TOOLS THAT MATTER: THE ASSESSMENT OF ONLINE RESOURCES FOR INTERNATIONAL STUDENTS

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ABSTRACT: In the age of technology, educators are encouraged to incorporate online resources into their teaching, but the effectiveness of these resources on learning and the student perspective is rarely taken into consideration. A key aspect to the assessment of online resources for international students is the user’s perspective. Culture has a significant impact on preferences towards tools, design aesthetics, and information provided online. This study begins with a review of theories and research on how students learn across oral, written and online modes of communication, creating a foundation for assessing online resources. After highlighting the similarities and differences across modalities, the study looks at current assessment methods as noted in scholarly literature. The study concludes by exploring student perceptions through a case study of three adult international students. With this information, educators are able to select and assess effective online resources for diverse groups. This is a very broad overview of theories and research. It is not intended to go into much depth on any particular aspect, but rather to encourage educators to reflect on their use of online resources.

Keywords: online resources, assessment, online learning, video tutorials, guides

Conceptualizing the Assessment of Online Resources

The advent of the internet quickly and dramatically expanded knowledge and its social nature, giving people the ability to take advantage of intellectual capital (Leu, Kinzer, Coiro & Cammack, 2004). Today there is an app for almost anything and online resources have made their way into the classroom. However, the assessment of these resources is often overlooked. A common practice in education is to consider a student’s prior knowledge when teaching a concept; likewise, it is equally important to consider the needs of diverse students when selecting and assessing online resources. Without acknowledging the student perspective, educators miss a key aspect of their students’ intellect, causing students to struggle to engage and maneuver through online information. In contrast, meaningfully connecting with information online promotes problem-solving and critical thinking, helping students become confident and responsible contributors of information (Detlor, Booker, Serenko, & Julien, 2012). In reviewing the evolution of communication across modalities, educators can build a foundation for understanding how to use and assess online resources effectively. As society has developed from oral traditions, to writing, to online media, the modes of communication have diversified how students engage in social learning and have broken down barriers, but what has not changed is what it takes to learn (Laurillard, 2002). Although various theories are presented in this study, educators are encouraged to reflect on their personal

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beliefs of how students learn across modalities and the needs of diverse groups to connect those concepts to assessment methods.

**Life Before the Alphabet: Orality**

Through oral traditions or orality, society first began to share information. Centered on events or interactions, the meaning of words in orality derives from the interplay between what is being said and its context (Goody & Watt, 1968). The interpretation of experiences is mostly in the moment, since revisiting information is highly dependent on one’s ability to recall what was said. Learning stems from immersion in the words of others, repeating and mastering the oral discourse of a field in action (Ong, 1982). People use discourse to develop and present ideas persuasively and in a favorable style of speaking—while incorporating ideas of others and seeking connections between ideas. By actively participating in storytelling, people act out and identify with societal values and beliefs (Levi-Strauss, 1966). Information changes as new experiences challenge the assumptions used to interpret the original experience. Reflection is essential because it helps differentiate and integrate the context of interpretations to create greater meaning (Mezirow, 1991). Oral information changes through the process of forgetting, transmitting extraneous information, conveying information inconsistently or glossing over information from person to person (Goody & Watt, 1968). In orality society passes down information from one generation to another through memorized stories or accounts of events.

**Immortalizing Words in Writing**

The development of an alphabetic script was a technological advancement, which decreased the dependence on memory to transmit and retain information (Levi-Strauss, 1966). Although the written word loses the sensory impact of a person-to-person emotional connection as it shifts to a person-to-written representation of a person’s words, writing enhanced orality by providing a means to organize concepts (Ong, 1982). Since writing is a slower process than speaking, it enables the written word to be less fragmented (Chafe, 1982). People are able to explore ideas and events through classifying, sequential ordering, and explaining with greater ease (Ong, 1982). This process leads to corrections and resolutions of inconsistencies. In capturing spoken words, writing is a key factor in enabling society to transmit thought and culture over time and place (Good, 1977). The evaluation of texts, in addition to oral discourse, brings light to varying ideas, values and beliefs.

