Impact of User-Generated Contents on End-Users:

Self-Directed Learning using YouTube

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Abstract

This study explores ways in which the Information Technology (IT) community uses the Internet for learning purposes, more specifically how they use YouTube videos, and how the feedback from other users known as YouTube metadata affect their decisions when selecting a video.

Many online learning service providers exist on the Internet. Some of them provide professional services, and charge their users for those services. Some provide free services, and let anyone interested to contribute in the learning resources. Video-based content-sharing services seem very popular including YouTube. While there can be many reasons for people to go online and learn using videos, this study explore ways in which Information Technology (IT) community uses the Internet for learning, and how the feedback that other end-users provide in form of YouTube metadata affect their decisions on video selections.

This study involved participants from IT departments in some technology related institutions, and also included students and instructors from an IT college. The findings in this study are based on emerging themes from the literatures in related fields, and they also rely on the application of a theoretical framework which considers how people perform certain behavior when presented with more information about the subject.

The study determined that majority of people do check the metadata on YouTube when selecting a video. However, the results also show that people rely more on their own experiences and personal views for their final decisions regarding the video selections. It did not appear that people only look for experts' videos on YouTube. They seemed to like amateurs' videos as well. Learners were more inclined to use YouTube as a learning platform because they can share their expertise and experiences through videos with people of similar backgrounds. The participants in

this study were either university level students or IT professionals. The study shows that they chose their learning videos and other learning resources based on their experiences and self-directed skills rather than metadata.

Chapter 1: Introduction

Background and Purpose of the study

Over 6 billion hours of video are watched each month on YouTube—that's almost an hour for every person on Earth; 100 hours of video are uploaded to YouTube every minute (YouTube, n.d.). Videos on YouTube are created for personal, educational, and commercial reasons just to name a few. Some reasons that YouTube platform exists are to help people explore, teach, learn, share, and entertain using videos. In the United States alone, there are at least 136 U.S. universities who have their own educational channels on YouTube (Cisco Internet Business Solutions Group, n.d.). Use of YouTube in education has been seen to be significant. YouTube is available in 61 countries and in 61 languages. The growth of YouTube around the world and its popularity in education sectors lead us to think what is it about YouTube that has made it a successful tool in the field of education?

This study explores the usage of YouTube in knowledge sharing and learning. Ability to share large files and stream video contents has been a lot easier because of the high internet bandwidth available to public nowadays. Due to the presence of interactive and collaborative software applications in online video sharing services, a vast amount of user-generated contents (UGC) is generated as a result. Some examples of interactive and collaborative user-generated contents are - video uploads, audio, text, animations, ability to 'like' contents, and facilities to provide feedback or comment on the contents. The attributes such as 'likes', 'dislikes', 'comments', 'number of views' which are generally used in video-related websites including YouTube, are the 'metadata' of the video. The term 'metadata' simply means 'data about data' (Greenberg, 2005, p. 20). Metadata is also defined as a "structured information about an information resource or any media type or format" (Caplan, 2003, p. 3). For the purpose of this

research, the metadata studied is user-generated metadata made available through a collaborative web-based application. Of specific interest is how this UGC directs users to very specific YouTube videos. For the purpose of this study, the term "end-user" is employed to define the user group.

Once people identify their learning needs, they have a choice of whether to learn from a teacher via face-to-face lectures in a classroom environment, or to go online and learn by finding learning materials from websites in the form of texts, graphics, or videos. They also have the responsibility of deciding whether they need help from anybody else in their learning process or they want to pursue their learning themselves. Knowles (1975) gives the term 'self-directed learning' to this kind of learning process where the learner is responsible for planning his/her learning strategies as well as evaluating the learning he/she goes through. Peoples' self-directed learning skills hence appear to be related to their overall self-learning process within YouTube. The user-generated metadata on YouTube video augments the learning experience because it "makes it easier to retrieve, use, or manage . . . information resource" (National Information Standards Organization, 2004, p. 1). This research therefore endeavors to relate the user-generated metadata and the success or failure of the self-directed online learning process.

Learning tools and technologies is generally a step-by-step process where one can follow some algorithms or flowcharts to get something done. Learning computer related topics will probably be even easier if done online because they seamlessly integrate with the services available on the Internet. For example, sharing the computer screen, showing a how-to video, and demonstrating the use of a software. This study researches on why end-users prefer collaborative platforms like YouTube for their self-learning initiatives. To be more specific in the domain of this research, this study focuses on how IT (Information Technology)

professionals or students learn IT-related topics online using YouTube, and how the metadata in the videos affect their learning.

This investigation will explore how the collaborative video sharing services like YouTube are taken by the end-users in their self-directed learning process, and how the UGC within these services assists or hinders the end-users learning process. This study looks at the metadata gathered within the YouTube services to analyze end-user's reaction towards other users' opinions and how those opinions adds-on to or change the user's perspective towards that video. This study might also help IT training providers, as well as other education service providers, with how they can design content which will motivate people to interact with each other easily and how they can engage learners better with online video-based education systems.

