

Adventure Learning: Transformative hybrid online education

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Adventure learning (AL) is a hybrid distance education approach that provides students with opportunities to explore real-world issues through authentic learning experiences within collaborative learning environments. This article defines this online distance education approach, outlines an AL framework, and showcases an AL archetype. In AL environments, classroom teachers are not positioned in the role of teacher/facilitator/designer in the online learning spaces. AL online spaces are collaborative spaces where students, teachers, subject experts, and AL team members interact with one another; these are community spaces where traditional hierarchical classroom roles are blurred. Students' roles transform due to the flexibility and design of the AL learning environments as they move from student to reflective practitioner, providing for new ways of learning and teaching.

Introduction

Education delivered via the Internet is given many terms throughout the world, ranging from virtual education to Web-based learning. A snapshot of distance education practices reveals great variation from country to country, as well as in the extent and form of implementation (Farrell, 1999). One view of distance education is online education within the USA where the landscape of K-12 education is rapidly changing. Online education in K-12 schools is gaining a great deal of attention as more school districts utilize the Internet, which provides increased educational opportunities and flexibility for teachers and students. Online education is both feasible and supported by the high percentage of K-12 classrooms with Internet access: 92% of public schools have Internet access in instructional rooms and the ratio of students to instructional computers with Internet access in public schools is 4.8 to 1 (National Center for Education Statistics, 2003). Ninety percent of children aged 5–17 years use computers and 75% of 14–17 year olds use the Internet (National Telecommunications and

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Information Administration, 2002). Moreover, in the 2002–2003 school year, approximately one-third of public school districts had students who were enrolled in an online distance education course (Setzer & Lewis, 2005) and, in 2003, nearly 300,000 high school students were engaging in online classes in the USA (Wood, 2005). With this high percentage of individuals connected to the Internet and with students and educators embracing distance education using online strategies, a variety of instructional design guidelines and pedagogical approaches are being implemented to guide online education.

One trend in online education is the utilization of hybrid learning environments, primarily at higher education institutions, which offer a combination of online and face-to-face (F2F) instruction. The goal of hybrid learning is to improve the educational experience for students by joining together the best features of in-class teaching with the best features of online learning to promote active independent learning and reduce class seat time (Garnham & Kaleta, 2002; Young, 2002). Garnham and Kaleta at the University of Wisconsin–Milwaukee—a leading institution in hybrid course development—assert that hybrid courses offer many advantages over F2F or completely online courses including convenience, interaction, flexibility, and increased learning and retention. Research on the effectiveness of online education in general also shows that students who learn at a distance do not learn any worse, or any better, than traditional students (Simonson, Smaldino, Albright, & Zvacek, 2003, pp. 8–9).

Hybrid learning is not being discussed in such detail at the K-12 level; however, many high schools such as the Florida Virtual School are implementing this hybrid approach. In fact, some educators believe hybrid learning could become the norm in K-12 settings (Wood, 2005). Two different approaches to K-12 hybrid learning are being utilized within the USA: (a) students taking courses *in school* in a F2F environment and *out of school* in an online education course, and (b) students enrolling in online education courses in school while teachers are facilitators assisting when necessary and instructing lessons that enhance and/or complement what they are learning online (Wood, 2005).

Adventure learning (AL) encapsulates this second approach to K-12 hybrid learning, providing students with opportunities to explore real-world issues through authentic learning experiences within collaborative learning environments (Doering, 2005). AL utilizes both F2F and online learning environments but is subtly different from traditional hybrid environments. For example, in AL environments, classroom teachers are not positioned in the role of teacher/facilitator/designer in the online learning spaces. AL online spaces are collaborative spaces where students, teachers, experts, and AL team members interact with each other; these are community spaces where traditional hierarchical classroom roles are blurred and learning is transformed. Learning is transformed as students no longer initially look to their classroom teachers for knowledge, but utilize the online collaboration zones to interact and search for answers while developing new questions with other learners throughout the world. Additionally, students' motivation to enter the online learning environment is significantly enhanced as real-time features and unknown locations of AL environments provide a hook for learners to enter and return to the online environment frequently (Doering,

2005). Furthermore, students' roles also transform due to the flexibility and design of the AL learning environments as they move from student to reflective practitioner (Palloff & Pratt, 1999). AL students become more assertive, directive, enthusiastic, and motivated as they collaborate, construct, and learn with others around the world (Doering, 2005).

As a result of the changing roles of the teachers and students, AL encourages transformative learning (Mezirow, 1990, 1991); learning that occurs through dialogue based upon collaborative opportunities, authentic experiences, and interpretation of the AL experiences (Doering, 2005). Palloff and Pratt (1999) assert that transformative learning is the result of intense collaboration and reflective participation in a learning environment; transformative learning seeks to enable learners to understand why they see the world as they do while understanding the impact of prior knowledge on their newly constructed knowledge.

Defining AL

Arctic Transect 2004

Arctic Transect 2004: An Educational Exploration of Nunavut (AT 2004) was an AL online education program designed to engage learners with authentic content through a real-time adventure: a 3,000 mile dog sled expedition across Nunavut, the newest territory in the Canadian Arctic. This online program provided a free, 18-week, K-12 curriculum and online education environment for students and educators around the world. The *Washington Times* gave the AL site, www.polarhusky.com, an "A" (Szadkowski, 2004) and the *e-Learning Advocate* noted, "This is what online learning is all about. Transporting students to the Arctic where they can experience a learning adventure in real-time" (Hall, 2004). A middle-school teacher who used AT 2004, commenting on the interaction of the "real world" with the curriculum in the online learning environment stated:

This is history in the making and that it's delivered to us daily—it's just a phenomenon. I have never seen students motivated to learn like this! That is, where they are motivated to go online into the environment and share their experiences with other students from around the world.

