

Enabling learning with user-created web video in higher education

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Abstract

The study explores opportunities and challenges of integrating user-generated Web video into a new instructional model for university education designed to facilitate what is generally referred to as 21st century learning skills (Thomas & Brown, 2009). Specifically, it discussed the qualities of user-generated Web video, offers a conceptual framework for an instructional model of Web video mediated learning, and provides empirical evidence that supports the effectiveness of the model and the impact of university students' use of Web video on their learning.

Introduction

Web 2.0 developments have changed the way we interact and collaborate over the Internet resulting in an explosion of new knowledge sources in multimodal formats. The value of Web 2.0 is embedded in the ideas of bottom-up collaboration, user-created content, and community building. Weblogging, wikis, social networks, podcasting, and twittering are just part of this new online “participatory” culture that has shifted the landscape of the Internet from a static repository to a dynamic “habitat” of people. The boundaries between the production and the consumption of content have blurred and the Internet becomes a virtual venue of “collective intelligence” where persons share their cultural capital with each other and form a wide range of communities – communities of interest, knowledge communities, communities of practice, and the like.

With the spread of broadband Internet access, the use of web-based streaming video has grown rapidly in the field of higher education. Web videos distributed over video-sharing websites, such as YouTube, have been widely used by university and college instructors in their teaching. YouTube is one of the most well-known and most attended video-sharing networks of social media on the Internet. It is the fourth most visited website in Canada, and the third – globally (Alexa Internet, 2011). Higher education cannot ignore the power of user-created web video that has a potential to influence the way students acquire knowledge and negotiate its meaning. However, web video and video-sharing networks are just a technology which cannot upgrade students' knowledge and skills by itself. The use of web video can only be effective if the

educational goals are clearly defined in terms of its application to the learning process. In this regard, university instructors are urged to revisit their pedagogies and their personal philosophies to the nature of knowledge and to the way how knowledge is created within the learning process at university (Dede, 2008).

Review of literature

The situated cognition theory highlights two categorizations of the learning process relevant to this research – context-driven knowledge and authentic experience. Proponents of situated cognition argue that knowledge is dynamic, contextually situated, and the understanding of its meaning is continuously constructed through its application to new situations (Brown, Collins, & Duguid, 1989). Observation of knowledge in a context and participation in authentic settings help students construct useful knowledge and make sense of expert's experience embedded in authentic practice (Brown et al., 1989; Barab & Duffy, 2000). In the LWV model, situatedness is fostered by user-generated videos representing the emergent and fluid concept of knowledge, as well as the desire for freedom to deliver the authentic message directly to the public without formal approval mechanisms.

The pedagogical goal of a distributed cognition framework is to shift learning by rearranging knowledge construction from an isolated (tool-free) and self-directed activity to “facilitating individuals’ responsive and novel uses of resources for creative and intelligent activity alone and in collaboration” (Pea, 1997, p. 81). Learning, as to the theory of distributed cognition, is enabled by the students and their intelligence and takes place through collaborative activities. Along with that, artifacts, as bearers of intelligence, shape the activity and provide resources for guidance and greater accessibility to higher-order thinking and deeper understanding (Pea, 1997; Salomon, 1994). In the LWV model, learning, as informed by distributed cognition theory, is an interaction between students and video that carries the intelligence of the producer and has the capacity to facilitate deep and reflective understanding of the student.

These two theories provide the conceptual validity for the infusion of user-generated Web video into student learning. The situated perspective assumes that information cannot be consumed and converted into knowledge in isolation. In this study, situatedness is fostered by the use of Web video that allows students to observe knowledge and authentic experiences in multiple contexts. Web video, unlike earlier video formats, represents the emergent and fluid concept of knowledge which is not filtered and does not contain “pure” knowledge per se. In this regard, it bears the potential to challenge students’ thinking, for instance, while critically evaluating video. The theory of distributed cognition underlies the principles for adopting Web video as a designed artifact that carries the intelligence of the producer and has the capacity for facilitating deep and reflective understanding.

A number of empirical studies have demonstrated that students highly appreciate and take advantage of streaming video as it allows for a greater flexibility in studying the subject matter, compared to video content delivered via CD-ROM (Bracher, Collier, Ottewill, & Shephard, 2005; Wu & Kao, 2008) or instructor’s lecture delivered live in a classroom (Bassili, 2008). Other findings (Leijen, Lam, Wildschut, Simons, & Admiraal, 2009; Wu & Kao, 2008) imply that streaming video supports students in taking more active role in evaluation of learning performance of their own or of their peers. Bishop (2009) argues that students’ production of video compositions extends their learning beyond the classroom environment by engaging them

in “outside” relationships, as well as challenges an authoritative discourse with “multi-voicedness” replete with different meanings and multiple utterances.