Chapter 2: Literature Review

This literature review starts with a broad view on self-directed learning by examining the related self-directed learning characteristics of end-users and how this relates to online learning. After that, examination of studies done by previous researchers is done to find why people prefer videos for online learning, and what the advantages and disadvantages of self-directed learning are. Some literatures are then outlined on how UGCs affect the online self-learning experiences. Finally, all the related themes from the review are summed up followed by research questions which arose in the study process. As a final point in literature review, the theoretical framework, which worked as a foundation for this study, is introduced.

Self-Directed Online Learning

When investigating studies about self-directed learning using YouTube or any other online platforms, it was found important to focus on the learning environment, the resources available to the learners, and also the peculiarities of online learning systems. Wijekumar, Ferguson, and Wagoner (2006) determined that "Web-based learning environments are significantly different from their in-class counterparts and require rethinking the measurement theories, assessment methods, and inferences drawn from them" (p. 213). Knowles (1975) states that when individuals decide to learn with or without others help, frame their learning goals, and chose learning materials on their own, they are doing self-directed learning (p. 18). This definition relates online learning with self-directed learning because of the similarities in how individuals decide on their own about their learning strategies and select the learning contents themselves from the resources available online.

Knowles (1975)' view of self-directed learning suggests that self-directed learners are more disciplined compared to learners who go with instructor-led studies. Self-learners study at their own pace and in their personalized way of learning. A study done by Statistics Canada in 2005 supported this claim. The researchers in that study reported that estimated 6.4 million Canadians went online in 2005 for education, training and school work related reasons (Statistics Canada, 2008). They found that people who went online for education related purposes were generally more engaged and they were more likely to report that they stayed online for 5 hours or more per day, and also that they had high speed internet connection in their house (Statistics Canada, 2008).

During the investigation of studies related to self-directed online learning, it was found that self-directed learning comprises 4 dimensions - "self-direction as a personal attribute; self-direction as the willingness and capacity to conduct one's own education; self-direction as a mode of organizing instruction in formal settings; and self-direction as the individual, non-institutional pursuit of learning opportunities in the natural societal setting" (Candy, 1991, p. 23). These concepts about self-directed learning deepened the understanding of self-directed YouTube-based online learning for this study. Candy (1991) states that "a learners' self-direction might be different in different content areas" (Song & Hill, 2007, p. 29) which gives this study a peculiarity among other related studies because of its specific focus on IT related contents.

Most of the studies which grounded themselves on self-directed learning were found to be focused on adult and children education. An interesting result was found by Candy (1991) that the adult population wants to be responsible for their learnings themselves. Candy (1991) claimed that although only 10 - 20% of the adult population participate in formal continuing education programs, 80 - 100% participate in self-directed learning activities. This claim only

bases itself on the adult population, but it might show the importance of self-directed learnings in today's context. On the other hand, Merriam (2001) pointed that, "until the mid-twentieth century, educators relied on research on psychology and educational psychology for an understanding of adult learning" (p. 4). Merriam (2001) also depicted that "often insights about adult learning were extrapolated from research with children or researches that placed adults from same conditions as children" (p. 4) and that there was a "need to develop a knowledge base unique to adult education" (p. 4). These studies raised questions like - Do children have similarities with their learning behaviors with adults? Is age factor a vital element to determine learning capabilities? Merriam (2001) mentions that "as adults mature they become more independent and self-directing" (p. 5). A need was seen to perform inquiry on previous experience and skills of the learners so as to relate those factors to the self-directedness of individuals, and not just their age factors.

Taking the criticality of self-directed skills in the self-learning process along with the literatures studies so far, a need was seen to measure the self-directed learning skills of end-users so as to find a difference in learning processes among those with higher self-directed skills compared to those with lower self-directed skills. Therefore, a list of items were collected building on the work by Chickering (1964), Gugliemino (1977), Knowles (1975), Candy (1991) and Fisher et al. (2006) to gather information about attitudes, abilities and traits of online, which can be found in Appendix 4. These items assist in determining end-user's time management and self-directive skills.

Technology inclination

In any study directly related to Information Technologies, researchers would probably expect their participants to be properly equipped with technology knowledge and skills. Until the

research participants are well-skilled on using the internet and properly configuring their computers to assist them with connecting to the internet, they probably will not have much success in their learning initiatives in an online environment. This is where the study of literatures relating to learning technologies came into role. A study done by S. Wheeler, Yeomans, and Wheeler (2008) assessed the usefulness of wiki-based learning which showed how learners' technology inclination affects their learning process. Wikis did seem to be a perfect tool in the learning/teaching process, but the authors, in the end, recommended that the students will first need to develop skills to ensure that they are adequately equipped to participate in this 21st century knowledge based economy (Wheeler et al., 2008, p. 994). Only then would the wiki-based online learning be successful. Moving from a face-to-face learning style towards learning by collaboration using wikis seemed hard for the learners. The researchers found that:

> 'Writing to the web' did dishearten the participants initially because of the fear they had about receiving negative feedback from their peers and the unseen online audience, but the teachers' role here comes into play to facilitate them with the environment and building confidence in them (Wheeler et al., 2008, p. 994).