If this is what "online learning is all about," what is AL and what does it mean for distance education? This article describes this online education approach, outlines a framework for the instructional design process needed to develop effective AL education, and showcases an adventure-learning archetype.

The term "adventure learning" has been used in many instances to describe entirely different learning opportunities and environments. From, for example, team building resources and activities hosted by the Tahoe Adventure Learning Institute (see <http://www.tahoeadventurelearning.com/>) to "multi-disciplinary" online programs such as the Jason Project (see <http://www.jasonproject.org>), and the Wilderness Classroom Organization (see <http://www.wildernessclassroom.com/>). Some "adventures" (e.g., the Blue Zones, 2006) are programs that have teacher and student lessons; others

(e.g., the Jason Project, 2006) have a curriculum attached to the adventure with videos, online chats, and digital labs; while still others (e.g., yourexpedition, 2006) are simply an expedition masquerading with education as the reason for the human need to explore the earth, but oddly, put education in the last development phase of the project. Across all of these online projects, all totting “adventure” in their descriptions, never is there a definitive sense of what AL is, nor is there mention of principles that guide meaningful learning in the classroom. John Dewey (1997) notably acknowledged, “the belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative” (p. 25).

I define AL as a hybrid online educational environment that provides students with opportunities to explore real-world issues through authentic learning experiences within collaborative online learning environments. Duffy and Kirkley (2004) state that the quality of distance education, just like any F2F course or seminar, comes down to the “design of, and student’s engagement in, the learning environment” (p. 4). Researchers have identified approaches to develop online courses in *general* (Collis & Moonen, 2001; Jolliffe, Ritter, & Stevens, 2001) that have provided guidelines for designers; however, there are few established guidelines for designing and developing AL distance education environments.

AL Framework

Designers of AL online education environments may consider employing the Adventure Learning Framework developed from 4 years of designing, developing, delivering, and assessing AL environments to students and teachers throughout the world. This framework is comprised of seven principles, which are interdependent of one another: (a) a researched curriculum grounded in problem-solving, (b) collaboration and interaction opportunities between students, experts, peers, and content, (c) the utilization of the Internet for curriculum and learning environment delivery, (d) the enhancement of curriculum with media and text from the field in a timely manner, (e) synched learning opportunities with the AL curriculum, (f) pedagogical guidelines of the curriculum and online learning environment, and (g) education that is adventure-based (Figure 1).

These seven principles, which collectively comprise the Adventure Learning Framework, are expanded upon and outlined below using examples from an AL archetype (AT 2004). These principles can be utilized as a guide for designers who wish to provide transformative learning opportunities for students within an online distance education experience.

1. AL Education Begins with a Researched Curriculum Grounded in Problem-Solving

Description. The majority of curricula are not written with AL in mind and the majority of adventures or expeditions are not developed with its curriculum in mind. For example, as one researches many AL online education environments, the curriculum that is written does not interact and correspond with the activities within the field, as the