**Going Online**

As the development of writing was a technological advancement on orality, online technology advanced both the spoken and written word. The meaning of online information still derives from the interplay between what is being said [online] and its context. Knowledge is experienced with the spoken and written word through the use of a computer and it is still socialized. Speaking, reading, writing, and virtual play is used to act out and identify with societal values and beliefs. Again, there is a loss of
interpersonal connection as communication shifts to person-to-digitized representations. The internet creates an environment conducive to the exchange of life experiences and different points of views (Coiro, 2009). The exchange, like in all modalities, transforms old ideas and builds new ones through contemplation and reflection. Online repositories store information throughout time, place and now space as knowledge is taken out of the physical world and placed online, further extending its shelf life and arguably its accessibility. Purposefully engaging in problem solving online requires one to know what to pay attention to and what to ignore, especially with features that attempt to capture one’s attention (Lankshear & Knobel, 2001). The complex online environment requires regulator strategies to skillfully transition between rapid reading, searching, and the in-depth construction of meaning (Coiro & Dobler, 2007). Online resources and applications help record, store, and share information.

Assessment of Online Resources

Interaction with others is essential in all modalities for critical thinking, connecting knowledge to practice, problem solving, and innovative thinking. Without this foundation, the acquisition of information becomes, “a form of consumption without the production of deep knowledge and the development of skills important for the future” (Gee, 2012, p. 419). The modes of communication are conducive to learning when they present content in a meaningful way, encourage students to think and create, give students the freedom to make choices on how to interact in the environment, and are collaborative and social (Gee, 2012). As modalities are embedded in society, exercising these modalities differs across cultures. Meaning, the way in which one speaks, writes, or functions online, differs across countries, generations, status, etc. This difference in meaning is especially important to remember when selecting and assessing online resources for diverse groups.

In beginning any assessment process, it is important to remember the purpose of assessment is to improve student outcomes. What it means to have an understanding of a particular subject differs across subjects, departments, institutions, countries, etc. Assessment practices should be situated in culturally and institutionally supported description of what it means to have an understanding of the particular subject. A review of assessment literature in two relating fields, online courses and electronic platforms, identified (a) relevance to students’ needs, (b) connection to academic concepts, (c) freedom and self-directedness, (d) organization, (e) collaboration, (f) accuracy and creditability, and (g) cost effectiveness, as key areas of assessment. Incorporating principles of assessment into educational practice can lead to the meaningful selection of resources, improved use, and enhanced learning.
Student Needs and Perceptions

The online world adds another dimension to a student’s environment and communications with others. In the online environment, students learn from interacting with and using programed instructional systems, which require the learner’s needs to be anticipated and addressed in advance (Govindasamy, 2001). This makes monitoring students’ interaction and use of programed instructional systems essential in the assessment of online resources (Gonzalez & Westbrock, 2010). To gain a better understanding about how learners are using online resources, Welch (2007) suggests reviewing websolver logs to measure reference-generated visits. After tracking the use of their online resource, Courtois, Higgins, and Kapur (2005) looked at student perceptions and success by constructing a single-question survey that asked if students found the resource helpful. Laurillard (2009) emphasizes the importance of considering why the learner should participate and creating a series of activities that keep learners engaged. To discover the needs of learners Grays, Del Bosque, and Costello (2008) used virtual focus groups to assess the value of their online resource. Student needs and perceptions can be assessed through web logs, single-question surveys and focus groups.

Academic Concepts

Online resources are most effective in connection with academic concepts, with clearly stated objectives and features that guide learners through the lesson (Dewald, 1999). Since the online environment is the mode in which students are engaging in learning, it is important to incorporate learning theory within the programed instructional system. A study by Rebb and Gibbons (2004) stipulate that if online resources were more experiential, learners would find them more beneficial, understand the context of the information, and connect with broader concepts. The methods of assessing learning theory and bridging to academic concepts online are as varied as assessing teaching in traditional classrooms. Machine evaluations, such as multiple-choice test and simulations can be effective assessment methods (Ehlers, 2013). Ehlers (2013) states that comments posted by students and product-based assessments can be used to examine student work created with the aid of an online resource. It is also useful to review the technology affordances, which McCracken, Cho, Sharif, Wilson, and Miller (2012) define as, “mapping technology to the kinds of interactions that lead to learning” (p. 108). To examine the academic concepts presented in online resources one can review technology affordances, multiple-choice tests, simulations, comments, and product-based assessments.

Self-Directedness and Prior Knowledge

The amount of information available online requires learners to cultivate self-directedness. Resources should guide students through the learning process by helping them establish connections between repositories of knowledge and academic concepts. Laurillard (1996) stipulates that the access rates of online resources should be tracked and the information used to motivate learners. Sun and Rueda (2012) investigated the impact of computer self-efficacy and self-regulation in student engagement in distance education.
by surveying students using a questionnaire adapted from the Motivated Strategies for Learning Questionnaire; Situational Interest Scale; and Web Users Self-Efficacy Scale. The results indicated interest and self-regulation positively correlated with all types of engagement. With sufficient self-directedness and motivation, learners can often compensate for a lack of prior knowledge. Coiro and Dobler (2007) argue that with access to information, individuals with high levels of online reading skills may compensate for low levels of prior knowledge. The varying levels of prior knowledge and skills of learners should be taken into consideration when using online resources. Lessons should begin with self-assessments to see if students have already learned the concepts being presented; self-assessments also help students recognize key concepts and the material’s organization (Ehlers, 2013). The online resources’ capacity to cultivate self-directedness and prior knowledge can be judged using access rates, surveys and self-assessments, like quizzes and check-off lists. Self-assessments come in many forms and include brief quizzes and short check-off lists.