Until that confidence, which Wheeler et al (2008) mention in the above quote, has developed, the hesitation for 'writing to the web' will keep occurring. The same might apply with any study which related to use of technologies. Therefore, I saw a need to assess the participants' IT skills so that the results from the study can determine how comfortable the user feels in self-directed learning and the use of the internet for learning.

Being a "computer literate", and being a "computer expert" does have a difference. "Computer literacy is too modest a goal in the presence of rapid change, because it lacks the necessary staying power" (Williams, 2003, p. 1). Williams (2003) considers "IT fluency" as a

better term for focusing on the "individuals who want to be able to use IT effectively" (p.2). The 10 crucial IT skills that Williams (2003) used for the measurement of participants' IT skills (p.2) were found useful to assure that the research participants are well versed in IT. The list of those 10 items can be found in Appendix 4 at the end of this report.

Individual learning styles and use of videos in learning

It was found that the individual learning styles and use of technologies possibly go hand-in-hand based on study done by Manochehri (2008). In a study on individual learning style, student satisfaction in conventional environment, web based environment, and a mix of these two environments were examined, but not much significant difference in the results were seen based on individual learning styles (Manochehri, 2008). A slight trend of increase of satisfaction in the web-based learning styles was noted though (Manochehri, 2008). Another study was done in a university environment to assess the instruction with online videos and was found that "incorporating YouTube videos into science lessons can energize teaching and motivate students" (Reima Al-Jarf, 2011, p. 99).

Cheng and Chau (2009) had done a study exploring the potential of using video to foster student motivation in ePortfolio system developed by the Hong Kong Polytechnic University. It was found that the students were likely to participate in the video based reflections even though the process was technically demanding (Cheng & Chau, 2009). It might have resulted this way because that study was bound to that particular university student's usage of ePortfolio who were already been used to technologies. Berk (2009) concludes his study with the finding that video clips are the major resources for teaching the current students; and that the video-based learning styles can draw on their multiple intelligences and learning styles to increase success of every students.

From the results of Manochehri (2008), Cheng (2009), Al-Jarf (2011), a mix of satisfaction and dissatisfaction can be seen depending on the learning styles. It can also be realized how the use of video in learning can act as an enabler in the online-learning process.

Essentials of online IT-learning

IT learning generally requires practical experiences with tools and technologies. Learning IT skills mostly requires demonstrations and hands-on exercises which probably as a result will create a high sense of satisfaction for the learners. It was found that self-directed learning skills are more important in online learnings (Wijekumar et al., 2006, p. 303) compared to other modes of learning. This study limited itself with people who wanted to learn about computer-related hardware and software.

It's not only the media and the contents that determine the effectiveness of learning process. The learning style implemented by the learner might also have an impact on the learning process. Lovelace (1999) believes there are two types of web-based learning- self-paced and instructor led (Manochehri, 2008, p. 222). "The degree of interactivity, sophistication and expenses are different in each of these [learning] types" (Manochehri, 2008, p. 222). Consequently, learning IT has its unique requirements, learning something online has its specific needs as well, and self-learning asks for special characteristics in the learner too. Thus, I thought that learning using YouTube as a media is important to study because of the differences in people's nature, difference in the learning platforms, and the learning styles of those learners.

Numerous problems are seen in teaching practical skills in a traditional ways - sometimes some students are not able to clearly see what is being demonstrated; also many instructors will not show all possible demonstrations due to time, cost, and equipment limitations (Harper, 2008,

p. 342). Mayer (2001) studied the effects of multimedia strategies on learning. His research results indicate that if verbal and video materials are combined as videos with integrated dialogue or narration, it is most effective for visual learners (Berk, 2009, p. 5). Following these literatures, I see the usage of online videos in self-directed IT learning very beneficial.

YouTube can handle any digital content like text, graphics, video, and audio. This gives a lot of flexibility to the content creator as he/she can either put his slide-shows in the form of YouTube videos, or he can even put a video with himself giving lectures to students and sharing his computer screen at the same time. The user will also have access to the videos on an on-demand basis and they can also control what to learn and when to learn in their own pace. There may often be a need for real-time learning instead of on-demand; and sometimes, offering online trainings might not be possible at all (Harper, 2008, p. 343). But it certainly seems that YouTube has the potency to easily resolve a lots of issues which might have occurred in learning IT topics.

Online learning using YouTube

In any kind of online learning, the categories of media that can be included are text, audio, visuals, video, animations and real objects (i.e. simulations of real-world objects) (Harper, 2008, p. 322). Harper (2008) believes that media selection doesn't determine if learning will occur, however, the media we use can certainly influence the amount of learning that occurs (p. 322). This might imply that YouTube is popular among learners because it can integrate a variety of media formats; and such mix of media determines the success or failure of self-learning.

A benefit of using YouTube for self-learning was found to be that there is no distinction among YouTube users. YouTube is open for anyone – whether they are amateurs or

professionals. One does not have to be a subject matter expert to post a content on YouTube. Amateurs are the often the ones to find new solutions and new ways of doing things.