In the current literature, empirical studies of the effects of streaming video on students’ acquisition of knowledge often use video artifacts produced by university (Bracher et al., 2005), faculty members (Bassili, 2008), or media companies. These video products often give a one-sided and sometimes outdated account of the subject matter students study. The reliability of the content of a video product is contingent on the knowledge and experience of particular individuals (e.g., instructors, experts) whose expertise is based on “what they have learned from reading and thinking, from listening to and observing others, and from their own experience” (Fraenkel & Wallen, 2003, p. 5). Moreover, the choice of video is often prescribed by course instructors, rather than students. All these aspects of the production and use of streaming video suggest that producers and instructors “clear a path” to knowledge by determining which information is included or disregarded in the video segment, as well as which part of the video is relevant to be integrated into the curriculum. In this regard, students are exposed to the video that represents “filtered” information and favors only one side of a matter or a problem. That is why this study will focus on the user- or community-created video (i.e., Web 2.0 video) and video sharing networks which provide students with a broader sampling of video episodes that help them explore a complex concept of the subject matter from more than one way of representing it. In particular, by browsing the volumes of Web 2.0 video on video sharing networks, such as YouTube, students are able to view multiple and diverse perspectives on the same topic that has the potential to advance their understanding about the subject matter and to further their breadth and depths of knowledge in the discipline. In this research, I intend to contribute to the understanding of learning with Web 2.0 video from the situated and distributed cognition vantage points. This is an aspect of video pedagogy that has received little attention in the extant educational research literature.

Learning with Web Video, an instructional model of integrating web video use and production

The pedagogical model, called Learning with Web Video (LWV), is based upon situated cognition and distributed cognition theories and infuses Web video into student learning. In the LWV model, Web video is used to bring multiple perspectives to the learning process while students work on their own, at a distance from the instructor. University students, through the use of Web video, observe diverse and decentralized viewpoints on the subject matter under study and develop new understandings of knowledge by establishing relationships between their prior knowledge and experience, scholarly knowledge prescribed by the instructor through a syllabus, and the contextual knowledge inherent in Web videos.

The key pedagogical components of the LWV model are as follows (see Figure 1): reflective learning, application, collaborative learning, and self-assessment.

Reflective learning – in the form of video-enhanced blogging – involves active reading, inquiry, and critical reflection. It is predicated on the coordination of three sources of knowledge: (a) scholarly knowledge (e.g., peer reviewed articles, textbook chapters, and the instructor’s expertise); (b) contextual knowledge (e.g., authentic practices or others’ perceptions and

understandings embedded in user-generated Web videos); and (c) students' prior personal experiences.

Application – in the form of video composition – either individually or in small groups. The development of the video narrative allows students to present their understanding of the topic using multi-modal, interactive, digital formats (e.g., images, animations, audio narrative, video). When the video artifact is produced, students upload their videos to the Web to share their knowledge with their peers and the larger audience.

Collaborative learning is carried out through active engagement in small group discussions and constructive peer commentaries to students' Weblog entries or video artifacts.

Self-assessment is essential in self-regulated learning. Evaluation criteria for learning activities, co-developed with students, are provided to enable students to carry a holistic analysis of their learning performance, knowledge construction, and thinking processes. Self-assessment activities give students an opportunity to reflect on the processes of learning and analyze the changes in the state of their approaches to learning (metacognition) and their understanding of knowledge.

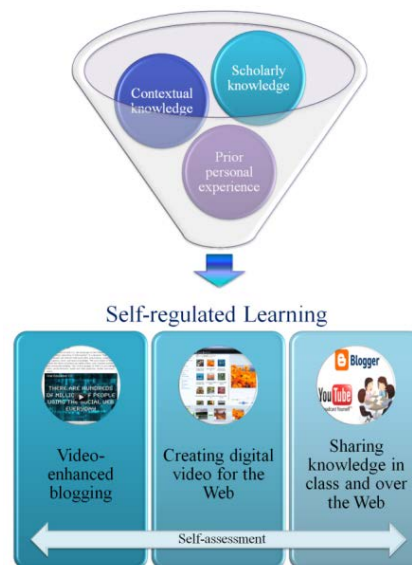


Figure 1 The Learning with Web Video Instructional Model

The process of incorporating Web videos into academic discourse and self-regulated learning has two significant functions. First, it has the capacity of situating learning within a broader contextual environment embedding authentic cultural and social situations. Secondly, Web video sharing networks, such as YouTube, “distribute” various artifacts of “collective intelligence” which have been created based on other individuals’ conceptions of the world and their cultural experiences. That being said, Web videos can be viewed as supplemental learning resources which expose teacher candidates to a multiplicity of diverse perspectives and multivoicedness of discourses/meanings. Web videos, thus, enable teacher candidates to develop new understanding about the subject matter they are learning.

Research questions and hypotheses

This study is aimed to explore the influences of web video on the learning process and students' behaviors. More specifically, the following questions are addressed in this paper:

RQ1: What are the affordances and constraints of integrating web video into a traditional classroom-based course?

H_1 : As students progress through the Web Video Project, they will recognize the learning value of web video use and production?

RQ2: How does web video use and production facilitate student learning?

H_2 : As students progress through the Web Video Project, they will achieve greater level of web video use and production skills?

