneously exciting and difficult to master. Few instructors have had the necessary training to be an online concierge, counselor, or curator. Nevertheless, these are often the new roles.

Variations and Extensions. The course could be divided into two parts: Part 1 for delivering some set content that the instructor or administrators of the program believe students need to be aware of; and Part 2, which relies on JiTS ideas.

Key Instructional Considerations

Risk index: High
Time index: High
Cost index: Low
Learner-centered index: High
Duration of the learning activity: Throughout the course or as needed

Activity 25. Just-in-Time Teaching

Description and Purpose of Activity. A similar method to the preceding is called Just-in-Time Teaching (JiTT). The essence of JiTT is to have students complete some task or assignment prior to class. So if you are teaching a psychology of learning course and the current unit is on cognitive psychology, there may be a short quiz online about concepts such as working memory, knowledge transfer, accommodation, metacognition, and so on. The form of the exam could be objective and easily scored or more open-ended and subjective. With a large class, objective measures naturally are much easier to embed.

JiTT often involves a set of test or reaction questions delivered to students prior to class. Students could first read chapters of a book or several articles; alternatively, they may watch and analyze an important video segment, complete a case problem or simulation, or analyze a set of data. Questions related to each JiTT activity can be posted in the course website or within some other tool. To foster efficiency, give students a set amount of time to respond. As with the JiTS activity, JiTT allows for more student engagement and participation than traditional lecture-based classrooms. JiTT activities can be extremely open-ended and conceptual in nature. At the same time, they can also include highly objective questions and activities that are easily scored by an online program.

This idea was originally developed for physics content with support from the National Science Foundation (Novak, 2000). While physics instructors were the first to rely on it, the JiTT approach soon expanded into other disciplines such as biology, chemistry, journalism, language education, business, and many other areas. In the beginning, JiTT was intended as an online warm-up activity for a later live meeting.

In journalism, for instance, Professor Claude Cookman at Indiana University has found a way for his students to reflect online each week using a series of thought-provoking questions he provides. His primary goal is to help them critically analyze and process the readings prior to coming to a live class session (Cookman, 2009). Cookman refers to his method as "Thinking About the Readings" or TARs.

When employing TARs, he asks his students to write short essays on oppositional readings. He and his grading assistants then provide extensive positive feedback as well as constructive criticism on those essays. A key advantage of TAR assignments is that the instructor can more readily know student perspectives on different issues. With that insight, he can spur intense debates, address misconceptions, conduct interesting surveys and polls, and spin out other activities as needed. In terms of critical thinking skills, the instructor can nurture compare and contrast skills as well as those related to summarization, formulating points of view, defending positions, and critical reflection.

Online warm-up activities like JiTT and TARs give instructors the opportunity to analyze the information collected from students and alter their classes or upcoming ac-

tivities accordingly. A well-designed JiTT activity is akin to a brain surgeon opening up someone's cranium and taking a peek inside. With that information, the instructor can then devote more time, resources, and attention to areas in need. Concepts and principles that students were having difficulty with can be directly pointed out. In addition, supplemental readings or video demonstrations of key course concepts can be placed in the course website based on the JiTT results. Instruction becomes tailored or individualized according to student needs.

Skills and Objectives. Includes self-testing, analysis and evaluation skills, linking new knowledge to prior knowledge, priming knowledge stores, learner curiosity in content, and concept application. This technique starts with a skeleton, shell, or base of knowledge which then extends out to online information in the form of news, research reports, trends, and opinions. Another key objective is to record course concepts that may be difficult for the learner.

Advice and Ideas. Students should have examples of the task expectations or the quality of answers that the instructor is looking for. JiTT questions should be designed clearly and appropriately for the intended audience. In addition, the results should be shared quickly and with the entire class.

The resource center at Carleton College in Northfield, Minnesota, has designed online resources to guide faculty members through the Just-in-Time Teaching process. Their online JiTT resource details what JiTT is, how to use it, and its benefits to students and instructors. It also details how to get started, the research on JiTT in fields such as physics, economics, biology, and history, and how to review and assess student responses. In addition, this resource offers more than a dozen JiTT examples in earth science.

One such JiTT warm-up activity is on groundwater and archaeology in a course on geoscience created by Laura Guertin from Penn State University Delaware County (Guertin, n.d.). Her JiTT questions include:

- What is causing the groundwater to rise to the foundations of Egypt's archaeological structures? What damage is the groundwater doing?