Flew and Smith (2011) mention: "Until recently, the ability to create and take advantage of [social] networks was limited to professional and commercial settings, due to high cost and …required infrastructure" (p. 97). Big IT companies like Oracle (Education.oracle.com), Microsoft (Learning.microsoft.com) offer online on-demand video-based trainings which are generally expensive and often taught by certified experts in the field. We cannot deny the value these trainings might have seeing that they contain expert opinions. But the 21st century has blessed the world with highly reduced cost computers and electronics which makes the sharing of media so easy. Millions of photos, videos, and blogs are being uploaded every minute, which has created intangible networks of shared experience so easily (Flew & Smith, 2011, p. 97). Regardless of the high cost alternatives, people are able to learn from online platforms like YouTube free of cost. Cost factors might have been one among the top reasons why YouTube has been so popular among the users.

As a producer (aka content creator) or even a consumer of YouTube, there appears to be different social responsibilities. If one has a digital camera and a computer with internet access, he/she has the equal potential to being a popular content creator on YouTube than any Hollywood celebrity (Schepp & Schepp, 2009, p. 2). That being said, it is not that easy and straightforward to be a good video producer. One of Waldron (2013)'s research participants named Ric, who is referred to as a music teacher in the study, mentions a time when he uploaded a video and later saw threads of discussion about that video. Days later he kept reading the threads and felt a sense of wanting to help others in the discussions and contribute to that learning process (Waldron, 2013, p. 267). This is a kind of thinking which gives more meaning

to the standalone video and adds more value onto it. Waldron (2013) mentions this thinking as "[a contribution to the] straightforward learning and facilitating discourse" in a participatory online community for which Dijck (2009) gave a term 'prosumerism' (p. 267) where consumer also acts as a producer by facilitating the discussions. It was seen that factors like participating in online discussions in the YouTube videos, and contributing to the learning process by providing feedback in terms of 'likes' or 'comments' are very essential aspects of learning online. Questions were raised like - How much does a user contribute or facilitate in the online-community? Does he just consume the online-contents and not participate in the discussions? The literatures studied so far suggest that end-users' contribution and consumption in regards to the YouTube videos do relate to the engagement level of the online-learner. Thus, a vital importance was seen to gather such information from the participants in this study so that they can be used to relate their metadata usage and the online video selection process.

YouTube and User Generated Contents (UGC)

UGC appears to relate to the online self-learners study process from most of the researches that were done in the past relating to YouTube and UGC. UGC refers to "digital artefacts created by ordinary people acting on their own behalf as opposed to corporations or commercial interests with the intention of uploading to the Internet for use by the general public" (Waldron, 2013, p. 258); and it encompasses all digital technologies including, but not limited to, question and answer databases, blogging, podcasting, forums, review-sites, social networking sites, mobile phone photography, wikis and digital video sites, of which YouTube is one of the most popular one (Hanson, Haridakis, Cunningham, Sharma, & Ponder, 2010, p. 585).

The metadata on YouTube videos like 'likes' and 'comments' do have a relation to the overall study process per the studies like Al-Jarf (2011) and Shackman (2008). The investigation

by Al-Jarf (2011) recommended that if a feedback system in place in an on-demand learning system, this will have an additional positive impact on students in addition to the on-demand videos on YouTube. Shackman (2008) settles in his study about learning music using YouTube as - "the postings and replies on YouTube are not just static texts to be decoded, but rather are part of a living, organic, constantly changing platform in which new content is being added, viewed, and commented on, so the texts are undergoing a continual process of re-contextualization" (Waldron, 2013, p. 259). These studies show that the metadata do relate to online self-learners' study process, and also that they have a potential to change the learner's opinions about the videos.

Summary of Literature Review

The literature review began with discussions of literatures on self-directed learning, online learning, and how they correlate with IT learning. Building on Wijekumar et al. (2006) and Wang et al. (2013), it was outlined how self-directed learning differs from the traditional counterparts. Then, taking Knowles (1975)'s view of self-directed learning as a baseline, example studies like Candy (1991), Wijekumar (2006), and Waldron (2013) were studies to delve in detail about self-directed learning. A list of items were collected building on the work by Chickering (1964), Gugliemino (1977), Knowles (1975), Fisher and King (2010), and Candy (1991) to gather information about attitudes, abilities and traits of online-learners which assisted in determining the learner's time management and self-directive skills. Those items can be seen in appendix 4 at the end of this report.

Because technology inclination was found to be a critical necessity for the participants, studies done by Wheeler et al. (2008) based on wikis seemed to be useful to show the importance of pertinent technical skills in the end-users. Based on the study by Williams (2003), list of items

were built to measure the IT skills of the participants. It was also determined from the literature that video-based learning is more beneficial for self-directed IT learners looking at the study by Berk (2009). Some studies like Manochehri (2008), and Al-Jarf (2011) focused on the types of learning like face-to-face and web-based styles, but they did not really get any significant results. That motivated me take a look at the learning styles of participants in some detail too. Candy (1991)'s claim that 80-100% of adults participated in self-directed learning activities, and that adults are generally thought to be responsible for managing their learnings themselves and they prefer problem centred learnings, is based on only the adult population. This study targets only the professionals in IT, and college/university students with IT majors. Thus, there seemed a need to study their self-directedness skills.