Method (490)

Research design and treatment

This study is an exploration of applying web video mediated learning design principles to a more authentic setting and one that closely aligns with typical practice within postsecondary settings. The overarching purpose of this doctoral study is to examine the role of user-created web video in facilitating student learning in a traditional classroom-based graduate-level course and to test a new model of web video use and production for learning. A particular focus of the research is the examination of two learning situations or scenarios embedded into the course design in the form of the Web Video Project: (a) the appropriation of user-created web video content by borrowing a video clip from one of video sharing websites and embedding it into student's blog; and (b) the development and production of own digital video on one of course topics and then its publication over the Web

During a six week period, participants were engaged in activities associated with the Web Video Project. They posted their own interpretations of the readings, along with a relevant web video, through a video enhanced weblog, provided constructive commentaries to their peers' blogs, engaged in classroom small-group discussions, and produced their own reflective compositions in the form of digital video integrating multiple modes of representations. Also, the participants carried out an analysis of their own learning activities using the co-developed evaluation rubrics. This project environment provided participants with an opportunity to inquire collaboratively into the areas of Web 2.0 technology and its pedagogy, theories, discourses, and research approaches through the integration of three sources of knowledge (i.e., scholarly, Web 2.0, and prior personal experience).

Sample

A non-randomized convenience sampling strategy was used to select participants for this study (McMillan, 2008; Fraenkel & Wallen, 2003). The participants were recruited from students registered in an instructional technology course, a required graduate-level course for master's programs in education. Of the 26 students enrolled in the course, 23 volunteered to participate in the study and signed an informed consent form. Given the concern over a modest sample size and the potential risk of attrition of the participants during the course of the study, a portion of

class time, in concert with the course instructors, was allotted for the participants to complete a series of in-depth surveys before and after the Web Video Project. The comparison of repeated survey data using a cross tabulation technique captured a slight difference in response rates; however, it did not pose a threat to the accuracy of the findings. Following the audit of survey data sets, 15 (65.2%) participants responded to all the repeated surveys and 17 participants responded to the Web Video Impact survey, a posttest-only survey.

Of the 15 participants, five (33.3%) were male and 10 (66.7%) were female. Eight participants (53.3%) were under 30 years old, four participants (26.7%) were in the 30 to 45 year old group, and three participants (20.0%) were over 45. The gender and age proportions of the participants concur with the demographic characteristics of a typical class of graduate students in master's programs in education at the participated university. On average, the participants reported they studied at university for 6 to 7 years, with two outliers who spent 9 and 17 years in higher education accordingly. Ten participants (66.7%) indicated that they were working on their first graduate degree. Most participants (80%) had prior teaching experience, ranging from 1 to 11 years.

Data collection

Multiple sources of evidence were mainly collected from the two repeated web-based surveys, interviews, and participants' learning artifacts. Repeated surveys were administered before and after the implementation of the research treatment to measure the impact of Web video on participants' attitudes and beliefs about user-generated Web video, barriers and motivators, and their learning behaviour. Since survey data were drawn from a moderate sample of the participants, the qualitative data collection in the form of interviews and participants' learning artifacts was intended to complement the data collection strategy and to describe and understand events and actions of the participants.

Data analysis

The comparison of survey data that was collected before and after the research treatment captures a slight difference in response rates to the surveys which do not pose a threat to the accuracy of the findings. The quantitative data collected were subject to both descriptive and inferential statistical treatments, including (a) the computation of the observed frequency distributions, means and standard deviations in order to provide an insight into students' learning behavioural patterns and answer the research questions and (b) the multivariate within-subjects analysis of variance (i.e., a General Linear Model Repeated Measures) to examine the effectiveness of the research treatment and test significant associations embedded in the research hypotheses. However, due to the relatively small size of the sample, the investigator focused more on the descriptive data analyses rather than on rigorous inferential statistical analysis to draw reasonable inferences about the effects of the treatment being studied. To achieve much refinement in data analysis and make the meaning of the findings more evident, the investigator complemented statistical analysis of survey data with illustrative examples of qualitative data derived from open-ended survey questions, interviews, and learning artifacts.

Research findings and discussion (1800)

Participants' previous exposure to Web 2.0 technologies

All participants indicated that they had never taken an on-campus course enhanced with web video use and production. To find out the extent to which the participants were previously exposed to Web 2.0 technologies in a formal learning setting, they were asked, "How often does your instructor use Web 2.0 technologies as part of course instruction?" Only three (20%) participants indicated that they were exposed to Web 2.0 technologies such as social bookmarks, social networks, wiki, and weblogs. The findings indicate a very low percentage of students who were exposed to Web 2.0 technology use in the classroom. Half of the participants reported that they previously used video sharing websites, such as YouTube, in some of their previous courses, while the other half indicated that grassroots web videos were never used in their courses before this project. Wiki was reported as the most frequently used Web 2.0 technology in the classroom.

Since the incorporation of web video into learning was the focus of this investigation, the participants were asked about how often they used personally YouTube videos - as a prevalent epitome of user-created web video - and for what purpose. All the participants reported that they are familiar with YouTube and used its service to some extent. Nearly 75% participants indicated that they frequently use YouTube for entertainment and personal learning. Eight participants (53.3%) claimed that they visited YouTube from time to time to find out the news. As for posting comments on YouTube, it was not common for most participants (60%). YouTube was less valued in terms of its fitness to study (33.4%) or work (26.7%). When asked about which video sharing websites the participants used before, YouTube was apparently the most popular (86.7%), followed by TeacherTube (46.7%).