- Describe at least two different solutions that have been proposed to combat the problem of the rising water table damaging the monuments. Which do you think is the better one, and why?

- In your opinion . . . do we even need to save these monuments? Why? I mean, what are they really worth—are they worth anything?

Instructors may choose to grade student responses to randomly selected JiTT exercises, or perhaps for a random selection of students for each exercise. Instructors may also grade any JiTT task for simple completion rather than accuracy. In any event, the act of grading or assessment will encourage students to do the course readings and activities prior to class time. The percentage that such tasks will represent in the course grading system might be as low as a few percent of the total course points to perhaps 25–30 percent or more.

Variations and Extensions. Ask the students to design the JiTT activity or set of preclass questions for students taking the course in the future. Perhaps have a different volunteer each week. Students can also analyze JiTT and TAR results and explain them to the class.

Key Instructional Considerations

Risk index: High
Time index: High
Cost index: Low
Learner-centered index: High
Duration of the learning activity: Throughout the course or as needed

Activity 26. What's My Line Guest Games

Description and Purpose of Activity. Students may not be aware of the background, accomplishments, interests, and experiences of synchronous and asynchronous guests. In this activity, you would invite an unannounced guest for a presentation or discussion. First, however, ask your students to determine the occupation or expertise (i.e., line of work) of the guest or the actual name of this famous mystery person. Questions from panelists or participants can only be in a yes-or-no response format. If there is a pair of guests, there could be multiple rounds of probing and guessing.

Once the person's identity is determined, there may be additional competitions to locate information about him or her. Based on the clues received, students could conduct searches in places such as: (1) Google Scholar for papers the person has written; (2) Google Books or Amazon for books by him or her; (3) Google Images, Picasa, or Flickr for pictures or images of the mystery guest; (4) Facebook for personal and professional information; (5) YouTube, Google Video, or other shared online video sites for presentations, interviews, news stories, and documentaries; and (6) online news, biographies, blogs, or podcasts for still other insights on this individual. To focus their searches and create team spirit, you could number students from one to six and assigned one of these six places to search; in addition, students could accumulate bonus points as individuals or teams for correct guesses.

As a result, students will learn about the background of a key individual in a field in some depth. In addition, much more content-related information on the person will be available for later discussions and activities.

Skills and Objectives. Includes social interaction, search skills, critical analysis, connecting course content to important people in the field, curiosity, and dissonance. The key is to arouse student curiosity about someone or something that they are known for.

Advice and Ideas. There are many possible formats and procedures. The format selected might become enhanced and fine-tuned over time. If you do a "What's My Line" activity every week, the students you allow to guess the identity of the individual could rotate each week on a "What's My Line" panel. If this is only a one-time or occasional activity, the entire class might be asked to participate. Be sure to clearly spell out the rules of the activity, including the start and end dates. Students incorrectly guessing the occupation or name of the guest should be eliminated from competition. Hints might be offered by the instructor as necessary.

Variations and Extensions. Instead of a synchronous session with the guest or expert, the instructor could detail clues each day about a mystery person in an asynchronous discussion forum and have the students determine the person's identity. Once they have properly guessed the occupation or name of the guest, that person could be invited in

for a synchronous chat or to comment on the discussion that had taken place thus far. Alternatively, the expert may never appear and may, in fact, have lived centuries or millennia ago; thus, instead of a live appearance, you could have students simply reflect on, write about, discuss, and debate the ideas of that person. Dressing the part, of course, is always optional for the instructor or any guests.

Key Instructional Considerations

Risk index: Low to Medium (depending on how effectively the technology works)
Time index: Low to Medium
Cost index: Low
Learner-centered index: Medium
Duration of the learning activity: As needed

Activity 27. A Day in the Life of a Scientist, Scholar, or Celebrity

Description and Purpose of Activity. One way to excite students about the content is to have them track one or more famous people in the field. The assigned task could be to write a blog post, paper, or discussion forum entry on an imaginary day in the life of an award-winning scientist, well-known scholar, or celebrity in a particular field. You may request that they respond to particular questions or issues in their writing. For example, who were the person's friends, what were her hobbies, what items of significance did she produce in her life, how did her career change and when, and so on.

To aid in task support, students might be given a list of well-known people in a field with brief one- or two-sentence biographical sketches about each one. You could include relevant links to biographical information on each person. To streamline the activity, students could be asked to sign up for a particular person to investigate by completing an online form. Alternatively, students might brainstorm which leaders in a field to investigate based on their prior experiences and readings to date in the course.