It was also discovered from the literature how YouTube is a leading online video-sharing technology in modern days which is why YouTube was selected for study rather than other platforms on the web. Involvement of amateurs and professionals equally was seen to be a factor for YouTube's popularity. Because YouTube can integrate any digital media like text, graphics or video, it was seen as an interesting tool for learning IT.

Most studies were found to be more interested on YouTube and teaching foreign languages, music, health sciences, etc. Few of them were concerned about collaborative features in those online learning platforms. Lots of materials regarding traditional, self-directed and online learning were found. But there was not much literature found that was concerned about the effects of metadata in the UGCs on YouTube. Thus, a vital importance of this study was seen and a need was discovered to correlate metadata and the end-user' video selection processes.

Research Questions

From the literature reviews, it was found that online learning directly relates to self-directed learning (Wijekumar et al., 2006) capabilities; video-based learning is more beneficial for self-directed IT (Berk, 2009); and in a self-learning process using videos, metadata appeared to act as an enabler in the content selection process (Waldron, 2013). As a result of investigations of studies related to self-directed learning, online learning, learning technologies, and metadata with special regards to YouTube, the following research questions were formulated:

R1. How does the metadata attached to videos on YouTube cause a difference in user selection of the video?

R2. Is there any other aspects than the metadata that people look for when selecting a video on YouTube?

Theoretical Framework: Theory of Reasoned Action (TRA) Research Model

The theory of reasoned action (TRA) was developed by Martin Fishbein's and Icek Ajzen (Fishbein & Ajzen, 1975) and is usually applied to studies related to people's behaviors. Several studies were also found which were related to online behaviors, social media, and computing sciences like Mohammed (2014), Aleassa, Pearson, and McClurg (2011), Gironda and Korgaonkar (2014) which were based primarily of the TRA. This theory is useful to this study because of its focus on behavior, attitudes, and opinions.

TRA states: (1) the more favorable the attitude of an individual toward a behavior, the stronger will be the intention of the individual to engage in the behavior; (2) the greater the subjective norm, the stronger the intention of the individual to perform the behavior; and (3) the stronger the intention of the individual to engage in a behavior, the more likely the individual

will be to perform it (Fishbein & Ajzen, 1975). TRA has been recently used in explaining use of IT (Information Technology) and website behaviours (Hsu & Lin, 2008, p. 65). Some literatures like Chow and Lai(2008), Hsu and Lin(2008), Chuchinprakarn(2005) have made an impact on my study to be under similar frameworks because of their focus on attitude, behaviour and subjective norms.

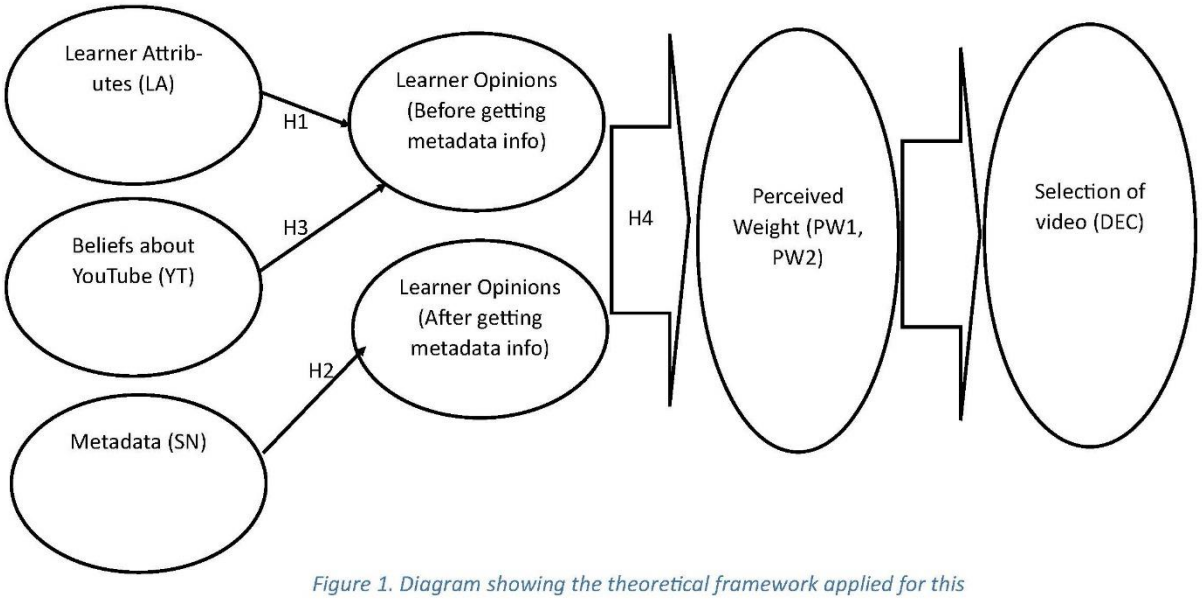

Figure 1. Diagram showing the theoretical framework applied for this study

Learner Attitude (LA):

