Just How Extreme is Adventure Learning?
An Analysis and Comparison of Adventure Learning Websites

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Abstract. Extreme Learning is an emerging area of research that is related to adventure learning and other types of non-traditional learning. Extreme Learning explores the way that people use technology in novel, unique, or unusual ways in a variety of settings to change some aspect of their lives. As a first step in our research, 135 Extreme Learning Web sites were identified and an in-depth analysis of the content of the Web sites was conducted. Each site was independently rated by four team members according to eight predetermined criteria. This presentation will focus primarily on the Outdoor/Adventure Learning Web sites that were identified. Other Web resources categories that were rated include Online Language Learning, Virtual Education, Societal Change/Global Learning, and Other/Miscellaneous.

Introduction

Despite all the hope and possibilities for open education and open learning (Iiyoshi & Kumar, 2008), minimal is known about new learning formats and delivery mechanisms for open education. Questions arise about the tools and systems that might prove attractive to informal or nontraditional learners. In particular, areas such as outdoor, environmental, and adventure learning bring unique learning opportunities that were seldom possible before (Doering & Veletsianos, 2008). As adventure learning is increasingly made available and embraced, there is a need to know more about the quality, use, scalability, and maintainability of these new resources. Issues arise related to accessing these contents and understanding how learners might use them to augment, enhance, or accelerate their learning. Just how are lives impacted? Are there empowerment moments that can be captured, demonstrated, explained, and perhaps replicated or extended? If informal and nontraditional learning routes found in outdoor and adventure learning foster new forms of learning as well as increased internal desire and motivation to learn, there is a pressing need to know the reasons why.

At the same time, scant information exists about those using technology tools and resources to teach in unusual or nontraditional ways. Thousands of online educators are offering their services for free online to help others around the world learn languages, vocabulary, geography, mathematics, and many science-related disciplines. In addition, such instructors can now find residence in a boat, car, dogsled, or café (Authors, 2009). But why do individuals create content or offer their instructional services online for free or nominal costs? Are there particular instructional formats that are most conducive to learning online; especially when outside traditional educational institutions or long-held standards related to effective instruction? How are such online experts accessed? How is curriculum created around learning adventures?

Review of Literature

Miller and Lu (2003) state that, "Overall the issue of on-line learning is perhaps the most important facing higher education as individual institutions and as an industry in the past 100 years" (p. 168). This change to more online courses brings with it myriad opportunities for nontraditional and adventure learning. Research indicates that, in general, students do not learn any worse, or any better, in an online format compared to traditional students (Simonson, Smaldino, Albright, & Zvacek, 2003); they may, in fact, learn more online (Means, Toyama, Murphy, Bakia, & Jones, 2010).

The online learning explosion is not limited to higher education. In fact, online learning is proliferating even faster at the K-12 level (Watson, Murin, Vashaw, Gemin, & Rapp and colleagues at Evergreen Education Group, 2010). As Internet access finds its way to most K-12 schools, it is becoming increasingly popular to bring adventure learning (AL) and other forms of nontraditional instruction directly to students (Doering, 2006). Nontraditional learning and AL rely heavily on the Internet and the ability to connect to people around the world. Frequently adventure leaning uses a hybrid approach to learning involving elements of a face-to-face (traditional) classroom and online learning (Doering, 2006). Instead of the traditional roles of instructor and learner, AL uses both face-to-face and online learning environments where team members collaborate on issues in ways unlike in traditional schools (Miller, Veletsianos & Doering, 2008).

There are mounting stories of Arctic adventurers on dog sleds using mobile technology to connect with classrooms around to world as part of an online curriculum (Miller, Veletsianos, & Doering, 2008). Projects like the Polar Husky, GoNorth!, and Earthducation bring students face-to-face with real life phenomena. As one example, Miller, Doering, and Scharber (2010) have designed a hybrid learning environment called "GeoThentic" wherein K-12 students explore real world geographic sites and resources and solve problems related to them with geospatial technologies. As a signal that this area has advanced, curriculum models and best practices are beginning to emerge related to the use of AL in K-12 education and beyond (Doering & Veletsianos, 2008; Veletsianos & Kleanthous, 2009).