Once a person has been selected (or while still mulling it over), students might explore his homepages and blogs, subscribe to his Twitter feeds, watch his videos, or read his online news. Instead of writing one blog posting or discussion forum entry, students could write a series of such postings on that individual for a week. Alternatively, you could ask them to post brief reflections on multiple people in the field. Their postings should note particular contributions of that person as well as significant changes or evolutionary steps in his professional careers.

When completing the assignment, ask students for a final reflection paper discussing how what they learned from researching that person relates to specific topics and ideas in the course, including new concepts, theories, principles, and related fields of study. Such a tactic should help to synthesize student learning and excite them about the field.

Skills and Objectives. Includes self-directed learning, motivation and engagement, appreciation for a topic or field, analysis skills, personalizing learning, reflection, and analysis skills. The key aspect of this activity is an indirect apprenticeship into the field.

Advice and Ideas. Perhaps have students explore sites of famous people from an online portal or resource. In that portal, you might have links to Wikisource, the Encyclopedia of World Biography, Biography.com, FamousPeople.co.uk, FamousPeople.com, Biography Online, Wiki-quote, Turning the Pages from the British Library, Google Books, and other such websites. Constrain student searches by providing instructional scaffolds of your expectations as well as examples of prior student work. Before they start, request that students select a couple of potential people to study and then turn in one- or two-paragraph justifications for researching each one. Instructor or peer feedback will help shape their ideas and explorations.

Remember one of the opening quotations to this chapter about the importance of curiosity from Brian J. Ford from Cambridge? Not heard of him? Students locating his homepage online will find out that he has over 30 books to his credit, including *Sensitive Souls*, *Patterns of Sex*, *The Digital Microscope*, and *Future Food*. He also has a new book on secret weapons of WWII and several others in the works (Ford, 2010). The online biography on his homepage will also inform the learner that he is not only the founder of *Science Now* and *Where Are You Taking Us?* for the BBC but also a former TV game show host. There is also a Wikipedia page on Professor Ford which contains dozens of interesting information tidbits that you can learn nowhere else. To see him in action, you need only go to the Tellymonitor channel in YouTube for examples of saved video footage. Once there, students can watch candid interviews, stunning presentations and lectures, and become immersed in his travels. Professor Ford's Twitter feed provides occasional current and ongoing information. On top of that, students can send Brian Ford an e-mail with questions and then find him on sites including Facebook, LinkedIn, Bebo and MySpace. E-mails to him are always answered.

If, instead of a biology course, suppose you were teaching something in computer science, engineering, psychology, marketing, video gaming, or entrepreneurship. In any of those situations, someone like Nolan Bushnell, founder of both Atari and the Chuck E. Cheese's Pizza-Time Theaters chain, might be the perfect celebrity guest for one or more of your students to investigate. As noted in his Wikipedia page, Bushnell is considered a founding father of the video gaming industry. The history of the field of video games as well as many aspects of home computing can be revealed to students by investigating the long career of this one individual. In addition to Wikipedia, you can also find informative articles on Bushnell in *Inc.* magazine (Chafkin, 2009) and interviews of him in places like *Gamasutra* (Sheffield, 2008). Want more? Google can also provide a timeline view of search results from his birth in 1943 to today. And like Brian Ford, you can follow him in Twitter as well as friend him on Facebook. Once connected, you can send him a private message and await a response. Many additional links for Nolan Bushnell, including decades of images, interviews, company reports, and so on await your searching pleasures.

These are but two examples of what is possible today. Both illustrate the fact that much is possible today online to foster learner curiosity and engagement. Much that was once unknown, rumored, or misunderstood can now be investigated and verified or refuted with the simple click of a mouse or swipe of a finger and some seasoned critical thinking skills. These are exciting times to be able to follow the world of a scientist, scholar, or celebrity.

Variations and Extensions. If their selected person is still alive, ask students to write to the scholar. If not, they might write to someone connected to that individual (e.g., a direct descendent or relative, the director or board member of a foundation, or a curator of an online resource for that person). Students could also engage in an online role play or debate where they must assume the characteristics of the person that they have been tracking. If the class is fully online, the role play might take place live in a Webinar or chat, or by asynchronous discussion posting. If the course is blended or F2F, students could physically assume the persona of their character in front of their peers.