Online learning has significant differeces compared to the traditional classroom settings. Limited interaction with peers and instructors when doing online learning has been seen to decrease students' course satisfaction level (Chang & Smith, 2008; Noel-Levitz, 2011). Studies have also shown Internet self-efficacy and self-regulated learning to impact on student satisfaction in online learning environment (Artino, 2007; Chu. & Chu, 2010; Chu & Tsai, 2009). Because these factors determine whether the person's attitude towards the behavior will be favorable or unfavorable, I gathered some data regarding the end-user's experience with

interactive learning online (interactive here meaning collaberative natured online studies), his/her self-regulated learning, and also their Internet self-efficacy skills.

Hypothesis 1: The learner's attributes incurs changes in his/her opinions regarding the videos. (H1)

Subjective Norms (i.e. Metadata in the videos) - SN:

Martin Fishbein's and Icek Ajzen's theory of reasoned action, which this study relied on, says: "Information can change the strength of particular beliefs" (Littlejohn & Foss, 2011, p. 93). The information that the users receive in this study are the metadata attached to the videos. This is what, I hypothesize, changes the user's opinions towards that YouTube video.

Metadata in this study relates specifically to YouTube platform. In case of YouTube, metadata includes the attributes: number of likes; number of views, number of comments, when the video was uploaded, who posted the video, and how many videos has he/she posted. The values of all these attributes are the inputs provided by the video-watchers and the video-uploaders. Users are at their own full discretion if they want to provide any feedback on the videos or not. These metadata are what this study hypothesizes that participants consider when they were actually participating in the survey questionnaire. The participants do not have any personal control over the metadata as those data exist as a contribution of the YouTube users all around the world.

Merrigan, Huston, and Johnston (2012) define the set of data organized in a logical way as distribution; and the distribution contains two types of information and those things which contain them are dependent and independent variables (p.245). The attributes like 'number of likes' and 'number of views' define the individual video's metadata which later affects the users

which thus acts as independent variable. User-opinion reflects the actual results which arised after being affected by the metadata (which is the independent variable), thus they are dependent variables.

This study had its main intention of measuring the relationships between two variables – "user opinions" (which is discussed in later sections), and the "YouTube videos' metadata". Merrigan et al. (2012) mention that such relations can be tested by survey data to test that these variables are related to each other (p.105). I used survey procedures for my study as well which is discussed later.

Hypothesis 2: The metadata on YouTube videos invite changes in learner's opinion about that video. (H2)

User belief about YouTube content and infrastructure (YT):

TRA has been adapted to study social behaviours, but salient beliefs also need to be considered for a specific extent (Hsu & Lin, 2008, p. 66). I added the factor – "Belief about YouTube content and infrastructure" in the framework similar to what Lu and Li did in their study (Hsu & Lin, 2008, p. 66) taking the role of the YouTube environment and its affects on its end-users in consideration.

Hypothesis 3: Learner's beliefs regarding the YouTube technology incurs changes in user opinion about the videos and metadata. (H3)

User-Opinion regarding the video (UOP1, UOP2):

User-opinion was an important variable in this study which is defined when the participant is in a phase to decide on a video after his/her YouTube search using his judgement

and self-directed learning skills. He/she might have given more weight to the metadata (which is the other peoples' opinions) or might have used his/her own experiences based on any other attribute he/she thought is important.

As mentioned in the preceding section about subjective norms, user opinion is a dependent variable. If the other users' opinions who have used the video before are important to the end-user, this might have formed a positive or a negative attitude towards that video. If they were not really important, the end-user might have ignored the metadata completely. This study measures user-opinions in the form of a 5-point Likert scales in the online surveys where the value of 1 means 'strongly disagree' and 5 means 'strongly agree'.

Perceived Value: (PV1, PV2):

'Perceived value' comes from the ". . . behavioural theories like TRA which is a context specific perception that may drive user attitudes and behaviours." (Turel, Serenko, & Bontis, 2007, p. 65). In this study, user's perceived value was calculated from the user's own characteristics, and also from the weight the user gave to other users' opinions (which in this case is the metadata). This assisted me in comparing the perceived values and determine if the other users' opinions did really affect the user in deciding on the video for his learning purposes.

User-decision on using or not using a specific video for learning (DEC):

This decision can be answered as a 'yes' or a 'no' as it will represent whether the user did watch the video, or did not watch the video after getting the information from YouTube metadata about that video. The value for this question was assumed to be a result of the effect of metadata and user attributes like intention and attitude. DEC reflects whether the metadata really had any impact on the final decision or not.

Chapter 3: Research Design

In this chapter, I first discuss the methods being used for data collection and how the data is actually going to be gathered. After that, the sampling of the population for this study will be analysed. The risks associated with the study and the ethical issues will be taken into account as well. I also discuss the reliability and validity of the research; and then will point out the limitations of this study.