Such adventure learning and other seemingly 'extreme' examples of Web-based learning and teaching indicate that this is a burgeoning area (Authors, 2009a). Everyone on this planet is impacted by new forms of free and open education (Author, 2009b). With an Internet connection, one can learn at any moment of the day and wherever they happen to be in the world. Their teachers, guides, tutors, and peers no longer are limited to those in their neighborhood or in the local school or university. In addition, in this new Web 2.0 world, learning content can be generated by anyone, not just traditional publishers, university professors, and state departments of education (Brown & Adler, 2008; Shirkey, 2010).

Suffice to say, much is generated online that stretches the edges of learning to new geographic locations, learning partners, and content. However, as indicated, many issues and questions remain related to the designers and users of that content. In response, this particular study was designed to understand the technology tools, pedagogies, and learning potential of nearly 135 extreme learning Web resources. In the coming year, we will expand this pool of Web resources, and, simultaneously, interview dozens of those impacted by extreme learning Web resources.

Methodology and Data Sources

As with the study by Zhang, von Dran, Blake, and Pipithsuksunt (2000) more than a decade ago, one of the first identified goals of the research group was to conduct a content analysis of a variety of Web sites. Unlike Zhang et al., however, our study was perhaps the first to focus on "Extreme Learning." This content analysis included 135 extreme learning Web sites. Each of these was scored based by four individual raters following a set of criteria that was developed by the entire research team of 12 individuals.

The first step in the process was to collect a variety of Web sites that might be considered Extreme Learning. More than a dozen individuals in the research team searched the Internet for additional resources using Google. They also explored Facebook sites, solicited expert recommendations, and scanned books, technical reports, blogs, and online news sites in an attempt to identify groups, individuals, or themes that might be researched with regards to Extreme Learning. The resulting list of resources was categorized five areas: (1) Outdoor/Adventure Learning: (2) Online Language Learning; (3) Societal Change/Global Learning; (4) Virtual Education; and (5) Other/Miscellaneous. Of those, 34 Web sites targeted Outdoor/Adventure Learning (see Appendix A).

The second step in the process was to develop a set of criteria to evaluate the Web sites. Four members from the research team were involved in providing an initial draft of criteria for evaluating the Web sites. The draft criteria and rating system underwent several rounds of revising and polishing with the entire research team. The final version of the criteria (see Appendix B) included eight areas: (1) content richness, (2) functionality of technology, (3) extent of technology integration, (4) novelty of technology, (5) uniqueness of learning environment, (6) potential for learning, (7) potential for life change, and (8) scalability of audience (see Appendix A). Ratings were given to each Web site based on these criteria on 5-point Likert-like scale (1 is low, 5 is high). To ensure inter-rater reliability, the rating process for Web sites was carried on multiple phases where each rater would rate five Web sites individually. At the end of the rating rounds, the raters created a list of all Web sites in each category and produced an average score from all the scores of the eight focus areas.

Given the use of four raters, a statistical measure of internal consistency, namely, Cronbach's alpha, was performed to determine the consistency among them. The alpha coefficient for the four items is .744, suggesting that the items have acceptable internal consistency. This presentation will focus primarily on the findings and implications of further research found in the area of Outdoor/Adventure Learning.

Results and Discussions

There are some interesting findings in the content analysis across the Extreme Learning sites, favoring Outdoor/Adventure Learning sites. For instance, the Outdoor/Adventure Learning and Virtual Learning categories had the highest overall mean score, 3.1 out of 5 (see Table 1). The highest rated Outdoor/Adventure Learning component was *The uniqueness of the learning environment*. This was not altogether unexpected, due to different locations that surround outdoor and adventure learning.

Table 1 Average Web Site Rating According to Extreme Learning Criteria and Category.