**Organization**

Since an abundance of information is stored on multiple platforms, it can be difficult for students to navigate resources and differentiate from academically irrelevant resources. Educators can fall prey to presenting an overwhelming amount of information or presenting a moderate amount of information in a disorienting way. Ehlers (2013) suggests resources that are simple, use intuitive navigation and aid in processing information. The organization should be regularly reviewed for relevance, ease of use, and format consistency. A learner’s time should be focused on critical reflection, not spent lost in resources. Jackson and Pellack (2004) developed a self-assessment survey for institutions to assess their online resources. Hosie, Schibeci and Backhaus (2005) created a checklist to assess the quality of learning materials, by reviewing: accessibility, currency, richness, purpose, and inclusivity. Bowles-Terry, Hensley, and Hinchliffe (2010) developed best practices for creating video tutorials, by looking at speaking pace, video length, content, aesthetic, findability, and student interest. The organization of online resources can be evaluated through surveys and checklists.

**Collaboration**

Novice and experts alike interact with, contribute and alter information online. These interactions and contributions are critical to helping learners understand concepts through connectivity with others. Online resources can be enhanced by using various online collaboration applications to give learners the opportunity to engage the resource’s author, other novices and experts in discourse on concepts. Through discourse, information and academic concepts are transformed and learners learn. Ehlers (2013) believes that good online resources offer multiple opportunities to connect students with their teacher, peers, and other experts. This fosters a community of practice and communicative learning principles, while challenging learners to investigate the accuracy and credibility of sources. The design of online resources should be conducive to collaboration in a natural and authentic way. Collaboration can be gauged through monitoring comments, emails, or other student contributions.
**Accuracy, Credibility and Cost**

Since both information and the online environment changes regularly, it is necessary to ensure online resources are accurate and creditable. Anyone can place information online without formal review, making it essential to examine the claims and assumptions presented in resources. Morain and Swarts (2012) developed several rubrics to access various aspects of video tutorials to include the video’s accuracy, completeness, and pertinence; and the author’s confidence, self-efficacy, and engagement. Hosie, Schibeci and Bachaus (2005) created a checklist to review the reliability of the interface, learning goals, directions, communication, bandwidth, accessibility, and style of the resource. As technologies are ever changing, it is important to analyze the costs of resources to the potential impact on student outcomes. Dobbs and Sittler (2013) evaluated the economic value of online resources with a rubric that looked at the cost per use, goals, usage, visits; and subscription traffic. A resources’ accuracy and cost-benefit can be calculated using rubrics and checklists.

**Implementation**

With so many methods of assessing various elements of online resources, it may be difficult to design an appropriate approach. The time dedicated to assessment should be proportionate to the intended use. A two-minute video should not be assessed to the same extent as a costly district-wide resource. First, it must be reiterated that the purpose for assessment is to improve student outcomes. Next, it is important to consider a culturally and institutionally supported description of assessment elements. Then, educators should briefly check through the elements that the resource addresses. This article highlights relevance to students’ needs, connection to academic concepts, design suited for self-directedness, organization, collaboration, accuracy, and cost effectiveness. An online resource does not need to cover all of these elements to be considered a “good resource.” Unless the teaching is taking place completely online, these resources are imbedded in instruction. Any element that is missing can be incorporated into the overall lesson. However, if the online resource is not substantively contributing to the intended task, its use should be reconsidered. Lastly, depending on the resource’s use, complexity, and cost, educators should look at each or a selection of the assessment elements in greater depth, using a coordinating assessment method. It is essential that educators take the time to assess online resources, making implicit considerations explicit.
International Student Perceptions of Online Resources

Online behavior is a cultural expression of a community’s shared values (Chau, Cole, Massey, Montoya-Weiss, & O'Keefe, 2002). For international students, this means that their authentic online behavior may be significantly different from the perspective presented in a US classroom. The dominant culture of the class can disrupt student learning by cutting students off from a valuable source of information- their culture. To maintain student-centered practices, educators need to keep the student perspective in mind (Rogers, 1969); this matter most closely relates the assessment element, student needs and perceptions. When multiculturalism is promoted in education, diversity becomes a resource not a disadvantage (Waters, 2001).