RQ1: What are the affordances and constraints of integrating web video into a traditional classroom-based course?

Affordances of integrating web video into learning. The survey included three groups of motivating factors: (a) advantages of web video attributes for learning; (b) learning opportunities afforded by web video for content contextualization; (c) learning opportunities afforded by web video for active student-directed learning. Most participants in their responses concurred that web video was vital to their learning. The survey results indicate that web video and blogs appeared to be beneficial for student learning. A multivariate within-subjects analysis of variance reveals significant association between pre- and posttest means for two Web 2.0 technologies – web video and blog – which the participants considered as indispensable for their learning. The project appears to contribute to the observed variations for both media: web video [$F(1,14) = 12.727, p = .003$] and weblog [$F(1,14) = 5.914, p = .029$]. The findings may suggest that the participants gained confidence in the value of using both web video and blog for the purpose of learning. One of the participants noted that *"All of my doubts have been put to rest. Despite any negative thoughts about Web 2.0 as a tool for the classroom, I will support its use 100%."*

The frequency with which participants reported their perceptions about the attributes of web video, they believed were indispensable to their learning, was quite high at both pre- and posttest

observations. At the pretest, web video multimodality (i.e. a capability of digital capturing and sharing, incl. embedding) was highly valued by the participants (76.5%), followed by entertainment attribute (70.6%), and volatility and varying degree of oversight of content production (52.9%). By the end of the project, these qualities gained an overwhelming support of the participants, ranging from 76% to 100%. The comparison of the pre- and posttest means (Table 1) suggests that, on the whole, most participants sufficiently agreed on the proposed attributes of web video for their learning.

A multivariate within-subjects analysis of variance for repeated measures indicated that the means for two attributes of web video differed significantly, meaning that the project was more like to impact the observed variation in the sample means. In particular, the sample means changed significantly for the entertainment attribute of web video, [$F(1, 16) = 8.727, p = .009$] and the multimodality attribute of web video [$F(1,16) = 5.885, p = .027$].

Table 1
Participants' Perceptions about Web Video Attributes: Comparison of Pre- and Posttest Means

Measures	Factor	Mean	Std. Dev.
Web videos are entertaining.	Pretest	2.2941	.68599
	Posttest	1.5882**	.50730
Web videos come from many of sources with varying degrees of content oversight.	Pretest	2.5294	.62426
	Posttest	2.1765	.88284
Web videos can be linked to or embedded into other.	Pretest	2.3529	.78591
	Posttest	1.8824*	.78121

*Note: * $p < .05$, ** $< .01$*

In open-ended questions regarding the perceptions of YouTube in exemplification of web video, the participants generally described YouTube as an alternative source for immediate information as well as valuable media for their learning. The frequency distribution of participants' responses suggest that the participants viewed web video as a knowledge source (30.2% of thematic units) leading to an enhancement of their learning (66%). When the participants were asked to define "web video", they utilized such characteristics as user-created content (11.3%) and diversified representation of information (9.4%). Since web video is produced with minimum content oversight, the participants emphasized that skills for assessing the accuracy of web video content were unavoidable. The participants felt that "YouTube is very useful when making a teachable point in the classroom" and specified a number of ways of how YouTube could enhance the process of learning. For instance, the possibility to learn from others (18.9%) was the most persistent benefit for learning from the perspective of the participated students. Some participants acknowledged that the use of YouTube helped them save time (3.8%), "When your plans go wrong or you need to do something impromptu that doesn't take much time you can use YouTube."

The hypothesis (H_1) was supported. The difference among the sample means for web video and its two attributes were statistically significant at the .01 and .05 level, suggesting that participation in the project improved participants' perception about the learning value of web video and helped them recognize its attributes that could be beneficial for learning, in particular the opportunity to make learning enjoyable and web video multimodality.

When it comes to the opportunities afforded by web video, earlier in this work, the study assumed applying a situated learning perspective that web video has the potential to provide students with opportunities for content contextualization when they re-organize knowledge and construct new understandings. Before the study began, the majority of the participants indicated that they agreed that web video provided opportunities for content contextualization. In particular, the top four learning opportunities were: (a) opportunity to explore broadly other people's ideas and perspectives (82.4%), (b) opportunity for authentic learning (76.5%), and (c) opportunity to focus attention on topic, as well as to visualize ideas and theoretical concepts (64.7% each). Following the implementation of the project, the frequency of participants' responses slightly decreased but the position of each learning opportunity for content contextualization remained strong. There was no significant difference attached to the observed variation in sample means for the "contextualization" opportunities between pre- and posttest time periods.

Another cluster of opportunities afforded by web video is related to active student-directed learning. At the pretest, the majority of the participants supported the top four learning opportunities: (a) personal motivation to engage in learning (88.2%); (b) opportunity to improve online composition skills (82.3%); (c) opportunity to be an active participant instead of "consumer of information" (76.4%), and (d) opportunity to collaborate with peers (70.6%). Following the implementation of the project, the frequency of participants' responses slightly increased resulting in high support of all those motivators. The support for the ability to work through course material at one's own pace remained stable (52.9%) at both pre- and posttest observations. There was no significant difference attached to the variation in sample means for the active learning opportunities between pre- and posttest time periods.