Key Instructional Considerations

Risk index: Medium
Time index: Medium
Cost index: Low
Learner-centered index: High
Duration of the learning activity: 1–3 weeks

Activity 28. Cultural or Contextual Blogs and Resources

Description and Purpose of Activity. Traditional textbooks are often criticized for their homogeneous and bland content. Part of the intrigue with Web-based courses is that they can tap into rich online content as well as connect with people around the world. Learner curiosity can be aroused with content that they might not normally encounter.

As an example, instructors teaching about the Stó:lō people or other First Nation tribes and cultures in British Columbia from over 10,000 years ago or some distant culture in Ecuador or Albania could rely on blog postings of archaeologists discussing customs, newly discovered artifacts, rituals, maps, and personal accounts (Bonk, 2009b). There are even interactive online archaeology sites and art museums for students to experience particular events, peoples, and projects from ancient Minoan life in the second millennium B.C. to the Roman Empire to the Middle Ages and on to the Renaissance. For those teaching American history courses, similar online interactive sites now exist for historic Jamestown in the 1600s, Colonial Williamsburg in the 1700s, Civil War prisons in the 1800s, the growth of personal computing in the latter part of the 1900s, and the impact of hurricanes and tsunamis in this century.

Cultural and contextual enhancements need not be limited to history, archaeology, and anthropology courses. Accounting and finance students might listen intently to business executives on the podcast show, "Wall Street Confidential," where guests explain their perspectives on recent events in the news or changes in government legislation. They might also listen to free podcasts from the *Wall Street Journal*. Similarly, nursing students might gain insights about their chosen field from listening to podcasts found at "The Nursing Show" or "Insights in Nursing: Interviews on Trends and Careers in Nursing." Courses in religious studies or world cultures can tap into online photo websites displaying different customs, rituals, historical sites, common rituals, and other religious practices as well as online museums of well-known statues, tools, books, and

so on. In fact, dozens of expert blogs, podcasts, and news reports exist on nearly any subject area.

As an example, Professor Kim Foreman at San Francisco State University created a blog called "Come and See Africa" (CASA) (Foreman, 2010) where she documented missionary work that she and her husband, Chris, conducted in different parts of Africa. For more than a decade, they traveled to Rwanda, Burundi, Congo, and Uganda. Many pictures and stories showcase their journey, including the people they met and the places they had been. An associated website, Come and See Africa International, has additional documentation including links to pictures for each trip, videos, mission statements, and seminar notes from different educational and religious speeches given (see Figure 6.1).

FIGURE 6.1: KIM FOREMAN (THIRD FROM RIGHT) AND CHRIS FOREMAN (SECOND FROM RIGHT) DURING THEIR MISSIONARY WORK IN RWANDA.

This is but one example of the endless opportunities for adding culture and context to course or training experiences using online resources. Sadly, Kim Foreman died in a car accident during a missionary trip in the summer of 2010, yet her blogs and documentation from previous trips continue to live on. In effect, any documentation of culture or society can be reusable for years and even centuries to come. Every blogger today is a historian of some aspect of twenty-first-century society. Each insight, comment, and resource posted might be used in different ways to spur student interest in a topic. For instance, Kim Foreman's final blog posts could find use in pre-service teacher education courses as well as those on African history, pastoral ministry, higher education policy, and many other disciplines and situations.

Skills and Objectives. Includes cultural curiosity, reflection, seeing multiple perspectives, and global understanding and appreciation. Central to this activity is the opening up of perspectives beyond limited views from textbook authors, instructors, and standard course resources.

Advice and Ideas. Find a quiet location and spend one or two hours brainstorming a list of possible course extensions and open educational resources that might prove valuable in one or more of your courses. Next, prioritize that list and search the Web for information related to it. Keep a log or database of what you have found. During the ensuing months or years, keep updating that log or list. Share what you have found with colleagues and ask for their recommendations. You could also ask students for their advice about contextual and cultural information that they are aware of. They might make recommendations about the inclusion of such content. The instructor should evaluate any cultural and contextual content found online that is used.

Variations and Extensions. The instructor could obtain the e-mails or physical addresses of some of the people referred to in a blog post, podcast, or online presentation or resource. Once obtained, those enrolled in the course could write to some of these people for an update on their lives or to ask them to respond to other questions or issues that they have generated. Students can write reflection papers on their findings; they could also write to the original creator of the online content and ask for additional information and insights as to why the content was originally posted.