Adventure Learning Model

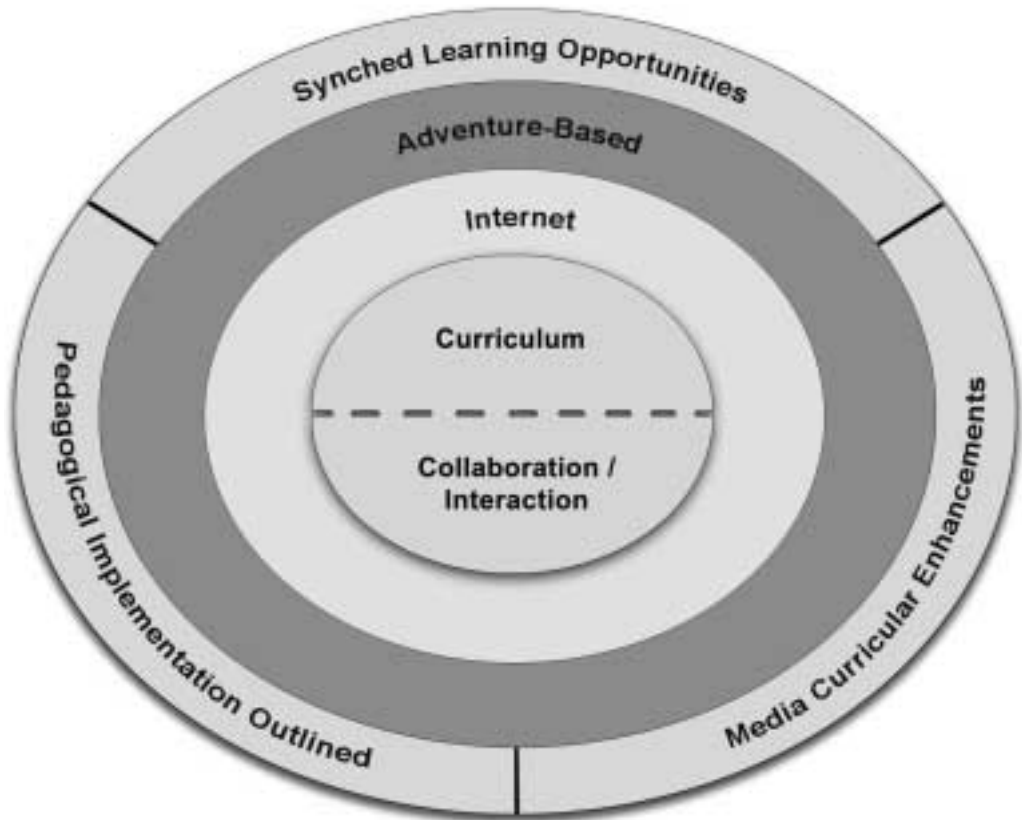


Figure 1. Adventure learning model

curricula are disparate from the adventure. Prior to planning any learning adventure, learning outcomes must be identified. From the start, learning outcomes, based on authentic problem-solving tasks, should guide the development of the curriculum and the online learning environment (Dexter, Doering, & Riedel, 2006) *as well as* the planning of the adventure. In other words, AL should not focus on the exploration or adventure, but rather on the learning goals. The development of curricula and online environments must situate the learning in an authentic environment knowing that the experiences are first and foremost for educational purposes, not the thrill of adventure. Lastly, the work of cognitive psychologists has shown that students learn best when solving real-world problems and the number of instructional models related to this learning approach reinforce this thinking (Mayer, 1992). AL curricula are problem-driven with an overarching question that needs to be solved through interacting with the AL online environment. Students interact with their peers, experts, teachers, and curriculum to solve the problems that are driving the curriculum modules. Students most often do not look to their teachers for answers as the problems being solved

utilize information delivered from the field as well as the interactions with others outside of the classroom. The traditional approach of teacher-directed learning is transformed allowing students to take charge in the search for answers.

Example. *Arctic Transect 2004: An Educational Exploration of Nunavut* (AT 2004) had two main portals, a public audience portal and a student and teacher portal—*The Online Classroom*, which was a collaborative online learning environment developed concomitant with the curriculum to create a seamless learning experience. The Arctic expedition captured the interest of the general public creating the opportunity to educate both formal audiences within the K-12 classroom as well as informal audiences. Therefore, both portals had the same content, but *The Online Classroom* was gated for the students' safety and featured the collaborative opportunities. Because students were sharing their projects and their perspectives while interacting with peers, teachers, and experts from around the world, the collaborative areas were gated with a username and password. This filter process began when teachers signed up for the program as their names, school, and locations were confirmed prior to issuing a username and password.

The free AT 2004 300+ page paper-based curriculum was researched and developed 1 year prior to the beginning of the project, and was based upon the pre-determined region of travel. Learning outcomes were established taking into account the grade levels that were going to use the program, the technology and data that would enhance the curriculum, and the online interactive activities supporting the paper-based curriculum. The curriculum unit plans were developed in three levels named *Experience*, *Explore*, and *Expand* ranging from a directed to a constructivist approach to the problem-based content. The curriculum is written where the students must take an active role in solving the module question. For example, one module question was: "How are peoples' actions in the mid-latitudes impacting the life of the Inuit in the Canadian Arctic today?" Only one facet of the answer to this question could be elicited from the curriculum. A complete understanding of this question came from the numerous interviews with the Inuit delivered to the online learning environment from the trail as well as the collaboration opportunities with Arctic experts that took place within *The Online Classroom*.

Teachers had ready and early access to the curriculum giving them ample opportunities to work with and plan their teaching in advance of the school year. The curriculum was made available for download via multiple portable document files (pdf) (Figure 2).

2. AL Education Provides Collaboration and Interaction Opportunities between Students, Experts, Peers, and Content

Description. Although all AL education must begin with a solid curriculum, collaboration is the heart of the educational experience. Internet isolation should be removed by providing collaboration and interaction opportunities (Bransford,




| | |
|--|--|
| <p>Teachers Guide</p>  <p>Arctic Transect 2004</p> | <p>Teachers Guide - An introduction explaining many important aspects of the Arctic Transect 2004 Curriculum & Activity Guide.</p> |
| <p>Download Unit 01</p>  <p>Building Nunavut</p> | <p>Building Nunavut - The word, "Nunavut", means "our land" in Inuktitut, the Inuit language. Nunavut officially became Canada's newest territory on April 1, 1999 when the Northwest Territories was divided into two. Since that time, the government of the new territory has been hard at work responding to the present and future needs, hopes, and dreams of Nunavummiut. This unit will explore the years of negotiations that led up to the creation of the new territory and the current leadership and government of Nunavut, as well as broader concepts of government and leadership.</p> <p>Chat topic: Defining Freedom</p> |
| <p>Download Unit 02</p>  <p>Planning An Expedition</p> | <p>Planning An Expedition - Could you carry your house, food, cooking utensils, clothing and everything else that you might need to live and survive? Well, Arctic Transect explorers do and for weeks at a time, too! Experience the planning and preparation required to complete a successful expedition while choosing team members and developing goal setting skills. Inuit activities focus on "Native" perspectives and how Europeans interacted with North America's original inhabitants.</p> |

Figure 2. Curriculum available for download via the Internet

Brown, & Cocking, 1999) which encourages transformative learning at multiple levels—between students and teachers; between students and subject matter experts; between teachers and subject matter experts; between students, teachers, subject matter experts, and the AL content; and lastly, between students themselves, teachers themselves, and between the subject matter experts (Figure 3). The collaborative and interactive opportunities were designed within *The Online Classroom* in an environment named the *Collaboration Zone* (the term used for the collaboration environment in the AT 2004 AL educational program).