Research Method

This study intended to discover the reality about the impact of meta-data (in the user-generated contents on YouTube) to the end-users, and also to represent the discovered information accurately. This scholarship falls into 'knowing by discovery' category (Merrigan et al., 2012, p. 38) which focuses on Empiricism and Rationalism (p. 40). I assumed that the research question presented earlier can be better answered by grasping the objective reality which is done by observing and explaining the information gathered from the research participants. By the combination of these two perspectives – Empiricism and Rationalism, the scientific method of research became associated with three emphases- clarity or precision, systematic inquiry, and repetition for the purpose of verification (p. 40). For a clear and precise result with a systematic process of inquiry from the participants, this study implemented survey research procedures which generally falls under the discovery paradigm of knowing (p. 41). This study was modularized into research questions and hypotheses where the relationships between two variables – "user opinions" and the "YouTube videos' metadata" had been sought for. Merrigan, Huston, and Johnston (2012) categotize such claims as explanatory claims (p. 105) and also mentions that such claims can be tested by survey data to test such variables related to each other (p.105). This study therefore took the form of a survey-based research and was

converted to an online questionnaire. The data gathered from the study was analysed by using quantitative analysis methods as most of the questions in the online survey were convertible to numbers after coding. I used quantitative approach for the analysis because counting and otherwise quantifying behaviour yield quantitative data (Bordens & Abbott, 2008, p. 235). The main advantage of quantitative data is that there are wide range of statistical tests available to analyse them (p. 235) which is probably even better when there is a very large data-set available. This study, although does not target a very large data-set, it will be able to utilize some tests which will be discussed in the later sections. Because I generate rating scales and counts of behaviour from the data collection, qualitative analysis did not seem much suitable.

For the reason that this research aimed at testing the hypotheses which are grounded on the theory of reasoned action (Bhattacherjee, 2012, p. 38), it starts with deductive approach (p. 38) – starting with the application of the theory of reasoned action (Littlejohn & Foss, 2011, p. 93) and then testing the theory with the mentioned hypotheses.

Sampling

Among all the Internet users in the world, all the IT related people would have to be chosen and a sample would have to be taken from there. Therefore the total population for study would have to be very large. For maximizing the convenience for data gathering and also because of the limited time available for this study, this exploratory study used convenience sample, which is a biased, non-random sample of participants, using snowball approach (Merrigan et al., 2012, p. 65).

I am studying the online learning behavior of IT Professionals or IT students which includes people who either studied IT as a major subject or worked in the IT departments.

Because of the focus on the YouTube specifically looking at the IT learning materials, I had put the exclusion criteria for the participants so that they will have to be able to understand the computer hardware and software terms and terminologies. The population which included the participants in this study was decided with snowball approach. I wrote emails to a few people who worked/studied with me (at Lord Budhha Education Foundation, Kathmandu, Nepal, at Land Management Training Center, Dhulikhel, Nepal and also at TELUS Communications, Edmonton AB, Canada) to ask whether they were willing to pass along that information to their friends and/or people they know who may also be interested in learning about this research study. Those people were asked to forward the cover letter for the questionnaire as well as the URL (Uniform Resource Locator) for the online questionnaire to the proposed participants. Due to the online nature of the study itself, the surveys were sent out online instead of written forms. After the completion of survey by a participant, the data would automatically be stored in the backend server. To access the data, my credentials (username and password) were required.

Researchers in the field of communication studies generally seek to obtain confidence level of 95% (Merrigan et al., 2012, p. 258) and I followed the same trend. I was looking for a confidence level of +/-20% for the study which gave my sample size as 24. The sample size was calculated using the formula $n = Z^2 * \frac{(P) * (1 - P)}{c^2}$

Where:

n = Sample Size;

Z= Area under normal curve corresponding to the desired confidence level, Z value for 95% equals 1.96; P= True proportion of factor in the population, 0.5 in this case;

C=confidence level, ±20 in this case. (Creative Research Systems, n.d.)

Thus, I had obtained the sample size of n = 24. The choice of this confidence level was because of the limitations and the nature of the study done.

According to deMarrais and Lapan (2004), choice of sampling method depends on a number of factors like cost, convenience, purpose of the study and the need to generalize the findings (p. 291). This study had no cost associated with it and there was no funding available either. The purpose of this study is to fulfil the requirements for the capping research project for the Master of Arts degree.

Risk associated with the study

There was no potential risk anticipated for the research participations as the data gathering was done online and the study only asked about general information about the use of YouTube and a few demographic questions. The data gathered from the survey had no identifiable information about the participants except the email address, and they were stored in a secured password protected server and will be destroyed after five years in accordance to the University of Alberta policies. All personal identifying information were removed (Anonymized) in the raw data before analysis.

In order to manage and minimize risks and discomforts, I had sent the proposed participants an email with the purpose and details of the research I was doing which would make them comfortable in filling out the surveys. I did not ask them private information like their age or gender. Questions in the survey were general details about their academic and professional skills and what they felt about YouTube as a learning tool. Thus I am confident that the questions

did not make them feel discomforted. Also that participants were filling out the survey from their own place which probably made them feel comfortable too.