Key Instructional Considerations

Risk index: Medium
Time index: Medium to High
Cost index: Low to High
Learner-centered index: Medium
Duration of the learning activity: As needed

Activity 29. Extreme Learning

Description and Purpose of Activity. The past decade has seen a proliferation of ways in which people learn and teach. Humans take learning to the extreme edges of the planet and beyond. Students can now control submarines from their classrooms, send research questions to explorers excavating Mayan ruins, comment on blog posts of teenagers attempting to become the world's youngest global solo sailors, interact with Space Shuttle astronauts, and read dispatches from adventurers on their way up Mount Everest. They can even sit in the tropics and interact with scientists studying polar ice, the Antarctic toothfish, or penguin populations. And there is much funded research and curriculum innovation at the K–12 level for such types of learning.

During the past several years, such projects have expanded and multiplied. Among them are the Polar Husky project (also called GoNorth!), the Journey North, Earthducation, Geothentic, the Last Ocean Project, North of 60, the Jason Project, and the Ice Stories project from the Exploratorium in San Francisco. This area is known as "adventure learning" (Doering, 2006).

Among those at the cutting edge of such curriculum design and research are Aaron Doering, Charlie Miller, and their colleagues at the University of Minnesota (Miller, Veletsianos, & Doering, 2008). Grounded in experiential and inquiry-based learning, Doering and his colleagues define adventure learning (AL) as "a hybrid distance education approach that provides students with opportunities to explore real-world issues through authentic learning experiences within collaborative learning environments"

(Doering & Veletsianos, 2008, p. 25). AL is a means of engaging students in asking questions, solving local as well as global problems, and becoming curious about environmental, scientific, and geographic problems and issues. It is authentic and anchored in real-world environments (Doering, 2006). AL has become so popular that unique instructional design models have been developed for it (Veletsianos, & Klanthous, 2009).

AL is often limited to K–12 situations. Consequently, we will use the phrase "extreme learning" here which will include adventure learning. Bonk and his research team refer to extreme learning as any use of technology in unusual or nontraditional ways to learn or teach (Bonk, 2012). Today people can learn while in a plane, ship, bus, train, or car, or even when climbing mountains or out on polar ice (Bonk, 2009c). Extreme learning can also occur within the confines of your own home.

For instance, anyone can now learn at home from some of the foremost experts in the world such as professors at MIT, Yale, UCLA, Oxford, Columbia, and Stanford. There is now a video database to tap into lectures from a portal called "Academic Earth." One hour you might view a course lecture from Paul Bloom at Yale on Freudian psychology and the next hour you could learn about the stock market from a computer science lecture and simulation from Eric Grimsom and John Guttag from MIT. In addition to Academic Earth, you can watch TED talks from internationally prominent people such as Sir Ken Robinson and his discussion of how schools kill creativity; teenager Adora Svitak telling us "What adults can learn from kids"; Mary Roach discussing her book about sex; or Jill Bolte Taylor describing her insights from a stroke. Given the passive nature of watching such shared online video content, some people may consider this a modest version of extreme learning. Nonetheless, there is an amazingly diverse range of learning choices from such shared online videos now available to people in the comfort of their own homes.

Extreme learning certainly need not be passive viewing. In a project called Take Two, students can also learn from editing professional-grade video footage of a world crisis or issue. Such issues might include water emergencies in the Sahara, education problems in Sudan, or conflict in the West Bank. As a learning goal or outcome, students might use this footage to create and submit their own video projects to YouTube or CurrentTV.

Other forms of extreme learning include students learning English at LiveMocha, English Central, Babbel, or BBC Learning English. They can go on a hike and collect, record, and analyze data with their mobile devices. Each of these activities is within the definition of extreme learning.

What should be apparent by now is that extreme learning can take many forms. There is no standard description or set of procedures to follow. Instead, it is tremendously open-ended at this time; however, in the context of a course, the length of the activity should be clarified. When done, students could write a reflection paper about the experience or discuss the situation in an online discussion forum.

Skills and Objectives. Includes student excitement for learning, intrigue, learner motivation into the unknown and unusual, engagement in real-world learning pursuits, expert modeling, and awareness of concept use in the real world. At its core, extreme and adventure learning activities stretch student thinking about learning, education, and career possibilities.

