

# Effectiveness of Interaction in Learner Centered Paradigm in Online Education (Part 1)

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# Effectiveness of Interaction in Learner Centered Paradigm in Online Education

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**Abstract** This paper speaks to educators, program administrators and PhD Learners intending to be educators. For three decades, critical reflection has been invoked as a good practice for adult education. “What is known about how adults learn and are motivated to participate in online learning to advance their career?” This first of two part analysis of literature builds upon theories and scholarship that leads to practitioner actions. The themes are: theories about ways of knowing, adult development, Andragogy, sharing my own professional practice as a learning facilitator. In the context of exploring how to be effective in an online environment, this discussion puts into perspective the elements of critical thinking. A habit of critical reflective is a necessity for online educators who are teaching skills and concepts to adult learners completing an academic degree.

*Key Words: Online education, critical reflection, learner-centered, virtual learning teams, Virtual Learning Environment.*

## **Overview**

The purpose of this first of two parts is to explore answers to “*What is known about how adults learn and are motivated to participate in online learning to advance their career?*” and offers to learning facilitators six initial suggestions to make a difference in adults’ learning experiences. Part two covers Andragogy and Adult Learning Theories Analysis. This paper evaluates theoretical sources about traditional teaching, and online learning. Guidance for interpreting the literature on Andragogy is direct experience in the technology industry, both worst and best practices. Attention is given to the demographic of learners earning degrees in Information Technology, a context relevant for selecting the most important theories, principles, and learning and how they can be applied to critical thinking.

## **Theoretical Foundation**

This two part discussion is organized into three themes in order to build upon philosophical scholarship that leads to practitioner wisdom in applying the theories and offer six tips for teachers: 1) becoming story centered; 2) conducting an open evaluation of learning experience increases awareness and trust; 3) teaching around the circle; 4) building upon a problem-oriented approach; 5) encouraging goal orientation defining purpose served by new information; and 6) building upon prior knowledge. Two themes arrange the ideas that support these six tips: Integrating Ways of Knowing Analysis and Adult Development.

## Integrating Ways of Knowing

This theme synthesizes ideas about ways of knowing in the digital age.

***Story Telling and Narratives.*** When summarizing theories about Narrative Learning, Merriam, Caffarella, & Baumgartner recognized that narratives take many forms understood as “storying the curriculum” (2007, pp. 207-210). Scenarios provide a context of understanding so that whenever a design for a solution is drafted, it reflects a clear understanding of the problem. Narratives help clarify a problem for which possible solutions are being analyzed which will impact business processes. Early in a life cycle, stories are useful for simplifying complex concepts.

***Story-Centered Curriculum.*** Schank (2008a) anchors his teaching in telling stories. Stories hold the interest of people especially when they are relevant and provide meaningful insights. Scenarios help make the unknown lose its uncertainty and ambiguity. For the technology project life cycle, scenarios are stories about a situation that needs to be analyzed carefully sometimes without knowing all the facts. Situations that reveal business rules can better be understood when a scenario narrative or a visual model is put together by a team. Describing a formalized Story-Centered Curriculum (SCC), Schank integrated lessons in Java or eCommerce along with dragon slaying saying that “SCC can be delivered entirely online, in person, or as a live/online combination” (Schank, 2008b, ¶4). Schank integrates “goal-based scenarios” that engage learners in defining “long-term objectives and day-to-day operations” and which deal with “scalability issues” (p. 8). Further, Schank guides on the ground, online or hybrid courses with a balance of face-to-face and web-based interactions to leverage the “best and brightest mentors” (2008b, p. 11). The visionary philosophy integrates well with an Eastern cultural way of working together within groups and adds value to teams that have cross cultural diversity, such as those that have been outsourced with members located in different continents. To speak in metaphors that resonate with technically skilled students from Asia or Europe, demonstrates effective team building and trust.