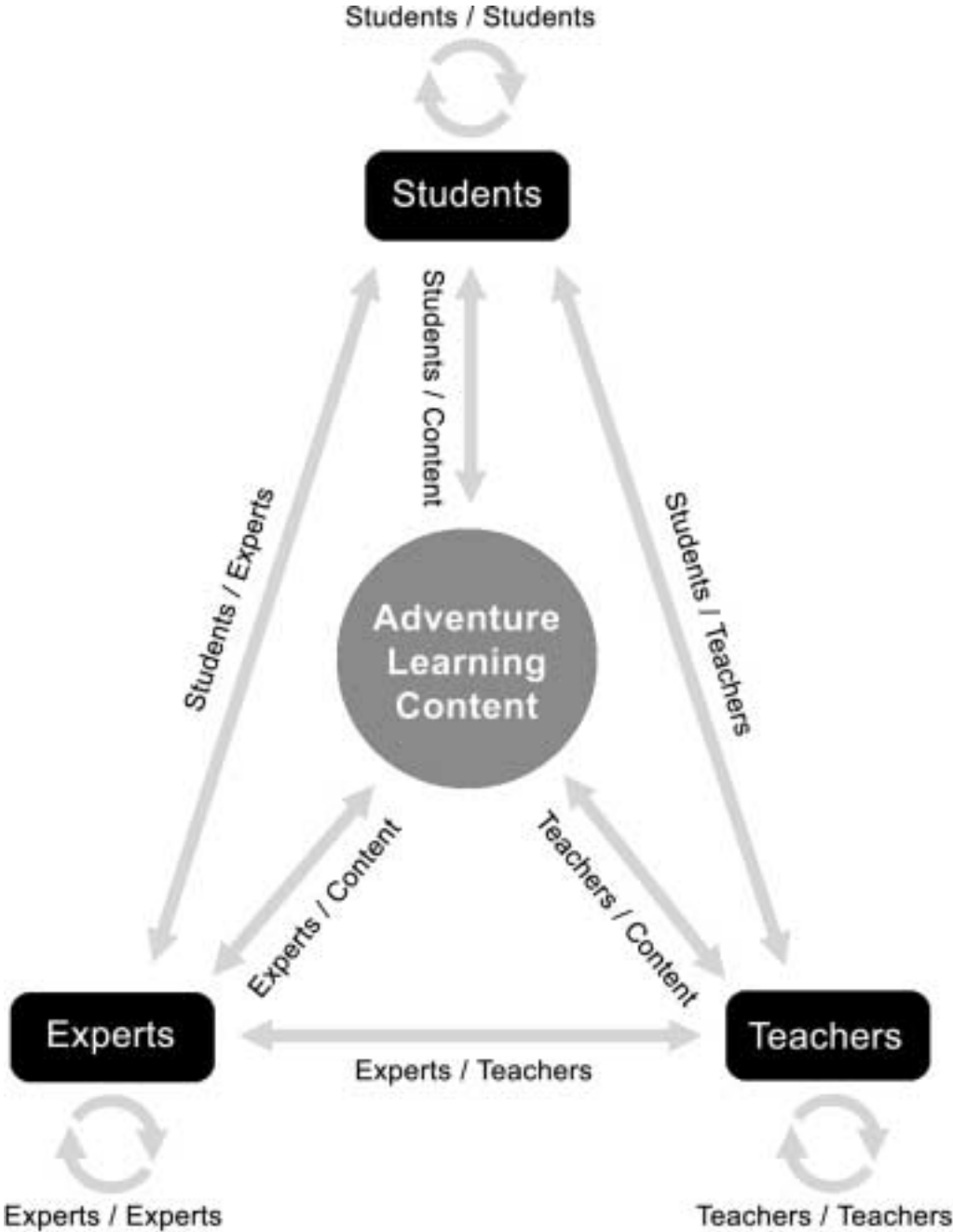


Figure 3. Adventure learning interaction model

Student–teacher and student–teacher–content interaction and collaboration. Student–teacher interaction and collaboration occurs primarily within the brick-and-mortar classroom as teachers utilize the curriculum and *The Online Classroom*. Teachers guide students to investigate the problem that needs to be solved within the unit lesson plan while using the many media and interactive options online. Teachers are available to answer student content and technology-based questions while assisting them in interacting and collaborating. Students interact with the curriculum-based content, access the real-time content delivered from the field, and collaborate with students from around the world within the collaboration zones in *The Online Classroom*. Furthermore, teachers are able to access content within the curriculum to aid their content knowledge before and during teaching while also accessing the real-time content online. Lastly, teachers are able to interact and collaborate with other teachers for content and pedagogical knowledge—both online and within their own school building.

Student–expert and student–expert–content interaction and collaboration. AL affords many opportunities for students to learn from subject matter experts. Primarily, this occurs within moderated chat environments based on the unit lesson plan topic. Teachers scaffold their students on subject matter prior to entering the moderated chat environments. Students submit their questions within the chat environment to a moderator at Education Basecamp who chooses the questions that would most enhance the learning discussion. The questions are in turn submitted to the expert who chooses what s/he wishes to answer before submitting it into the chat environment. Thus, it is not until the expert releases the submitted question(s) and answer(s) that the students see the synchronous discussion (Figure 4). The collaboration opportunities continue through asynchronous discussion and file sharing within collaboration zones.

Teacher–expert and teacher–expert–content interaction and collaboration. K-12 teachers are required to be subject matter experts in multiple areas. Social studies teachers are, at many times, required to teach numerous courses in areas where they are not prepared. Therefore, the opportunity to collaborate and interact with practicing subject matter experts can be a unique advantage and rare in classrooms today. An AL environment provides these opportunities through synchronous and asynchronous discussions within the chat environments and collaboration zones, respectively. The subject matter experts are identified prior to the release of the curriculum to the teachers. Thus, teachers have the opportunity to augment their content knowledge by interacting with the subject matter experts.