Advice and Ideas. There are many types and levels of extreme teaching and learning. Often, however, extreme learning is a high-risk endeavor because the technology may not work. In addition, it may only marginally relate to your course syllabus plans and objectives. Despite the risk, it can help students find a niche area to explore or perhaps even a future career. To succeed, you must be willing to accept failures if the technology does not work properly or if your students become highly engrossed in materials that are only tangentially related to your course topic.

Extreme learning opportunities can arise at any point in a semester or learning experience. Keep your eyes and ears open. Be sure to include enough flexibility in your course agenda and syllabi to take advantage of them when they appear. If you want to preplan the event, you can create a list of extreme and adventure learning opportunities. Ask students to rate or evaluate them. Whatever is selected, be sure to record the events so that they can be shared later with others.

Variations and Extensions. Consider having your students write reflection papers or book chapters on their experiences during the extreme or adventure learning project. That book of experiences could include interviews with fellow students as well as others around the world taking part in the adventure. Such extreme learning stories could accumulate over time.

Key Instructional Considerations

Risk index: High
Time index: Medium to High
Cost index: Low to Medium (depending on the task and equipment
    or technologies required)
Learner-centered index: Medium
Duration of the learning activity: 1–4 weeks

Activity 30. Quests and Probes on the Web

Description and Purpose of Activity. This technique asks students to jot down questions that they have about a topic and then search the Web for information. Although language learning is the primary example we insert here, the technique can be implemented in any discipline. The key is to personalize the learning with items of interest to the learner.

There are a vast array of pedagogical ideas documented in the research literature on computer-assisted language learning (CALL) (Egbert, 2005; Meskill, 2005; Murday, Ushida, & Chenoweth, 2008; Savignon & Roithmeier, 2004). Among such activities include using online dictionaries and other referenceware, blog writing and reflection, Web engine searches, and reading and summarizing online news. In a report by Liang and Bonk (2009) on English as a Foreign Language (EFL) instruction in Taiwan, one activity intended to arouse student curiosity was titled, "Inquiring Minds Want to Know." In this activity, students are asked to think of a new topic of interest to them. Next, they write down five questions related to it. After that, they must search Web resources such as CNN News International, BBC News, MSNBC Headline News, Google News, and Yahoo! News for information on their topic. When they have found an article of interest, they read it, and during their reading, they write down search words and additional

questions that have sprung up in their heads. They also can ask a series of generic questions when searching and reading online texts.

Skills and Objectives. Includes authentic learning, learner motivation and engagement, reading skill and comprehension, inquiry and questioning skills, reflective writing, feedback, and following procedures. A primary objective for language learners is to be situated in real-world contexts where they can witness the nuances of language use and reflect on them. In other disciplines, this activity is the spark to future quests and explorations and deeper probes into the content.

Advice and Ideas. Caution students that answers to their questions may not be immediately found. Given the possibility for frustration, consider assigning each student a Web buddy or partner who can be e-mailed at any time for support. And be sure that the task procedures are well laid out. Initial answers to student questions could be shared with the instructor to determine whether students are floundering or proceeding as intended. For further support, you could develop an online job aid. When the task is completed, be sure to ask students about any bottlenecks or difficult moments in the process. At the end of the task, celebrate students who find answers to most or all of their questions. Upon completion, a follow-up task might be designed to build on that learning.

Variations and Extensions. Once students have located part or all of the information they are seeking, ask them to blog on their online learning experience. In their blog posts, they could list each question as well as the answer that they obtained online. Alternatively, they might post their questions to an online discussion forum thread for the course. Fellow students could respond to the reflections of one or more peers. A third option would be a reflection paper or worksheet with the students' questions and answers.

Another option would be for students to find two or three news stories related to their interest and compare and contrast the information that each provides. Pushing them further, the instructor could ask students to find at least one article that contains multimedia, such as a video, audio interview, or interactive timeline of events. Yet another idea would entail instructors requiring students to use online referenceware to find their answers, including online thesauri (e.g., Roget's Thesaurus, Thesaurus.com, and the Visual Thesaurus), dictionaries (e.g., Dictionary.com, Merriam-Webster's, YourDictionary.com, and so on), and encyclopedias (e.g., Encyclopedia Britannica, Encyclopedia of World Biography, Gale Encyclopedia of Children's Health, Wikipedia) for answers. Another variation would be for the instructor to craft all the questions and randomly assign them to students.