### Tip #1 – Become Story Centered

***The Great Learning.*** Non-Western ways of thinking is familiar to members of an outsourced team. Merriam, Caffarella, & Baumgartner (2007) acknowledge *The Great Learning*, which described a holistic approach for adult learning, “a highly complex process, involving commitment, continuous effort” (p. 227) which is more relevant to spiritual development than to acquisition of technical skills. To create harmony and trust in virtual learning teams, an instructor should assume the role of facilitator or mentor by becoming a stakeholder in team successes. The non-western way of thinking contributes to effective online communications for diverse teams in peer-to-peer collaboration. The philosopher Confucius expressed the insight that “the cultivation of the person depends on the rectifying of the mind” (500 B.C.E) which can be understood as expressing meaning as reasoning that is integrated with observations. While the world is constantly changing, full of challenges and stress, we can recognize an essential knowing that our

present reality as an experience of synergy or of disharmony. *Stories bring teams together.*

***Visionary Performance Indicators.*** For students who are good “digital citizens”, it is important to identify solutions appropriate to informed decisions and to apply “multiple processes and diverse perspectives to explore alternative solutions” (ISTE, 2007, ¶ 4). Building scenario about the alternatives enlivens team brainstorming and brings out the wisdom of team-thinking. This means going beyond the minimum interpretation of assignments and digging deeper into research. For teachers who engage in growth and leadership, a goal is to demonstrate “a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills” (ISTE, 2008, ¶ 5) in order to meet standards and performance indicators of the programs. A successful program designed to cultivate *ways of knowing* is not complete without the business administrators. Enlightened higher education administrators provide visionary leadership which inspires and facilitates the stakeholders toward a “shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders” (ISTE, 2009, ¶ 1). A positive influence of performance standards is best when it based on awareness of differences in learning styles.

**Tip #2 Open evaluation of learning experience increases awareness and trust.**

***Experimental Learning Cycle.*** The theory of experiential learning (Kolb, 1984) has been often referenced as a framework for progress through a “four stage learning cycle”. The cycle starts with concrete experience leading to observation and reflection, which then leads to “abstract concept formation” (Kolb, Boyatzis, & Mainemeli, 2000 as cited in Moallem, 2008). As a practitioner, Moallem (2008) applies this framework to organizing multiple instructional activities: collaborative real-world lessons, reflective individual tasks, group discussion, and use a self-assessment instrument in a manner that enables students “to experience all four stages, while choosing to proceed with their own preferred style” (p. 224). Moallem discussed a version of Kolb’s framework as a consolidation combined with that of Solomon and Felder’s self-scored survey known as Index of Learning Styles Survey (2002, p. 224). In the nature of *story telling*, the instrument puts into perspective the students’ *way of knowing* by including an autobiographical narrative with demographic and background knowledge collected about each student. A cautionary note is “A student’s learning style profile provides an indication of possible strengths and possible tendencies or habits that might lead to difficulty in academic settings” (Solomon & Felder, 2002, ¶ 4). In a pre-release of his book, Chapter 4, *Sixteen Cognitive Processes that Underlie Learning*, Shank discusses experimentation, “Learning to analyze what has worked out and what has not and why is part of living a rational life” (2008, p. 64). Shank cautions that anonymous evaluations “are not by themselves a valid measure of teaching effectiveness”, meaning that when student critique of instructor’s performance are included in the evaluation process then they should “represent only one of many measures that are used” (p. 36). Educators often discuss the concept of learning from prior experiences and life lessons, both successes

and failures. Conversational evaluation of learning experiences is enlightening when the dialog is shared in the open.

**Basic Learning Styles.** Moallem found that “integrating student preferences for learning helps the course designers to improve interactivity and social presence in online learning environments” (2008, p. 240). His discussion references Kolb’s framework for basic learning styles integrated with that of Felder & Silverman’s (Figure 1).