Student–student, teacher–teacher, and expert–expert interaction and collaboration. All AL participants—students, teachers, or subject matter experts—benefit from interaction and collaboration opportunities with their peers. Within AL, students work with each other

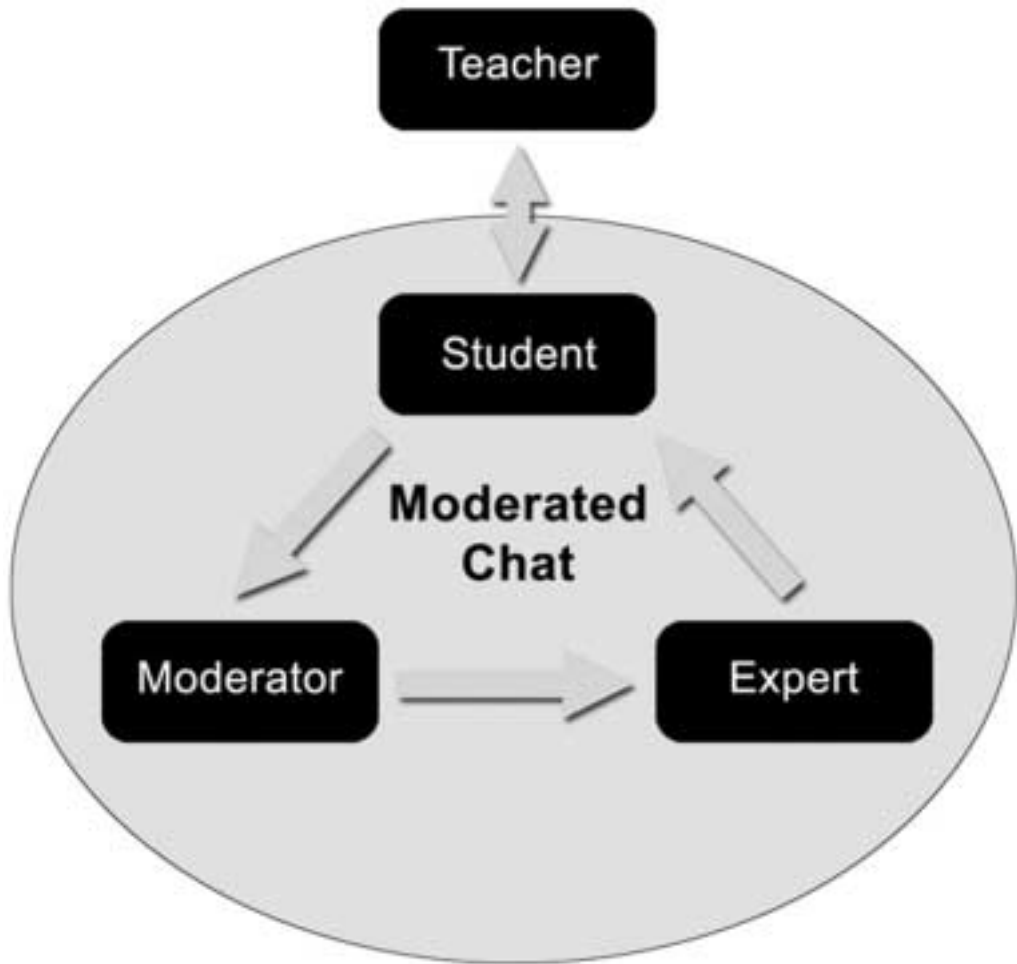


Figure 4. Adventure learning moderated chat & flow

in the classroom, but more importantly, with students throughout the world within the chat and collaboration zone environments. Students share media (e.g., photos, videos, and Microsoft PowerPoint™ files) and discuss the content through various opportunities. Teachers normally interact and collaborate on lesson plan ideas and appropriate pedagogy, and subject matter experts normally discuss their area of research and how to effectively communicate this with the K-12 population.

Student–content, teacher–content, and expert–content interaction and collaboration. All AL participants also have numerous opportunities to interact with the content in various formats ranging from paper-based curriculum to real-time updates delivered from the field. It is important for planning purposes that the teachers have the

curriculum in order to study the content prior to the adventure; the subject matter experts must also know their discussion content topic weeks before entering the chat and collaboration environments.

Typically within society, we solve problems by working and conversing with others; but despite research that points to collaboration as an important aspect of meaningful learning (Jonassen, Howland, Moore, & Marra, 2003) in the classroom, students are usually encouraged to solve problems and learn independently. AL is based upon creating opportunities for students to collaborate and reflect within the online learning environment in order to encourage transformative learning. Transformative learning requires all learners to work together through social negotiation—discussing, solving, and reflecting on the problem to be solved. Social negotiation can arise at high levels with an AL approach as individuals who are goal-directed are working together to solve a common task within a common place—a collaboration zone. Furthermore, distributed cognition (Vye et al., 1998) can occur when students collaborate within an online AL learning environment and research indicates that solving problems as a group is much superior to individual problem-solving (Evans, 1990).

Example. AT 2004 provided *collaboration zones* for social negotiation, which fostered problem-solving and motivation (Doering, 2005). *Collaboration zones* provided learners with the opportunity to post and share learning files they created (e.g., photos, movies, Microsoft PowerPoint™) while also providing the opportunity to chat with subject matter experts, with expedition team members, with teachers, or with other students throughout the world. The lesson and chat topic on global warming involved students interacting with meteorologist Dan Dix from The Weather Channel™ in Atlanta, GA. Moderated by Education Basecamp located at the University of Minnesota, students were able to ask Mr Dix questions, which were then selected to be answered by Mr Dix himself; the result being a controlled, synchronous chat environment (Figure 5).

3. AL Education Utilizes the Internet for Curriculum and Learning Environment Delivery

Description. Achieving true collaboration and receiving timely updates from the field requires the use of the Internet. The Internet also provides ready access to a curriculum for students and teachers throughout the world. If one does not utilize the Internet for an AL project, the heart of AL—interaction and collaboration with experts, teachers, and peers throughout the world and timely and frequent updates from the field—cannot occur. Furthermore, the opportunities for transformative learning are diminished, as students cannot collaborate with any content or individuals outside of their classroom.