Conceptual Framework

With little research published on student perceptions of online resources, literature on customer perceptions of websites in the international business was reviewed. Chau, Cole, Massey, Montoya-Weiss, and O'Keefe (2002) defined culture as a collective phenomenon of the shared values of a community in their study on consumer online behaviors. Jin (2010) contends that culture is a determining factor in the websites people find attractive. Seidenspinner and Theuner (2007) believe that culture determines preferences towards navigational tools, design aesthetics, and information provided. Mazaheri, Richard, and Laroche (2011) connect emotions to perceptions. Emotions lead to the perception of the degree to which the site is considered informative, effective and entertaining. This transition from emotions to perception then influences one’s attitudes and involvement.

In the conceptual framework of this study, culture (values and beliefs) shapes perceptions (how one interprets experience), which then informs preferences. The following are some useful definitions for the framework:

- Perceptions: an interpretation of the experience
- Culture: values and beliefs that distinguishes one group of people from another (including- gender, race, socio-economic status)
- Values: characteristics that are identified as important
- Beliefs: general assumptions or ideas held to be true
- Preferences: a demonstration of like or dislike for one characteristic over another

Research Questions

(1) How do international students use online resources for academic purposes?
(2) What process do international students use to select online resources?
(3) What qualities do international students value?
(4) What types of resources do international students prefer?

These questions address the study’s goals by providing insights needed to guide the selection of meaningful online resources and provide a basis of assessment.
Data Collection

This study used interviews and a document analysis in a five-part data collection process. The students:

1. were given an overview of the research project and signed informed consent,
2. had up to thirty minutes to explore the mock research question online while their actions were recorded,
3. were interviewed for fifteen minutes about the steps they took to answer the research question,
4. responded to some general questions about their online activity, and
5. were thanked for their participation and asked to be available in the future for follow up questions.

The mock research question, “Is wind energy cheap? Is it effective? Is it practical?” was constructed by considering the students’ language level and vocabulary. The question was out of the students’ area of expertise to encourage the need to research the answer.

Participant Selection and Site

Students were selected to participate in this study based on their country of origin and language proficiency. Since the study explores international student perceptions of online resources, it was imperative to select participants from diverse backgrounds. However, without interpreters and translated materials, the students had to have advanced language proficiency to communicate with the researcher and actively participate in the study. For this reason, all three participants were selected from a list of former students of a small language program associated with a liberal arts college. Student identities were kept confidential and pseudonyms were used. Han is a twenty-year-old, Korean student. He received his high school diploma in his home country before coming to the US a year ago. Mo is twenty-seven years old, Saudi Arabian student. He received a bachelor’s degree in his home country before coming to the US a year ago. Charlie, a nineteen-year-old Taiwanese student, received his high school diploma before coming to the US nine months ago.

The location of the data collection, a small conference room at a local coffee shop, was selected based on the accessibility and familiarity to the participants. The conference room was formal enough to provide a structured setting, but casual enough to not impede responses. The interviews were not conducted in a classroom, since the halls of the school are very busy and the presence of their peers might have affected their responses. The location also provided Wi-Fi access and power outlets, which was essential for the study.
Data Analysis

After completing the fieldwork, the data were analyzed with the aid of Atlas.ti. The analysis began with a review of the students’ answers to the mock research question. Next, a document analysis was conducted on each student’s recorded online activities. The document analysis was compared to the students’ interview responses for agreement, using both a deductive and inductive coding approach. Various codes were assigned to highlight distinct commonalities and differences amongst the students and between the interviews and the online recordings. Responses were coded that appeared to be culturally significant and provided insights into the formation of student perceptions. This form of data analysis was selected because it allows for a synthesis of multiple responses and captures various points of view.

Results

During the interviews, the students indicated they move between English and native language resources when using the internet for academic purpose. However, each student transitions between languages a bit differently. Charlie says that he searches in English, “because the question comes from English not from my language”. Then he switches to Mandarin, “if I cannot find the things I want, I cannot read or I don’t want to read”. Han says that he prefers starting with Korean resources. He reasons, “Korean is my native language, so I can understand easier than English, but sometimes it’s the same, even if I cannot understand Korean I can use English”. Han uses English resources as a backup, when Korean sites fall short of providing him with the information he needs. Overall, a transition in language is initiated when the student hits a wall and feels another language can provide additional information.