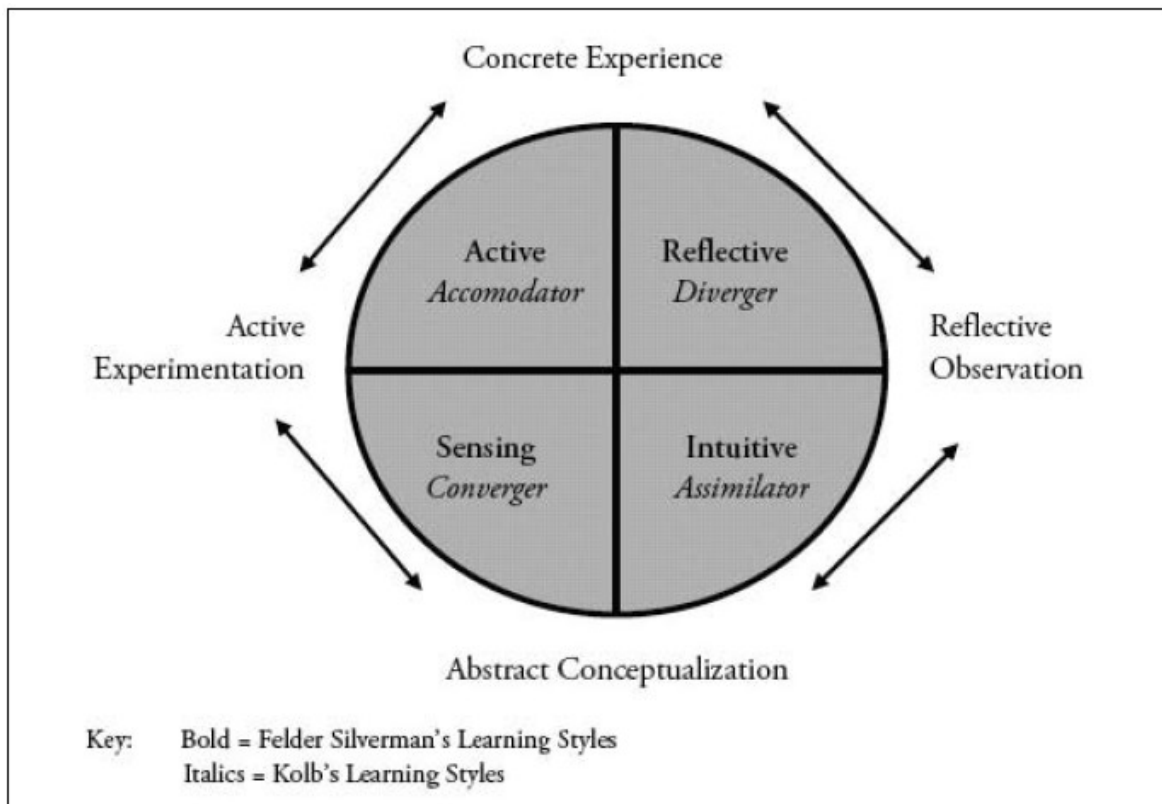


Figure 1 Experiential learning cycle and basic learning styles (Kolb, 1984)

### Tip #3 Teach “Around the Circle”

**Balanced Instruction.** The goal to be aware of different learning styles is intended to suggest teaching each student exclusively in the manner that he or she prefers. In a context of the Myer-Briggs personality types, Felder (1996) concludes that essence of balanced instruction is to “teach around the cycle,” making sure that every style is addressed to some extent in the instruction. If this approach is followed, then all students will receive learning that addresses their preferences in some moments and not being uncomfortable when they are confused. It also anticipates that learners can function in a less preferred mode, helping to develop skills in those modes. Understanding the different learning styles of students can put into perspectives the ways in which students respond to instruction or mentoring. This leads to applying the concept of Andragogy compared to Pedagogy.

## Application of Adult Development and Andragogy

This theme examines the published ideas of scholars and practitioners in the fields of education, adult learning and theories of Andragogy compared to Pedagogy.

**Satisfying the Demand for Online Education.** Availability of accurate market data for forecasting future demands for online education is unavailable but can be extrapolated from recently published statistics, so, the models assume a continuation of the status quo. The statistics shown in Table 1 indicate that the pace of connectivity will continue to escalate as use of video objects and social networking applications soak up the available broadband. Learning objects have taken on the attributes of eCommerce objects for distribution by way of Voice-over-IP. The statistics show an escalation of user growth and penetration.

