Investigating the Use of YouTube as a Self-Directed Learning Platform

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Abstract Web 2.0 technologies have paved the way for self-directed online learning. YouTube, in particular, is a viable Web 2.0 platform that can be used to disseminate educational content and in the process empower users to take charge of their own learning. Through the lens of self-directed learning theory, we perform qualitative content analyses on comments contributed by learners after watching educational videos on YouTube. Results indicate that YouTube can play important roles in facilitating a self-directed learning platform.

Keywords: YouTube, Online Learning, Self-directed Learning

1 Introduction

Web 2.0 technologies have paved the way for new online avenues where users can initiate and conduct learning on their own which is also known as self-directed learning. Self-directed learning (SDL) is an initiative in which an individual takes, with or without the help of others, in finding out his own learning needs and goals, identifies the human and material resources for learning, decides and works out appropriate learning strategies, and evaluates the result of his/her learning [1].

We propose that YouTube, a Web 2.0 video-sharing site, can be an effective self-directed learning environment. It was envisaged that shared online videos will increasingly find a role in teaching and learning [6]. Further, YouTube can be used for delivery of learning content as it affords collaborative content creation and peer assessment which helps to enhance the social learning experience. Thus, YouTube has the potential to help learners to learn at their own pace and to take charge of their own learning. Through the lens of self-directed learning theory [1], we perform qualitative content analysis on comments generated by YouTube users, focusing on those who watched educational YouTube videos.

2 Literature Review

The basic principle underlying self-directed learning (SDL) is that individuals empower themselves and take responsibility for decisions related to their learning. This means that learners have to take control to direct resources to achieve a learning goal [3]. Four dimensions were identified in the literature [2], [4]. First, the control dimension is concerned with how a learner is able to direct his or her learning [2]. Second, the initiative dimension examines how a learner is able to proactively take steps toward decisions and actions [1]. Third, the motivation dimension explores the desire of the learner in taking actions and steps towards his or her learning goals [5]. Lastly, the self-efficacy dimension is concerned with the learner's belief in his or her capabilities to produce an outcome. Here, this study examines how the four dimensions (i.e. control, initiative, motivation and self-efficacy) are facilitated in YouTube.

Our aim in this study is to investigate on whether YouTube provides an effective platform for self-directed learners by drawing from the dimensions of SDL. From the perspective of learners who consume educational videos, we propose to examine the research question: *how effective is YouTube as a SDL platform from the perspective of self-directed learning theory*?

3 Methodology

A customized software application was developed using Google YouTube API to extract videos in the domain of computing, programming and computer science. A sample of 150 educational videos was selected. Qualitative content analysis was conducted to examine the comments generated by learners who watched the selected videos. Here, our primary coding instrument focused on characterizing the four dimensions - Control, Initiative, Motivation, and Self-Efficacy [2]. We sampled 300 comments (i.e. 30 comments from each video) from the 10 videos for content analysis. The sentiments (i.e. positive, negative and neutral) were also coded for each comment.

4 Results and Discussion

Our results (shown in Table 1) demonstrate that YouTube affords online learners a positive self-directed learning environment. Specifically, our results indicate that learners were generally positive with regards to taking control of their learning in YouTube as features on YouTube (e.g. recommendations, searching) empower learners to take control. With regards to initiative and motivation, our results suggest that learners who searched for educational videos on YouTube appeared to be motivated individuals who took initiative and proactive steps towards acquiring knowledge on a particular topic. In particular, we found that many learners were using the educational YouTube videos to supplement their formal learning. With regards to self-efficacy, we found that learners felt that they had gained knowledge by watching the videos. On a broader scale, we see that educational videos on YouTube

have the potential to create impact on making education more affordable and accessible. Thus, educational videos on YouTube are in the direction towards creating digital libraries of educational content accessible by global users and hence closing the gap in the digital divide.

Table 1. Sampled results of qualitative content analysis

Dimension	Sentiments	Findings
Control	Positive	Learners would take control by highlighting their learning difficulties and they might ask questions and/or give suggestions or even direct what the video contributors could do to help in their learning. "*hey men this is a great tutorial I never done programming I will like you if u can explain the lines of code … and what that means thank you and god bless you*" .
Initiative and Motivation	Positive	Initiative and motivation dimensions were not mutually exclusive as the two concepts are interrelated. Learners who watched YouTube educational videos typically were intrinsically motivated to initiate and proactively take steps to advance their learning. "*…after searching for ages tutorials on different languages I gave up and just searched `How to start programming`. I`m glad I found your site :)*". "*I`m going to be following your tutorials for a menu I have to do for the Uni."*
	Negative	Learners lacking the motivation to learn. *"really hate this program but [I] am forced to learn it at college*".
Self-efficacy	Positive	Learners felt that learning on YouTube enhances their knowledge on the topic. *"….with the help of this course I am now moving on to advanced programming…"* *"these videos gave me the basic ways of thinking when working with programming.."*
	Negative	Learners complained about the content posted. "*Videos covering programming problems are incredibly useless.*" *"I can t imagine this would be very useful.I absolutely hate python."*

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