Example. AL projects are able to reach millions of students, offer collaborative opportunities, and provide real-time experiences when the Internet is utilized effectively and efficiently. Figure 6 showcases the “dog kennel” which was the most

Home Starting Out Expedition Base Camp Inesightful Community Earth Watch Collaboration Zone Teachers' Lounge

CHAT
 • Weekly Chats

Expedition Scrapbook
 The Kennel
 Polar Husky A to Z
 Polar Husky Online Store

Contact Information
 Help/FAQ

WEEKLY CHATS

Weekly chats are a premier component of Arctic Transect 2004 Online Classroom. Each week a topic is introduced and expanded upon in the Arctic Transect 2004 Curriculum & Activity Guide. Chat themes relate directly to each topic and investigate a current issue. Chats allow students to talk about things that are important to them. Each chat is facilitated by an Education Base Camp moderator.

Your voice counts! Share your opinions, ideas and thoughts during weekly online chats. For every week of the expedition, a chat relates to that week's theme. Talk about important issues like global warming, freedom and more.

Chat Schedule
 Chat Transcriptions
 Notes & Tips

Click the above image to enter the Weekly Chat on Tuesday, May 4 (10am CST).

Download a pdf Chat Tutorial

Week 17: Global Warming (cont.)

Figure 5. Expert chat schedule and directions with direct entry into chat environment

frequently visited page of the AT 2004 2,000+ page Web site. Students would visit this page daily “connecting” with their favorite Polar Husky (there were 31 dogs on the expedition). Students would consistently be motivated to sign-in to *The Online Classroom* to see what and how their favorite dogs were doing. One of the most frequently read features of the site was a daily update delivered from the trail titled, “Timber Tales,” which were the trail happenings from the perspective of the dog, Timber. The ability to provide these frequent updates or to provide collaboration and interaction opportunities are based on utilizing the Internet. Furthermore, educators participated in online professional development activities that were available to those teachers who wished to learn about AL teaching and learning approaches and received credit from the university without leaving their classrooms or homes.

4. AL Education Enhances the Curriculum Providing Authenticity with Media and Text from the Field in a Timely Manner

Description. Media (e.g., video, sound, QTVR, and photos) and text from the field provide authentic enhancements to an AL curriculum and motivation for student

The screenshot shows the website for Polar Husky.com. At the top, there is a navigation menu with links: Home, Starting Out, Expedition, Dog Store, Gear/Supplies, Community, Earth Watch, Collaboration Zones, and Teachers Lounge. Below the menu is a large banner image of a snowy mountain landscape with several people and dogs in the foreground. The main content area is titled 'THE KENNEL' and includes a welcome message: 'Welcome to the Polar Husky Kennel. To discover more information about each Polar Husky, click on the dog's photo.' Below this message is a grid of ten small photos of dogs, each with a name underneath: Aksel, Lipton, Buttra, Chuck, Choko, Cola*, Charlie, Freja, Elf, and Tucker. On the left side of the page, there is a sidebar with a 'KENNEL' section containing a 'View The Kennel' link, and other links for 'Expedition Scrapbook', 'The Kennel', 'Polar Husky A to Z', 'Polar Husky Online Store', 'Contact Information', and 'Help/FAQ'.

Figure 6. Polar Husky dog Kennel featuring bios of the dogs on the expedition

learning (Doering, 2005). The media along with appropriate pedagogy motivate students as every update from the field reinforces the content of the curriculum situating the learner's participation in an authentic real-time environment. Teachers and students must know when the field updates are expected to be available within the learning environment. Teachers can plan their lessons accordingly and also the timely updates provide motivation for students entering the learning environment and seeking the latest adventures from the field.

Example. The AT 2004 paper-based curriculum was enhanced with frequent trail reports delivered in a timely and predictable manner. The trail reports, which included movies, sounds, photos, and interactive content opportunities, were delivered to the classrooms on a detailed schedule (Figure 7). During AT 2004, the expedition team would not travel on Fridays as it was coined, "Education Day." This non-travel day was used to write the weekly trail report and upload sound files, movies, and photos that were available for teachers and students at 8:00 a.m. every Monday morning.

POLARHUSKY.COM
SUPPORTING THEMATIC LEARNING ONLINE

Welcome to the Online Classroom.
Use the menu below to explore with Arctic Transit 2004.

Home | Starting Out | Expedition | Day's Log | Itinerary | Community | Earth Watch | Collaboration Zones | Teachers Lounge



TRAIL UPDATES

- Week 17: Polar Bear
- Week 16: Arctic Spring
- Week 15: Lifted Spirits
- Week 14: In the Air!
- Week 13: H2O Wonders
- Week 12: In Search
- Week 11: Legendary Fire
- Week 10: Living Legend
- Week 9: Baker Land
- Week 8: Nunavut Rocks
- Week 7: Nunavut
- Week 6: Nature
- Week 5: Re-supply
- Week 4: First Month
- Week 3: Lutsi's K'e
- Week 0: Preparation

WEEK 17: POLAR BEAR ALERT! NORTH POLE? HEAT WAVE...

Date: 05.03.04
Position: 67°40'N 86°42'W, Nunavut, Canada
Weather Conditions: Sunny, breeze from north, 28 F/ -2 C



The King of the Arctic.