Key Instructional Considerations

Risk index: Medium (directions may be confusing for nonnative speakers)
Time index: Medium
Cost index: Low
Learner-centered index: High
Duration of the learning activity: As needed (depends on the type of course)

Final Reflections on Curiosity

In this chapter, we have detailed only a few examples of the pedagogical activities that might spark your learners' curiosity and sense of wonder. As is clear, opportunities to ignite curiosity pervade Web-based learning contexts. New cultures and customs can be brought directly into an online or blended class where and when needed. Events that are groundbreaking or outside the norm might be highlighted, analyzed, and discussed years before they are even considered for a course textbook or study guide. The requisite syllabus from now on may be organized just-in-time and in a state of constant flux. The learning participants using that syllabus can be following an online adventure even while engaged in one. Learning may even bend toward the furthermost edges of what is now possible and push into nontraditional or extreme learning territory.

As alluded to at the beginning of this chapter, however, heavy doses of suspense, curiosity, and intrigue are not always fun or pleasurable events. Searching, finding, and filtering through the relevant information sources each day is cognitively as well as physically demanding. At the same time, the tools and resources for fostering curiosity are all around us. Be mindful of them. Talk to colleagues about what they are experimenting with to arouse student learning and increase retention rates. Seek advice and suggestions from your students as well; they are the ones with whom you will be using these strategies.

This latter point was underscored and expressed through the disappointment of an online student interviewed by Khoo. He was asked how it felt when instructors failed to allow for learner curiosity and experimentation to flourish. He stated, "The disappointing thing was that the discussions didn't really happen. They [the lecturers] didn't make it a place for experimentation, for learning. That was a bit disappointing."

Not all of the ideas presented in this chapter will work for you. Find those that will and polish them up in your own inventive ways. Consider those that may not work and alter or perhaps transform some aspect of them to make each more suitable to your intended audience. Fostering curiosity may not be the first consideration when designing or delivering online instruction. Perhaps it should be.

There are over seven billion humans on this planet seeking knowledge in an attempt to better their lives. As such, there may be no motivational principle that is more important than Principle #3 of the TEC-VARIETY framework. With curiosity and personal desire to know more, learners can jump through new learning vistas.

Some of you will earmark or bookmark this chapter on curiosity, surprise, and intrigue. You may consider it central to your online teaching plans and the very core of the TEC-VARIETY framework. Others will say, "Wait a minute! I thought variety was the spice of life. And I thought learning was supposed to be fun?" We would agree with aspects of that perspective as well. And so now we turn to the fourth principle of our framework which highlights online learning variety as well as online fun, fantasy, and novelty.

Praise for *Adding Some TEC-VARIETY*

"There are books on theory and books on practice, however this is the best volume ever written for using learning theory to inform effective practice. This book is a tour de force for creating an environment where students not only succeed in online learning, but they achieve excellence as well."

—**Charles (Chuck) Dziuban,** Director, Research Initiative for Teaching Effectiveness (RITE), Professor Emeritus and Inaugural Pegasus Professor, University of Central Florida, and Sloan-C Fellow

"An excellent book from world leaders in the field that will be of great value for educators and designers. Presents concrete examples grounded in solid 'practical' theory."

—**Charalambos Vrasidas,** Executive Director of the Center for the Advancement of Research & Development in Educational Technology (CARDET), Associate Dean for elearning, University of Nicosia, Cyprus, and author of several information technology and distance learning books

Based on 10 theoretically driven and proven motivational principles, *Adding Some TEC-VARIETY* offers 100 practical yet innovative ideas to motivate online learners and increase learner retention.

What motivates?

1. **Tone/Climate:** Psychological Safety, Comfort, Sense of Belonging
2. **Encouragement:** Feedback, Responsiveness, Praise, Supports
3. **Curiosity:** Surprise, Intrigue, Unknowns
4. **Variety:** Novelty, Fun, Fantasy
5. **Autonomy:** Choice, Control, Flexibility, Opportunities
6. **Relevance:** Meaningful, Authentic, Interesting
7. **Interactivity:** Collaborative, Team-Based, Community
8. **Engagement:** Effort, Involvement, Investment
9. **Tension:** Challenge, Dissonance, Controversy
10. **Yielding Products:** Goal Driven, Purposeful Vision, Ownership

This is the book you need to grow your online teaching repertoire in innovative ways that will grab your students' attention and imagination. **Additional book resources as well as a free e-book are available for download at** http://tec-variety.com.

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