Constraints of integrating web video into learning. The participants indicated that lack of self-regulated learning skills and lack of Internet skills were less likely to prevent them from effective use of web video in learning. Their perceptions about the lack of these most common prerequisite skills did not change over the period of the study. Another most common barrier to learning was associated with technology constraints. In the case of this project, the participants frequently worked with streaming web video hosted on YouTube. Since most YouTube video clips were 10 minutes long, the duration of video clips was not an obstacle. Most Internet-related barriers were highly anticipated by the participants in both pre and posttest observations. An overwhelming majority reported their concerns about the compatibility of web video sharing platforms while using various web browsing software (76.4%), as well as their concerns about bandwidth and internet speed both needed to support streaming video experiences (64.7%).

The next group of learning barriers – labelled the "web video searching skills barriers" – was related to the difficulties and frustrations perceived by the participants when they moved around video sharing platforms in their search for relevant video clips, as well as obstacles they

encountered when storing and organizing web video content. In addition, rapid growth of video sharing networks became another roadblock that might make web video searching more difficult and discouraged students from integrating web video into their learning. Upon completion of the project, the frequency with which participants reported barriers to web video mediated learning decreased. Most students appeared to develop their navigation and searching skills needed to successfully participate in web video mediated learning. A multivariate within-subjects analysis of variance for repeated measures shows that the differences in pre- and posttest means for some barriers related to the lack of web video searching skills were significant – lack of navigation skills [$F(1,16) = 12.748, p = .003$] and lack of web video management skills [$F(1,16) = 5.878, p = .028$]. These findings suggest that participation in the project helped them make up a deficiency in web video searching skills and overcome this important barrier to effective exploration of video content on the Web.

Another group of barriers was associated with the lack of conceptual understanding of web video and the way it is produced and delivered. Before the project, the difficulty to grasp the concept of web video was reported by nearly 60% of the participants. The participants communicated their anxieties about the credibility of web video producers (41.2%), as well as about the accuracy of web video content (47.1%). During the posttest observation, the participants' concerns about the nature of user-created video content and the negative implications of potentially low content quality for learning slightly increased, in contrast to the previous groups of barriers. No significance was attached to the observed variations in the pre- and posttest sample means for the variables related to the lack of conceptual understanding of web video.

Time constraints, lack of instructional support and lack of motivations were reported by the participants as considerably low barriers to their learning, compared to technology constraints and lack of video searching skills. It suggests that, on the whole, the participants did not experience serious difficulties that could discourage them from utilizing web video for the purpose of learning. Moreover, the findings indicate that most participants appeared to think positively about the integration of web video over the period of the study. Interestingly, the variation in pre- and posttest means for viewing web video as hype varied significantly, $F(1,16) = 6.667, p = .02$, implying that the participants were excited to learn with web video not because it was over-hyped technology but because they recognized its learning value during their involvement in web video mediated learning activities.

RQ2: How does web video use and production facilitate student learning?

On average, participants spent between four and six hours per week on preparing their assignments for the Web Video Project. It included such activities as exploring immense volume and varieties of user-created web videos, selecting and embedding relevant videos into blogs, composing reflective blog postings, commenting on classmates' blogs, and creating and uploading own videos to the Web.

The findings indicate a significant increase of web video use and production skills over the period of the study. A multivariate within-subjects analysis of variance for repeated measures shows that the participants improved significantly their skill, such as: creating a web video [$F(1,14) = 38.5, p = .000$]; using media editing programs [$F(1,14) = 36.978, p = .000$]; creating and contributing to a blog [$F(1,14) = 17.5, p = .001$]; uploading digital video to the Web [$F(1,14) = 17.469, p = .001$]; embedding a video clip into a blog [$F(1,14) = 12.426, p = .003$]; and web

video searching within a video sharing website [$F(1,14) = 6.087, p = .027$]. Thus, the hypothesis (H_3) was supported. Most differences in pre- and posttest sample means for web video use and production skills were statistically significant either at the .05 level or the .01 level. It suggests that the project was more likely to influence participants' proficiency skills in borrowing existing web videos, as well as in creating their own digital videos and uploading them to the Web.

The participants were asked if they perceived any risk to their learning from using web video and how they managed it over the period of the project. The frequency analysis shows that the participants felt that web video mediated learning activities might carry an element of risk to their learning. Only one participant reported that the use of web video in the project did not pose any threat to the learning process. According to the participants, the risk of integrating web video was characterized mostly as either "minor risk" or "minimum risk". The major concern raised by the participants was that user-created web video might have scant regard for credibility and that it might contain unrefined or inappropriate information that requires careful consideration before its use for learning. A few participants reported privacy concerns about exposing their own thoughts in the forms of blogging or web video.