Categories (Number of site) Criteria	Language Learning (38)	Outdoor / Adventure learning (34)	Social Change / Global (19)	Virtual Education (23)	Other/ Misc. (21)	Average (Total 135)
1. Content Richness	2.9	2.9	2.5	3.3	2.7	2.9
2. Functionality of Technology	3.2	3.1	2.6	3.0	2.6	3.0
3. Extent of Technology Integration	3.0	2.8	2.5	2.8	2.5	2.8
4. Novelty of Technology	2.8	2.6	2.4	2.6	2.3	2.6
5. Uniqueness of Learning Environment/Learning	2.8	3.8	3.3	3.1	2.7	3.2
6. Potential for Learning	3.1	3.3	3.1	3.4	2.8	3.2
7. Potential for Life Changing	2.7	3.2	3.0	3.1	2.6	2.9
8. Scalability of Audience	3.1	2.9	2.7	3.3	2.8	3.0
Average	3.0	3.1	2.8	3.1	2.6	2.9

Potential for learning and *Potential for Life Change* also was rated highly for the Outdoor/Adventure Learning (3.3 and 3.2, respectively). Such similarities indicate that Outdoor/Adventure Learning has a higher potential for learning and impacting the lives of people. The *Potential for Life Change* will be explored further area of research as the group seeks to interview individuals to find more details about the role that these extreme learning opportunities play in affecting life change.

The lowest category of the Outdoor/Adventure Learning group of Web sites was the *Novelty of Technology* that was being used on these Web sites. This was the lowest overall category among all of the criteria evaluated. One possible reason for this is that the reviewers of the sites could be considered expert users of technology, and may have an inherent bias towards new and unique technology, which might result in lower scores of the category as a whole. At the same time, there are many reasons that new and novel technology may not be used in Outdoor/Adventure Learning. For instance, often explorers are subject to budgets that may limit the technology they use as well as the limitations of their audience. In addition, there are space limitations on their snow sled, boat, canoe, bike, backpack, or car.

T-tests were run comparing AL sites to the other sites. Compared to other extreme learning Web sites, the ratings on "Potential for Life Changing" were significantly higher for Outdoor/Adventure Learning sites ($p < .05$) as was "Uniqueness of Learning Environment/Learning ($p < .01$). The mean scores of potential for learning (M= 3.365, SD= 0.694) are higher for Outdoor/Adventure Learning than the other categories (M=3.141, SD=0.848). However, no significant difference has been found for that dimension (t = 1.391, p = 0.366) or for the remaining categories.

Conclusions

Of the four main types of extreme learning we explored, outdoor and adventure learning clearly is an area that utilized Web tools extremely well. In fact, it was tied with virtual education for the highest average score. Overall, the highest score for Outdoor/Adventure Learning was on the uniqueness of the learning environment/learning. Of course, adventure learning is intended to provide authentic learning environments.

While there are some valuable insights gained from the content analysis of the Outdoor/Adventure Learning Web sites evaluated in this study, further research is needed to determine how to best utilize these new extreme forms of learning. Those creating or using extreme learning Web resources outside of Outdoor/Adventure Learning, such as in language learning, virtual learning, and social change might be particularly interested in the distinctive features of successful Outdoor/Adventure Learning sites.

Research significance

This research offers insights into what makes Outdoor/Adventure Learning effective; at least from the perspective of Web resources that support it. Such information is vital as informal and nontraditional ways of learning online explode and become increasingly extreme. As this

research unfolds and additional Web sites are evaluated and interviews are conducted, educators should begin to fathom the potential of extreme learning possibilities such as adventure learning.

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Appendix A. List of Outdoor/Environmental/Adventure Learning Web Sites Evaluated for Extreme Learning Study