Table 1 Internet Users & Population Statistics World (Miniwatts Marketing Group, 2010).

INTERNET USERS AND POPULATION STATS FOR THE AMERICAS						
THE AMERICAS	Population ( 2010 Est. )	% Pop. of World	Internet Users, Latest Data	Penetration (% Population)	User Growth ( 2000-2010 )	World % Users
<a href="#">All the Americas</a>	936,681,422	13.7 %	470,914,336	50.3 %	273.3 %	23.9 %
<a href="#">Rest of the World</a>	5,908,928,538	86.3 %	1,495,600,480	25.3 %	536.9 %	76.1 %
<b>WORLD TOTAL</b>	6,845,609,960	100.0 %	1,966,514,816	28.7 %	444.8 %	100.0 %

NOTES: (1) Internet Usage and Population Statistics for the Americas were updated for June 30, 2010. (2) Population numbers are based on data contained in the [US Census Bureau](#). (3) The most recent usage comes mainly from data published by [Nielsen Online](#) , by [ITU](#) , and other trustworthy local sources. (4) Data on this site may be cited, giving due credit and establishing an active link back to [Internet World Stats](#) Copyright © 2010, Miniwatts Marketing Group. All rights reserved worldwide.

Table 2 Internet Users & Population Statistics Americas (Miniwatts Marketing Group, 2010).

INTERNET USERS AND POPULATION STATS FOR THE AMERICAS						
REGION	Population ( 2010 Est. )	% Pop. America	Internet Users, Latest Data	% Population ( Penetration )	User Growth ( 2000-2010 )	% Users America
<a href="#">North America</a>	344,124,450	36.7 %	266,224,500	77.4 %	146.3 %	56.5 %
<a href="#">South America</a>	396,626,130	42.3 %	156,609,436	39.5 %	995.8 %	33.3 %
<a href="#">Central America</a>	154,298,120	16.5 %	38,433,400	24.9 %	1,094.5 %	8.2 %
<a href="#">The Caribbean</a>	41,632,722	4.4 %	9,647,000	23.2 %	1,624.5 %	2.0 %
<b>TOTAL AMERICAS</b>	936,681,422	100.0 %	470,914,336	50.3 %	273.3 %	100.0 %

NOTES: (1) Internet Usage and Population Statistics for the Americas were updated for June 30, 2010. (2) CLICK on each region or country to see detailed data for individual regions. (3) Population numbers are based on data contained in the [US Census Bureau](#). (4) Internet usage stats comes mainly from data published by [Nielsen Online](#) , [ITU](#) , and other trustworthy sources. (5) Data on this site may be cited, giving due credit and establishing a link back to [Internet World Stats](#) . (6) For definitions and help, see the [site surfing guide](#). Copyright © 2010, Miniwatts Marketing Group. All rights reserved worldwide.

**Demographic of Online Learners.** A professor of learning technology at Harvard described learners as “more sophisticated and the expectations for online professional development are rising” (Dede, 2009, p. 3). Students enrolled in on-line courses are often full time workers with an ambition to gain technical skills perceived to increase success

in the information technology industry. Ambient Insight market research, which forecasts technology, content and services for buyers and vendors concerning products that are in decline or in demand in a vertical market. This summary defines the evidence-based research methodology which uses predictive analytics in an iterative process and defines the characteristic of self-paced e-Learning in terms of the pedagogical structure including catalog off-the-shelf packages, LMS, and content services (Adkins, 2008, pp. 6-9). Concerning the demographics of adult in higher education, Caudill (2007) indicates that increased enrollment and decreased facility demands yields “considerably higher economic margins” for programs which capitalize on online delivery systems (p.185) fastest growing category for online courses is career and technical education.

**Tip #4 Build upon a problem-oriented approach**

**Andragogy vs. Pedagogy.** Green (1998) offers his comparison of Andragogy and Pedagogy defined by demands of learning (within a balance of priorities), the role of the facilitator, relevant of life lessons, the reason to learn and the persistence of the lessons. Whereas his perception may indicate a progress from early phases of schooling to a more mature state of mind, this table (altered by the author using italics) points out an attitude about learning that exhibits in very young students. Green’s tips are to watch for opportunities to use “problem oriented instruction” and to then use open ended questions to “bring out the vast experiences of adult learners” (¶ 5).