Most participants appeared to be able to find effective solutions to overcome the obstacles stated above. To increase the efficiency of browsing for an appropriate web video, some participants indicated that they had to work hard on honing their skills of navigating a video sharing site. To reduce the risk of using inappropriate web video content, they indicated that before using the video clip for learning they spent time to evaluate the quality of the video material, "*Before using it, I tried to make an educated decision by determining the accuracy, relevance, and comprehensiveness of information conveyed in a video clip.*" Despite participants' concerns about risks associated with web video mediated learning, most of them concurred that the use of web video did not decrease the quality of their learning because the advantages of using web video for the purpose of learning and understanding course material better outweighed the risks they experienced. At the same time, the evidence is insufficient to estimate the actual degree of the risk posed by web video mediated learning because data was collected from a moderate sample of the participants and is subject to a number of assumptions.

Perceptions about Video Enhanced Blogging (i.e., web video "borrowing"). The impact of embedding a borrowed web video into a blog was captured through two survey questions pertaining to: (a) participants' motivation for selecting a web video germane to the discussion of the assigned reading, and (b) the learning benefits of web video borrowing exercise. The participants appeared to have a high regard for all of the decisive factors contributed to their web video browsing experience aimed at locating the most applicable user-created web video to the assigned readings of the week (Figure 2). The frequencies and rank order analysis of the importance index (means) suggested that most participants (76%) inclined to select an appropriate web video clip that gave a sense of real-life situations, had substantial relevance to a weekly topic, and was to the point of the assigned readings.

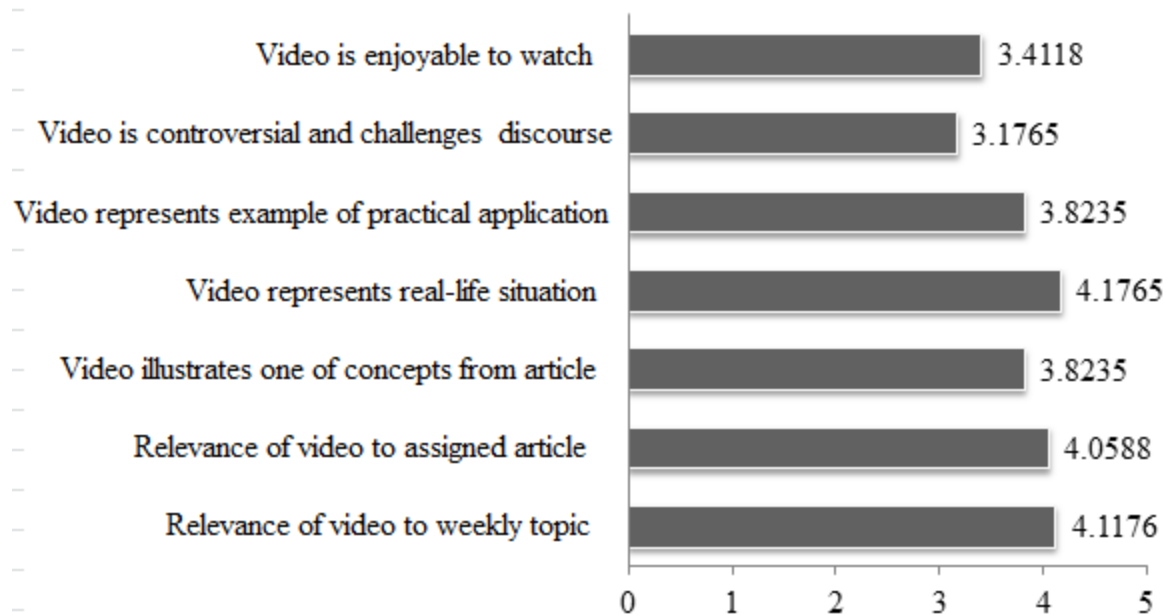


Figure 2. Factors influenced choice of web video for blogging activity reported by participants

Over 80 percent of the participants were quite positive about the learning value of adding borrowed web video to facilitate their comprehension of the assigned scholarly readings. Among the benefits of participation in the video enhanced weblogging activity, the top three cognitive functions of borrowed web video in facilitating learning were revealed: (a) an opportunity to take issues uncovered in the readings to a deeper level of thinking; (b) an opportunity to make new connections to the assigned readings; and (c) an opportunity to engage in active and thoughtful reading and reflect on what they had read about (Figure 3).