1. Abby Sunderland: http://www.abbysunderland.com/
2. Albert Yu-Min Lin: http://albertyuminlin.com/
3. Around the World 4x4 Expedition: http://www.theworldbyroad.com/interactive-route-map
4. Cassandra Brooks: http://www.cassandrabrooks.com/
5. Coach Surfing.org: http://www.couchsurfing.org/index.html
6. Earthducation: http://lt.umn.edu/earthducation0/
7. Eve Beglarian's River Project: http://evbvd.com/riverblog/about/
8. Explo.tv: http://www.exploratorium.edu/tv/index.php
9. Exploratorium Ice Stories: http://icestories.exploratorium.edu/dispatches/index.php
10. Explore Arctic: http://www.explore.org/search/?q=arctic
11. ExplorersWeb: http://www.explorersweb.com/
12. ExplorersWeb.com (community): http://www.explorersweb.com/community/
13. ExplorersWeb (Mount Everest): http://www.mounteverest.net
14. The Freshwater Switchyard of the Artic Ocean: http://psc.apl.washington.edu/switchyard/overview.html
15. Geothentic Learning: http://lt.umn.edu/geothentic/
16. Jessica Watson (youngest solo global sailor): http://www.jessicawatson.com.au/
17. Jon Bowermaster (Notes from Sea Level): http://www.jonbowermaster.com/
18. The Last Ocean Project: http://lastocean-project.org/
19. Laura Dekker: http://www.lauradekker.nl/English/Home.html
20. Mark Beaumont: http://www.markbeaumontonline.com/
21. Michael Perham: http://www.challengemike.com/welcome.htm
22. Minoru Saito: http://www.saito8.com/
23. Mountainworld Productions: http://www.mountainworldproductions.com/
24. Nautilus Live: http://www.nautiluslive.org/
25. Ocean.com: http://www.ocean.com/
26. One World Expeditions: http://www.oneworldjourneys.com/expeditions/
27. Penguin Science: http://www.penguinscience.com/index.php
28. The Poles.com: http://www.explorersweb.com/polar/
29. Rich Wilson (Sailor in the Spotlight Interview): http://yachtpals.com/rich-wilson-american-4013
30. The World by Road: http://www.theworldbyroad.com
31. The World by Road Bios: http://www.theworldbyroad.com/bios
32. The World by Road (MySpace): http://www.myspace.com/theworldbyroad
33. Travel Blog: http://www.travelblog.org/
34. Zac Sunderland: http://www.zacsunderland.com/

Appendix B. Criteria for Evaluation of Extreme Learning Websites

No	Criteria	Definition	1 (Low)	2	3 (Medium)	4	5 (High)
1	**Content Richness**	This criterion deals with how much information the website, resource, or project contains on the topic chosen, how adequately it fulfills the purpose of learning, and whether the information is credible and up-to-date or not.	The website, resource, or project doesn't contain much information on the topic chosen, and doesn't adequately fulfill the purpose of learning. The information is not credible or is out-of-date. There are few resources providing access to learning content; it may appeal to different learning preferences or styles.	-	The website, resource, or project contains less information on the topic chosen, and fulfills the purpose of learning to some extent. The information is somewhat credible or is up-to-date. There are some resources providing access to learning content; it may appeal to different learning preferences or styles.	-	The website, resource, or project contains much information on the topic chosen, and adequately fulfills the purpose of learning. The information is credible and up-to-date. There are a wide range of resources providing access to learning content; it may appeal to different learning preferences or styles.
2	**Functionality of Technology**	This criterion deals with the ease of access, navigation, and use of the website, resource, or project and whether it contains effective and appropriately employed technology to serve the stated learning purpose.	The website, resource, or project is difficult to access, navigate, and use and contains ineffective technology for the stated learning purposes of potential users.	-	The website, resource, or project is relatively intuitive or easy to access, navigate, and use and contains somewhat effective and appropriately employed technology to serve the stated learning purposes of potential users.	-	The website, resource, or project is extremely intuitive and easy to access, navigate, and use and contains highly effective and appropriately employed technology to serve the stated learning purposes of potential users.

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3	**Extent of Technology Integration**	This criterion deals with the range, amount, and types of technologies employed including issues of interaction, collaboration, and information collection, contribution, and community through such technology.	The website, resource, or project contains few technologies for learning. Technology tools are not interactive, collaborative, or participatory and do not promote communication or sense of community. User contribution is limited or nonexistent.	-	The website, resource, or project contains some range of technologies for learning. Technology tools are moderately interactive and collaborative and might enhance information exchange or user communication and contribution.	-	The website, resource, or project contains a wide range and amount of technologies for learning. Technology tools are highly interactive and collaborative and can greatly promote information collection and dissemination as well as user communication and contribution.
4	**Novelty of Technology (Coolness Factor #1)**	This criterion deals with whether the website, resource, or project contains emerging, unusual, or novel technologies.	There is no experimentation with emerging, unusual, or novel technologies for learning and the technologies which are used are out-of-date.	-	There is some experimentation with emerging, unusual, or novel technologies for learning which might motivate or engage potential users/learners.	-	There is extensive experimentation with emerging, unusual, or novel technologies for learning; some of which is quite exciting, motivating, or appealing for potential users/learners.
5	**Uniqueness of Learning Environment / Learning (Coolness Factor #2)**	The website, resource, or project serves the purpose of learning in a non-traditional, unique, or extreme learning environment, which is highly different from traditional classroom settings.	The website, resource, or project is just a replication of formal or traditional school-based learning. The learning is essentially what the user or learner might experience in a traditional teaching or training situations. The website, resource, or project might be rather plain or unappealing to the potential	-	The website, resource, or project is somewhat unique or different from traditional learning. There are learning opportunities that are somewhat novel or hard to find in formal or traditional settings. The website, resource, or project makes an attempt to connect people to each other as well as to novel	-	The website, resource, or project is unique or different. There are learning opportunities that are novel or hard to find in formal or traditional settings. The website, resource, or project connects people to each other as well as to novel resources and activities and current information is not easily found