"IT IS A BEAR!!!!!!!!!!!!!!" ...Mile yelled out. "Are you serious?" asked Aaron, with a grin on his face. "YYYYES - Polar Bear - **POLAR BEAR,**" Mile hollered frantically as she realized just **how close** it was. At that same moment Paul literally had his hand on the zipper of his tent's vestibule door. Recognizing true fear in Mile's voice, he unzipped and saw it - yes, right there, seemingly right next to

Figure 7. Weekly trail reports delivered from the Arctic

5. Adventure Learning Curriculum Provides Synched Learning Opportunities

Description. The AL curriculum is enhanced with a strict practice of providing synched instructional learning opportunities. These opportunities begin with learning tools within the online learning environment that enable the learners to interact live with explorers, educators, subject matter experts, and fellow users. These tools include Web offerings (thematically based virtual tours and educational animated movies), multimedia (access to images, audio, video, and data from the field that is central to the learning experience), integration of geographic information systems technology, collaboration zones, and moderated chats. The online learning environment where the media opportunities exist must be designed in tandem with the curriculum.

Example. Learning opportunities must exist online for students that are synched with the curriculum. During AT 2004 when students studied the unit entitled "Water, Water, Water," the teachers and students read the newly posted trail report entitled

“H₂O Wonders” which was synched with the content of the unit (water). In the trail report, the students read about the amount of water the explorers, educators, and Polar Huskies used on the trail; how the Inuit obtain their water in the Arctic; the impact of rising sea levels; and numerous other examples delivered with movies, audio files, and photos. For example, photos and movies showing how snow and ice were collected on the trail and melted for water gave students an idea about life on the trail. Scientific information such as the impact of a polynia (open water year-round on the Arctic Ocean) on local weather phenomena and animal habits were also documented as one team member routinely collected snow samples for the National Aeronautics and Space Administration (NASA), which was also shared with the AL users.

A “local activity” was also available in every unit plan where students were encouraged to act locally at some level. During the water unit plan, students recorded their water usage for a week and a link was provided within the text from the trail report that took them immediately to a collaboration zone to post their own findings (Figure 8).

6. AL Education has Pedagogical Guidelines for the Curriculum and Online Learning Environment

Description. The utmost value of the AL environment is achieved when the appropriate pedagogy is defined and aligned with the curriculum and online learning environment. An effective learning environment should not be designed without its instructional uses in mind. These uses of the online environment, as well as the curriculum, need to be outlined in detail so the curriculum can be implemented effectively and easily.

Example. Examples of successful pedagogical practices are vital to an AL project. Teachers must understand how the curriculum was written and how it works together with the online learning environment. Because the paper-based curriculum and features within the AT 2004 learning environment were synched according to the experiences on the trail, a detailed calendar was also necessary (Figure 9). Integration techniques were available in every unit lesson plan through screen-capture videos and tutorials from experienced educators who had successfully integrated an AL project within their classrooms.

7. AL Education is Adventure-Based

Description. AL education captivates and motivates learners. Traveling to any location on the earth provides the mechanism to bring authentic content into the classroom. Because AL education is delivered via the Internet, the adventure that may be local for one individual is a remote unknown distant location for another. As we strive to make learning opportunities more authentic so that it is meaningful to students, the AL model delivers.



That's right. When we visited with the students at Vera's 10th grade Inuktitut class on Monday, to see if we could learn some phrases, they told us how most of them have a hard time speaking with their grandparents because their grandparents do not speak English and the kids do not speak much Inuktitut. Just recently they started learning Inuktitut in school from Kindergarten through 12th grade for at least three hours a week - but Vera's students all agreed that they need even more Inuktitut in the classroom if their language is to survive! As one student wisely said, "When we loose our language, we loose our culture."

Vera's 10th grade during Inuktitut class.



Watch and learn a few Inuktitut phrases.



Watch Moses, Ryan, and Natasha talk about why Inuktitut is so important to them.

We actually spent a lot of time in school last week - visiting Orin's 10th grade classroom. It was great! Our favorite moment was probably when they went through their session on "Teaching the Polar Husky Team to speak Canadian!!!!" Yes, we got scolded for not always using the correct Inuktitut phrases, but we loved it! On that note, during our



Figure 8. Trail report with links to collaboration zones and media opportunities

Example. AT 2004 was based upon the investigation of the Arctic and the traditional ecological knowledge (i.e., knowledge of the environment that is passed down from one generation to another) of the Inuit. The slow traverse by dog sled across Canada's newest territory, Nunavut, peaked student interest to comprehend the unknown. The trail updates enhanced the curriculum by providing authentic data in real time. For example, when the AT 2004 expedition team left Baker Lake, Nunavut and encountered an Inuit igloo, photos and videos of the igloo were captured along with interviews with the local Inuit providing knowledge on how

Calendar - continued

| | Sun | Mon | Tue | Wed | Thu | Fri | Sat | |
|-------|-----|--------------------------------|-------------|-------------|-----|-------------|-------------|--|
| MARCH | 25 | 1 | 2 | 3 | 4 | 5 | 6 | |
| | | Unit 6: Interpreting Landscape | | | | | | |
| | | Trail Report Week 8 | | | | Online chat | | |
| | 7 | 8 | 9 | 10 | 11 | 12 | 13 | |
| | | Unit 6: Interpreting Landscape | | | | | | |
| | | Trail Report Week 9 | Online chat | | | Unit 6 Quiz | | |
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |
| | | Unit 7: Legends & Language | | | | | | |
| | | Trail Report Week 10 | | | | | Online chat | |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | |
| | | Unit 7: Legends & Language | | | | | | |
| | | Trail Report Week 11 | | Online chat | | Unit 7 Quiz | | |

Figure 9. 'How to Use' Calendar

igloos were, and are, still used within their environment. Moreover, prior to arriving in Pelly Bay, Nunavut, Inuit elders greeted the team on the ice spending two nights with the team. During this time the Inuit hunted wolves and fished for Arctic char on the land. The Inuit shared their Arctic char with the team members as we learned about this native food and how to effectively prepare it. The fish traps and the exchange and preparation of the food was documented and shared online as students studied the fauna of the Arctic. The unknown Arctic continued to interest users as the expedition team crossed the Arctic Ocean, encountered polar bears, learned about global climate change, and the loss of the Inuktituk language.