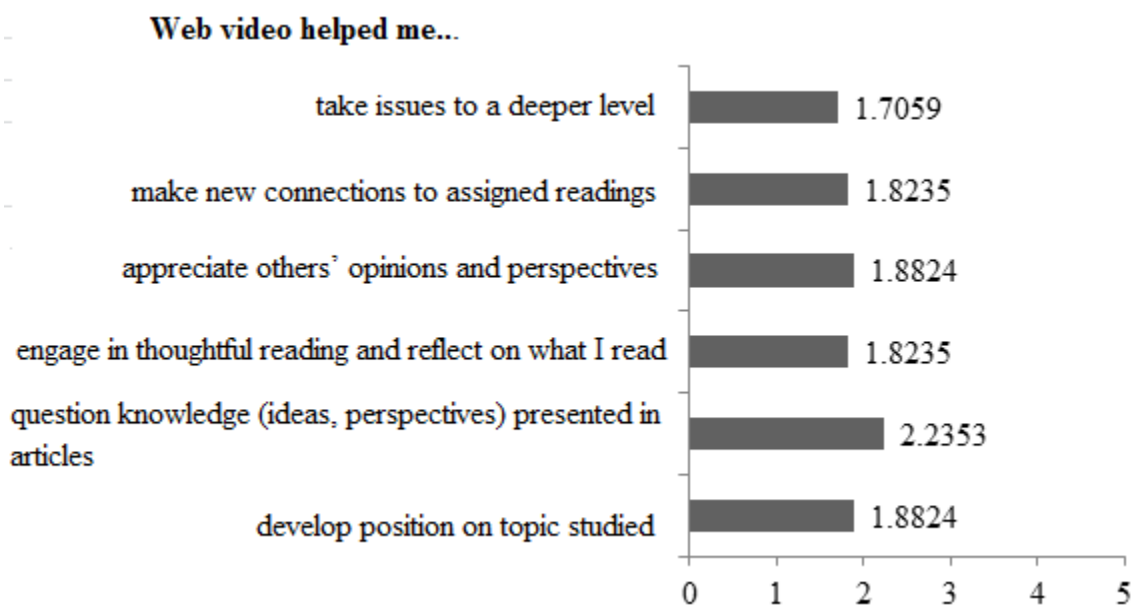


Figure 3. Cognitive effects of web video borrowing reported by participants

The findings suggest that the borrowing existing web video appears to have a beneficial influence on facilitating students' engagement with the assigned readings and provide them with the opportunity to further engage in critical evaluation of the material while exploring alternative aspects embedded in user-created web video content.

Perceptions about web video production. The participants were asked whether they agreed or disagreed with a series of statements about the impact of producing own web video on their learning and the development of their understanding of subject matter (Figure 4). Nearly 53 % of the participants felt that the production of their own web video was relevant to their learning needs. About 88% of the participants agreed that the ability to share their own video compositions over the Web provided them with an opportunity to explore their classmates' perspectives and thinking about the course material represented in their web video. In addition to the exploration of classmates' knowledge and thinking depicted in their web video clips, 80% of the participants attached value to the opportunity to have their voice heard in their online learning community and beyond through a visual narration of their knowledge and thinking. The third advantage of the web video production activity was having an opportunity to clarify ideas and knowledge about the topic while planning, designing, editing and producing a digital video narration.

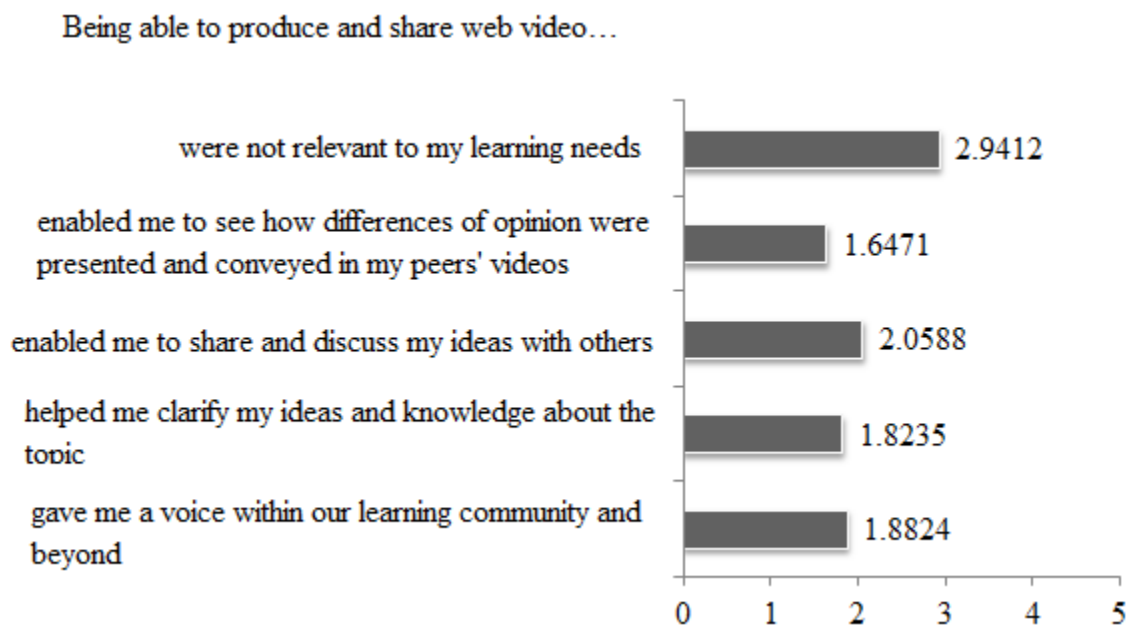


Figure 4. Cognitive effects of web video production reported by participants

In open-ended responses regarding the implications of web video production, the participants provided their positive comments on how production of their own web video reinforced their understanding of the topic (i.e., assistive technology). The frequency distribution of participants' responses (Figure 5) suggests that the production of web video expanded practical knowledge of the topic, advanced conceptual understanding of the topic, and engaged in actual real-life practices while collecting footage for their video. Some participants indicated that they enjoyed

video production experience because it gave them deep gratification from being able to share their knowledge and experience with a larger audience in a tangible form.