Table 3 *Andragogy and Pedagogy (adapted from Green’s table, 1999)*

	<b>Andragogy</b>	<b>Pedagogy</b>
Demands of learning	Learners balance life responsibilities with <i>chosen</i> demands of learning.	Learners can devote more time to the demands of learning, responsibilities are <i>taken care of by someone else</i>
Role of instructor ( <i>facilitator</i> )	Learners are autonomous and <i>self directed</i> . <i>Facilitators</i> guide the learners to their own knowledge rather than supplying them with facts.	Learners rely on the instructor to direct the learning. Fact based lecturing is often the mode of knowledge transmission by <i>passive listeners</i> .
Life experiences ( <i>lessons</i> )	Learners <i>apply lessons from</i> life experiences, <i>recognizing the value in connecting</i> the learning to their own knowledge base,	Learners build a knowledge base and <i>are shown how</i> life experiences connect with the present learning.
Learning Purpose	Learners become goal oriented and <i>define the purpose served by new information</i>	Learners are <i>uncertain about reason for a particular course</i> . They <i>accept instructions to learn certain</i> information.
Learning Retention and Abortion	Learning is self-initiated, <i>self propelling and long term</i>	Learning is compulsory and tends to <i>be forgotten</i> shortly after instruction.

Interpreting ideas on the concept of Andragogy helps to recognize it is not just a matter of maturity of the learner chronologically but refers to a maturity of attitude about learning

and setting personal objectives for acquiring and retaining learning that is relevant, meaningful and worthwhile, not just to pass a course and merely earn a degree. Andragogy involves cognitive processes.

### ***Cognitive Processes***

Shank (2009) discusses mental processes that people learn to do well when they are guided by a balance program of learning. He frames his lessons around conscious or unconscious cognitive processes. Prediction about outcomes, making an objective judgment, building a model, experimentation based on success and failure, describing situations to identify faults and handling real time issues and case-based planning are conscious mental processes (Shank, 2009, chapter 4, pp. 63-65). Subconscious processes include learning sequential step-by-step scenario thinking, improving an artistic assessment, making a value judgment (pp. 66-67). Tying in with technology careers, other cognitive processes include diagnosing complex situations for relevancy and causal explanation, mapping goals to case based planning leading to detecting sequencing of events and reasoning, and further discusses external influences, team work, negotiating and goal prioritization (pp. 67-71). Shank's work focuses on what it means to learn a mental process. Adult learners often arrive to my online courses aware of all of these cognitive processes but have never formally examined thinking about thinking.

<b>Tip #5 Encourage goal orientation and define purpose served by information</b>
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### **Five Phase Model Applied**

Table 2 captures a five phase model discussing: 1) modeling, when an instructor verbally describes an activity, 2) approximating, when the learner is coached live during class and using media generated guidance, 3) fading, when the coach observes with interested detachment while teams work with less defined scenarios, 4) self-directed by individuals and teams, when guidance is in response to requests, 5) generalizing, when the skills is perceived to transfer to work places after this course is complete. (Merriam, Caffarella, & Baumgartner, 2007, p. 181). This model synchronizes with ideas put forth by Tuckman in the mid sixties and has been cited and adapted many times since. The key words that remind us of the Tuckman (1965) model are forming, storming, norming, performing and then adjourning. This model is essentially the life cycle of a project team and represents also a learning team that comes together for a purpose, forms team for a specific short term assignment, brainstorms the problem and the solutions, performs the work, then after it is submitted, acknowledges that it is complete. In online, virtual team members might find each other again in a next class for a next cycle. While short term in terms of the results created, the capability to join forces and synergize, communicate often gives opportunity for people with experience to provide scaffolding to others who are new to a concept.



Table 4 Cognitive Apprenticeship Phases

This table is based on Brandt et al. (1993, p. 71), as cited in Merriam, Caffarella, & Baumgartner (2007), Table 7.1, p. 182).