Although all of the students mentioned in their interviews that they use native language resources while conducting research, none of the students used them in their recorded search for this study. This finding was interesting and could have many possible causes. When Charlie was asked why he does not use a translator during his university science class, he said that it would not be fair since the other [native English speaking] students could not use translators. He went on by saying, “I finish my English program, I should know things and I don’t… I feel like I’m the only one, it’s only me.” For Charlie, there seems to be a certain level of shame associated with openly using native language resources for academic purposes and he may not want to stand out amongst his peers as different.

The process that the students use to select online resources centers mostly on information provided by others rather than internal criteria. All three students used search terms that came directly from the mock research question. Mo reasoned, “Because it was the first title, first part of the question”. Charlie and Mo used Google’s auto complete by typing in the first word on the mock research question then accepting Google’s suggestion to complete the search phrase. Once the information query was complete, Charlie and Mo selected the first site listed by Google. Han, on the other hand, read the site descriptions to make his selection, and chose the fifth resource. He stated, “I was looking for like a
sentence about my thesis statement, some sort of I thing like a sentence and also what is the reason in the research paper and then what information I want to take from this paper”. Charlie and Mo seem to trust the information presented by Google with little critical scrutiny, while Han is more selective and considers the relationship between the search term and the purpose of the research.

Popularity seems to be a quality that the students value. All three students used Google in their recorded search and stated it was their preference. Mo mentioned that he uses Google because it is the most popular site in the US and easy to use. Charlie said he prefers Google, but also uses Yahoo to search in Mandarin. He deemed Yahoo a better search engine because “it is more popular in Taiwan and yielded better results”. Lastly, Han said he uses www.naver.com, a popular search engine in South Korea. The students expressed a connection between popularity and the quality of information (if many people use it, it must be good).

The students had varying ideas about the characteristics of resources that they liked or disliked. “If there is too much information at the same time,” Han finds the resource repelling. Charlie does not like resources that make it difficult to find information or read. He determines the quality of a resource by comments made by other people, “if somebody writes a comment right and maybe like the comment shows some of the same problems the article have or like this article has some part is like error”. He goes on to say he dislikes resources that are political, while Mo dislikes advertisements. Overall, the students seem to like or dislike a resource by how the information is presented (quantity and organization) and the content (advertisements and politics).

Limitations

During the study the following threats to validity were considered:

- Is there another basis for the student’s perceptions that has not been identified?
- Have the student’s perceptions been misidentified?
- Can the student’s clearly articulate their perceptions?
- Do the interview questions target the student’s perceptions?
- Does the researcher’s bias lead to a misinterpretation of the student’s perceptions?
- Does the researcher’s presence cause the student’s to alter their responses?

These questions are threats to validity because they highlight possible misinterpretation of the data, drawing incorrect conclusions, or not being able to draw conclusions at all. In order to guard against these threats the study was designed to use various activities to investigate the same questions. This confirms the information collected and highlights relationships. During the study, the students were asked to share any additional information that came to their minds, allowing students to consider and include aspects not explicitly asked in the study. Each response was rephrased and repeated back to the student to provide an opportunity to confirm the interpretation of the information provided. The use of computer-recorded actions allowed students to review their steps and reflect on their actions after completing them. These computer-recorded actions lessen the student’s dependency on memory and were used as a basis of comparison. An outside advisor monitored this process and provided continual feedback.
Although the results of this study can inform the selection of online resources for the participants, the information should be generalized cautiously. While generalization can be made about various cultures, culture is unique to each individual. The values and beliefs of one person from a particular cultural group may not be representative of the entire group. The participants in this study have been in the US for nine months to a year, which could have impacted the cultural practices of the students. Furthermore, culture and the online environment are dynamic and change over time. The results of this study are emblematic of the moment in time in which the study took place and caution should be taken when generalizing the results to future dynamics.

Conclusions

The international students in this study indicated that they move between native language and English resources. Being able to transition between languages to find additional information can be a significant advantage for international students, adding richness to the student’s research. Trusting Google, selecting the first site listed, and favoring popular resources is not unique to international students. According to an American Library Association report (1989), students across the nation need to learn the skills needed to locate, evaluate and effectively use information resources. However, international students may be more sensitive to the quantity and organization of information in resources. In order for diverse students to engage in the critical exploration of academic knowledge, educators need to consider whose narrative or version of the truth is being taught and how the student will relate to this information (Phan & Baurain, 2011). It is important to understand each student’s educational history and create assignments that give students the ability to draw on their prior knowledge to reduce information overload (Miller & Endo, 2004). To create a nurturing and conducive learning environment, educators need to consider the assumptions they make regarding student online behaviors and honor the student’s culture and preferences.

References