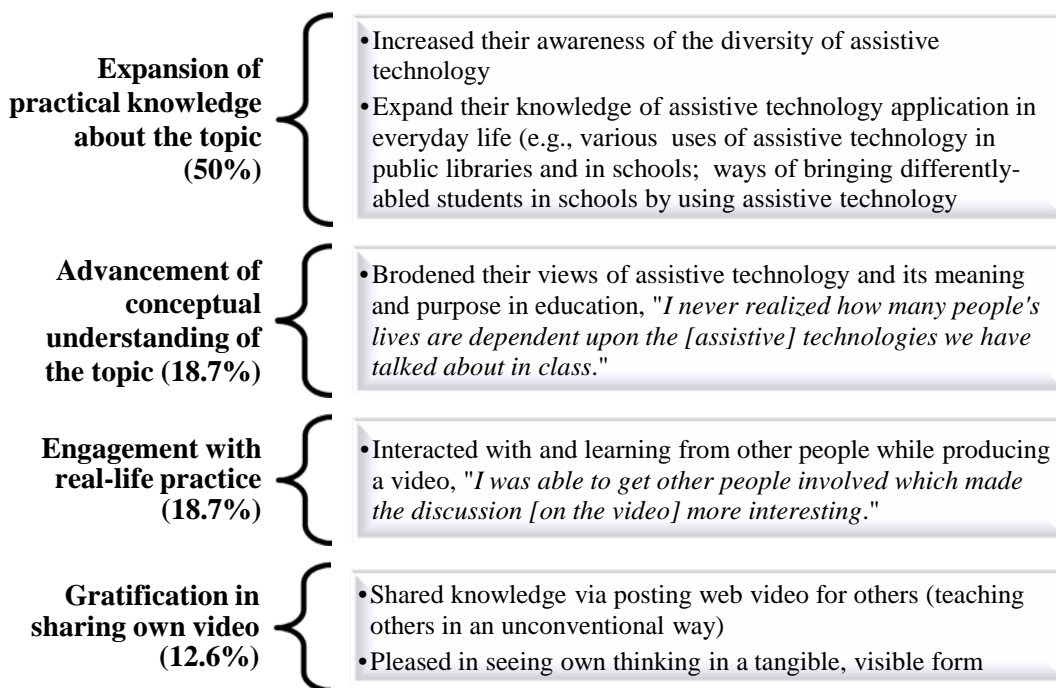


Figure 5. Frequency distribution of thematic units (*How much did your involvement in producing your own video reinforce your understanding of assistive technology?*)

In terms of learning materials needed for constructing knowledge and understanding, nearly 60% gave high priority to the utilization of web video into learning ($M= 4.41$). The findings also demonstrate that most participants (76.47%) preferred web video either produced by instructor ($M= 3.88$) or approved by university ($M= 3.88$). About 60 percent of the participants gave preference to enterprise web video produced by established media publishing companies ($M= 3.65$). User-created web video ($M=3.53$) gained slightly similar participants' support like enterprise web video. These findings might suggest that the degree of content oversight and instructor's approval (i.e., content validation) is more likely to take priority over students' preference for web video content they would like to use in their learning.

At the end of the study, the participants were asked to reflect on key learnings or take aways they gained during the Web Video Project. The responses indicate that there was a positive feel about the project and that students had learned new experiences from participating in hands-on Web 2.0 technology trainings and engaging in web video mediated learning activities. The most occurring takeaways were: (a) mastering web video borrowing and production skills; (b) grasping new techniques of using web video to enhance learning experience; and (c) understanding of Web 2.0 concept and its implications for learning. Overall, 70.59% participants would seek out web video mediated projects or courses in the future.

Conclusions

User-created or grassroots web video presents a culturally new video format of knowledge representation which lies in the de-centralized production of video narrative and the way this

narrative is authored, embedding the ideas of bottom-up collaboration, user-created content, and community building. Web video sharing networks provide students with a broader sampling of video content that helps them explore the subject matter from more than one way of representing it. In this research, we intended to contribute to a new wave of Web 2.0 research by conceptualizing student learning with web video use and production from situated and distributed cognition vantage points. This is an aspect of web video mediated pedagogy that is growing in educational research.

While statistical testing may yield little, the research findings discussed above are indicative of students' perception of web video mediated learning, particularly web video borrowing and production. As the result of the project, students attached greater importance to web video and blogging. The participants attributed their satisfaction to the application of web video use and production to their learning and felt the effect of the web video mediated learning model on their performance and learning behavior in a university classroom.

The proposed model of web video mediated learning can be an effective means of enhancing students' understanding of concepts and ability to construct new knowledge. The findings indicated that most participants believed they were more competent in the subject area as a result of the Web Video Project. Evidence also suggests that the participants were more inclined to the learning activities which were enhanced with the use of web video. A number of project participants even suggested that web video should be mandatory for all students at their university.

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