Phase	Role of Model	Role of Model	Role of Learner	Key Concepts
1	Modeling	Real-life <i>tasks with explicit guidance using artifacts and lectures that explain “tricks of the trade”</i>	<i>Establish a mental model of real-life purpose for performing work, observe and listen proactively</i>	Articulation, domain specific heuristics, <i>pedagogy</i>
2	Approximating, <i>Scaffolding</i>	Coaching and providing <i>immediate feedback to learners</i>	<i>Perform the activities, deliver assignments, apply feedback, integrate individual results with those for the team, self monitoring and group correction</i>	Scaffolding, coaching, <i>Andragogy, forming team roles and responsibilities &amp; brainstorming</i>
3	Fading, observing and coaching	Delegating coaching to teams, <i>lighten the scaffolding, more dialog instead of lecture style instructions</i>	Working within virtual team, <i>adopt the approximate model into more specific mock-up of a solution that is more complex</i>	Collaboration, brainstorming & performing
4	Self-Directed Learning	Provide assistance. <i>Encourage requests for further guidance based on direction already established independently</i>	<i>Adapt the group assignment using new research in a way that integrated it into the team final result</i>	<i>Learner-centered, virtual team collaboration</i>
5	Generalizing	<i>During an end-of-course evaluation (based on Brookfield’s CIQ), generalize what has been accomplished (in relationships and communication, not in the final project deliverable itself).</i>	<i>Conceive to future possibilities of SDLC options, critique the models, apply ideas to various scenarios that will go beyond the assignments for this course</i>	<i>Assessing Adjourning</i>

This five phase model has found broad support in the literature about cognitive apprenticeship which applies to the sequence of lessons in this course. The pairing of people with broad experience with those who are new comers to the industry is part of the selection process for teams. Adaptations to the original table for this paper's analysis are showing in *italics*. The five phases are reference below in the arguments that defend alternatives ways of designing and delivering online courses.

The ideas about cognitive apprenticeship phases is a map to discussion below, starting with a brief discussion of virtual learning environments, then assessments of learning experiences (not merely outcomes of specific assignments or exams), followed by theoretical foundation and application for self-directed and transformation learning.

Answering the question “ *How can public universities best serve today's older student population?* ” Aldridge thinks that faculty members need to know how adult students learn differently. She believed that adults do not just memorize, have a context for taking in and applying new information and tend to ask more questions. Most importantly, while in the classroom adults challenge more issues. (as cited in Pelletier, 2010, p. 6). Another consideration is a timely assessment of prior learning because adult students expect to earn credit for work-based prior learning and competencies (Pelletier, 2010, p. 4). This style of learning sets expectation to finding a practical relevancy in new learning. Educators who support this shift are measuring outcomes rather than inputs. This is the essential learning achievement from higher education for which assessment of prior learning will become very important for recruiting and retaining self-directed adults in a degree program.

<p><b>Tip #6 Build upon prior knowledge</b></p>
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## Conclusion

The important contribution of this part 1 of 2 has been to evaluate research on ways of knowing, telling stories using scenarios, acknowledging different styles of learning, distinction between andragogy and pedagogy and the adult learning theories that increase effectiveness of online education. The six tips offered for teachers are: 1) Become Story Centered; 2) Open evaluation of learning experience increases awareness and trust; 3) Teach Around the Circle; 4) Build upon a problem-oriented approach; 5) Encourage goal orientation defining purpose served by new information; and 6) Build upon prior knowledge.

Part 2 contributes an experience of participatory evaluation of the learning experience in the form of an evaluation based on the Critical Incident Questionnaire that is practical, open, dialectic and meaningful for adopting the following six tips: 7) Follow a path from teacher to mediator to facilitator to mentor; 8) Evaluate our own teaching; 9) Evaluate the shared learning experience; 10) Cultivate a holistic approach; 11) Coach, Motivate, Delegate, Moderate, Facilitate; and 12) become ready to participate in shifting the paradigm. The Part 2 applies a value chain analysis approach for educators to examine how to apply theories of learning.

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