6	**Potential for Learning**		learner or user; it is one of dozens of such sites.		resources and activities and current information not easily found in books or other traditional learning resources. There is also some room for creative expression of the users.		in books or other traditional learning resources. There is also extensive room for creative expression of the users.
6	**Potential for Learning**	This criterion deals with whether the website, resource, or project enables and provides learning activities or learning opportunities for the target audience to achieve the intended learning goals. There might be many markers, targets, or goals for such learning as well as celebration of those who have completed one or more learning-related units, activities, or segments. Such markers might come in the forms of self-tests, discussions, reviews, interactions, etc. or	The website, resource, or project enables and provides few learning activities or opportunities for the target audience to achieve the intended learning goals. There are extremely limited markers, targets, or goals for such learning and limited acknowledgment related to those who have completed one or more learning-related units, activities, or segments (i.e., self-tests, discussions, reviews, interactions, etc. or various rich media resources). The paths for each learner may be not unique. There may be few ways to socially network or collaborate with	-	The website, resource, or project enables and provides some learning activities or learning opportunities for target audience to achieve some intended learning goals. There might be some markers, targets, or goals for such learning as well as celebration of those who have completed one or more learning-related units, activities, or segments (i.e., self-tests, discussions, reviews, interactions, etc. or various rich media resources). The paths for each learner may be somewhat unique. There may also be some ways to socially network or collaborate with others at the website, resource, or project.	-	The website, resource, or project enables and provides the potential for learning activities or learning opportunities for the target audience to achieve most or all of the intended learning goals. There might be markers, targets, or goals for such learning as well as celebration of those who have completed one or more learning-related units, activities, or segments (i.e., self-tests, discussions, reviews, interactions, etc. or various rich media resources). The paths for each learner may be highly unique. There may also be ways to socially network or collaborate with others at the website,

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		various rich media resources. The paths for learning are varied and extensive.	others at the website, resource, or project.				resource, or project.
7	**Potential for Life Changing**	This criterion deals with whether the website, resource, or project influences or improves the quality of life and extends or changes the perspective of the world for the intended audience. As part of this, there is potential for individuals to experience life changing or empowerment moments from the use of the website, resource, or project.	The website, resource, or project does not offer much in the way of improving or influencing the quality of life or the perspective of the world for the intended audience. The impact is quite narrow or limited. Users might not gain anything beyond basic skills.	-	The website, resource, or project somewhat influences or improves the quality of life and the perspective of the world for intended audience. People are somewhat empowered to learn in ways that change their lives or broaden their outlook, perspectives, or knowledge and competencies. They can connect to other people or to knowledge and information in some ways that they might not have felt or experienced previously.	-	The website, resource, or project significantly influences or improves the quality of life and extends or changes the perspective of the world for the intended audience. People are empowered to learn in ways that change their lives or broaden their outlook, perspectives, or knowledge and competencies. They can connect to other people or to knowledge and information in many ways previously unseen or seldom experienced.
8	**Scalability of Audience**	This criterion deals with the potential impact of the website, resource, or project including the possibility to broaden the size and scope of its potential intended audience.	The website, resource, or project has a narrow focus or does not have wide appeal or potential impact. The intended or actual audience is quite limited.	-	The website, resource, or project has the potential to impact many people or a somewhat wide audience. It might have relevance to several different audiences or types of users.	-	The website, resource, or project has high possibility to impact a broad audience or large scale and scope from one or more educational sectors (e.g., K-12, higher education, corporate, government, non-profit, or informal).