The adventure for AL education does not have to be an extreme Arctic location. The education provided by individuals sharing content from their local environment such as a trip to a local river investigating shipping lanes or a trip to a local crop farm will assist students by providing authentic content that makes the unknown real.

Encouraging Transformative Learning

Within this article, a hybrid approach to K-12 online education, AL, has been defined and described using an AL design framework. An archetype of this

approach, the AL project, AT 2004, was showcased identifying the features of the program as defined by AL principles. These principles support the goal of transformative learning by providing numerous opportunities to collaborate and interact in real time with real-world content, peers, teachers, and subject matter experts throughout the world. Learners have the opportunity to share and discuss their perspectives and prior knowledge, acquire content through a flexible curriculum, while acquiring supporting content through multiple modes of media that are grounded in authentic situations.

AL is an exciting approach to hybrid online education, especially as the traditional field trip is threatened because of the lack of funds and major focus on test scores (Standen, 2005). AL projects do not need to be as extreme as crossing the Arctic by dog sled, but can be a teacher's trip to the local river utilizing the AL design framework. As educators strive to have students achieve meaningful learning in online learning environments, an AL education gives students and teachers the tools to create and participate in learning that is meaningful. Transformative learning moves students from the traditional learner to one who is a reflective practitioner within online collaboration spaces as well as their brick-and-mortar classroom.

Notes on Contributor

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References

- Arctic Transect 2004. Retrieved March 3, 2006, from <http://www.polarhusky.com>
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (1999). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.
- Collis, B., & Moonen, J. (2001). *Flexible learning in a digital world*. London: Kogan Page.
- Dewey, J. (1997). *Experience and education*. New York: Simon & Schuster. (Original work published 1938.)
- Dexter, S., Doering, A., & Riedel, E. (2006). Content area specific technology integration: A model and resources for educating teachers. *Journal of Technology and Teacher Education*, 14(2), 325–346.
- Doering, A. (2005, March). *Adventure learning*. Paper presented at the meeting of the Society for Information Technology and Teacher Education Conference, Phoenix, AZ.
- Duffy, T., & Kirkley, J. (2004). *Learner-centered theory and practices in distance education: Cases from higher education*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Evans, B. (Ed.). (1990). *Bias in human reasoning*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Farrell, G. M. (Ed.). (1999). *The development of virtual education: A global perspective*. Vancouver, Canada: The Commonwealth of Learning.
- Garnham, C., & Kaleta, R. (2002). Introduction to hybrid courses. *Teaching with Technology Today*, 8(6). Retrieved November 26, 2005, from <http://www.uwsa.edu/ttt/articles/garnham.htm>
- Hall, J. (2004). Polarhusky.com. *eLearning Advocate*. Retrieved January 5, 2005, from <http://homepage.mac.com/elearn>

- Jolliffe, A., Ritter, J., & Stevens, D. (2001). *The online learning handbook: Developing and using Web-based learning*. London: Kogan Page.
- Jonassen, D., Howland, J., Moore, J., & Marra, R. (2003). *Learning to solve problems with technology*. Englewood Cliffs, NJ: Prentice Hall.
- Mayer, R. E. (1992). *Thinking, problem solving, cognition* (2nd ed.). New York: W. H. Freeman.
- Mezirow, J. (1990). *Fostering critical reflection in adulthood: A guide to transformative and emancipatory learning*. San Francisco: Jossey-Bass.
- Mezirow, J. (1991). *Transformative dimension of adult learning*. San Francisco: Jossey-Bass.
- National Center for Education Statistics. (2003). *Internet access in U.S. public schools and classrooms: 1994–2002* (NCES Rep. No. 2004-011). US Department of Education, Selected Findings.
- National Telecommunications and Information Administration (NTIA). (2002, February). *A nation online: How Americans are expanding their use of the Internet*. US Department of Commerce. Retrieved January 10, 2003, from http://www.ntia.doc.gov/ntiahome/dn/nationonline_020502.htm
- Paloff, R., & Pratt, K. (1999). *Building learning communities in cyberspace*. San Francisco: Jossey-Bass.
- Setzer, J. C., & Lewis, L. (2005). *Distance education courses for public elementary and secondary school students: 2002–03* (NCES 2005-010). Washington, DC: National Center for Education Statistics, US Department of Education.
- Simonson, M., Smaldino, S., Albright, M., & Zvacek, S. (2003). *Teaching and learning at a distance: Foundations of distance education* (2nd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.
- Standen, A. (2005, October). Grounded. *Edutopia*, 1, 51–52.
- Szadkowski, J. (2004, February 8). Canadian Arctic virtual adventure. *The Washington Times*. Retrieved May 25, 2005, from <http://www.washingtontimes.com/functions/print.php?StoryID=20040207-101911-9557r>
- The Blue Zones*. Retrieved March 3, 2006, from <http://www.bluezones.com>
- The Jason Project*. Retrieved March 3, 2006, from <http://www.jasonproject.org>
- Vye, N. J., Goldman, S. R., Voss, J. F., Hmelo, C., Williams, S., & Cognition and Technology Group at Vanderbilt. (1998). Complex mathematical problem solving by individuals and dyads. *Cognition and Instruction*, 15(4), 435–484.
- Wood, C. (2005, April/May). Highschool.com. *Edutopia*, 1, 32–37.
- Young, J. (2002, March 22). Hybrid teaching seeks to end divide between traditional and online instruction [Electronic version]. *The Chronicle of Higher Education*. Retrieved November 19, 2005, from <http://chronicle.com/free/v48/i28/28a03301.htm>
- yourexpedition*. Retrieved March 3, 2006, from <http://www.classroom.com>