Ethical Considerations

Informed consent was taken from the participants before the actual survey took place. Participants are kept completely anonymous. Ethical research approval was already obtained before the start of data-collection.

Participant consent was implied by the completion of the questionnaire itself. Once I got their survey response, the email address from which the survey was received was used as the identifier for documenting their consent. Data withdrawal was done within 30 days after the collection of online questionnaire. In case participants had any question, they could have contacted me directly via email or my contact# which was included in the consent form. If a participant had decided to withdraw from the study, he/she would have contacted me directly via email or my contact phone number as well.

The relationship between the participants and me might have been either instructor - student, or office coworkers. Or they might have been someone referred to me via snowball and I do not know directly but they still work or study in the institutions I mentioned earlier. To ensure that there was no pressure for them to participate or complete the surveys, I had provided the Information Letter about the study including the cover letter with the questionnaire which includes the rights of the participants including the right to not fill-out the survey, right to opt-out etc. The medium of questionnaire was the Internet which might have given the participants more freedom on deciding whether to fill the survey or not themselves. This would not have been the case if the data-collection was done using interviews. To let them decide on whether to

participate on my study freely, and make sure that they feel anonymous, I will inform them that I won't store their personal information except the email address (which will come together with the email correspondences) which gives them more anonymity. Also that the email address will be discarded after data withdrawal before processing the recorded data.

Validity and Reliability of research

"Reliability and validity are the yardsticks against which the adequacy of our measurement procedures are evaluated. . ." (Bhattacherjee 2012, p. 57). Reliability refers to "consistency of measurement over time, across settings and among participation and texts" (Merrigan, Huston, & Johnston, 2012, p. 85). Validity, on the other hand, has two aspects – internal validity which "warrants the precision and factual accuracy . . . within a single research study" (p. 87), and external validity which "warrants [the same] across multiple research studies" (p. 87).

Missing data would have caused lots of discrepancies in the results in case the data were not validated at the time of data entry. To ascertain that it doesn't happen, I used Google forms for the questionnaires, and also made sure that participants cannot move ahead with the next screen until they have completely filled the required answers. I had also made sure that irrelevant questions were skipped depending on participants' answers. This certainly gave internal validity to the data hence collected.

Because the participants in this research had similar background, similar responses were expected. Even though participants were from multiple countries, I assume the results are generalizable to a bigger IT community. Also that because most questions were directly related to IT, and the participants were from the same IT field, the questions were probably all very

familiar with them. . If the participants would have been people from any background rather than IT, there would be a huge chance of them being unfamiliar to the questions I ask; and this would be a huge source of unreliability (Bhattacherjee, 2012, p. 58) which I avoid here. The questionnaire avoids ambiguity as much as possible and is thus more likely to generate reliable results (p. 58). This research is thus also expected to be externally valid (Bhattacherjee (2012, p. 20).

"The most common form of measurement accuracy is content validity" (Merrigan, Huston, & Johnston, 2012, p. 87) which means that "the items that makes up the measuring instrument covers 'a representative sample of the behaviour domain to be measured'" (p. 87). The "theory of reasoned action" by Fishbein and Ajzen (1975) suggests that attitudes are evaluative dimensions that, along with subjective norms (like what the other learners would do, which is represented by the metadata), mediate between other variables (IT skills, experience, background, self-directed abilities, internet skills) and behavioural intentions (i.e., how much weight participants give to others' opinions – metadata, and how much weight they give to their own views). According to the theory, behavioural intentions in turn determine behaviour. The questionnaire for this study is designed the exact same way where it asks for participant skills, then asks about subjective norms, and then the belief they finally set on subjective norms and their own intentions. This creates my online-questionnaire content valid.

Data collection Techniques

Online questionnaire based survey was used for data collection in this quantitative study because of cost considerations, efficiency, and convenience for participants. Because of the online-questionnaire being made available online, I was be able to gather data from various

places around the world when using online questionnaires. The data entry and analysis are also generally straightforward with questionnaires which is why I chose this method.

There are a few disadvantages of using the questionnaire approach as well. Because each and every participants will receive the exact same questions, there will be no chance to vary the questions for individuals because of the absence of the researcher with the participants at the time of survey. Another thing is that there is no chance for explaining to the participant what I meant by a particular question for the same reason of not being with the participant physically.

Participants were sent a website address through email which takes them to the google forms that I had created. After they filled out the form, the results would be stored on the server in form of a Spreadsheet.

There were five sections in the questionnaire. The first part gathered demographic information like academic and professional background, and technology inclination. The second part gathered information about end-user's expectations and attitude towards learning online using YouTube. The third part collected information about how the metadata in the YouTube videos changes their opinions towards those videos and what variables had effect in their learning process. The forth part asked the participants to give a weight to the metadata's affect in their learning process. The last part queried if the end-users prefer YouTube or any other platforms.

The participants who said that they don't use YouTube for learning were not be asked YouTube specific questions. Because of the use of online forms, I was able to program the buttons to skip the irrelevant parts. Also that the online survey was properly validated to make sure invalid entries are restricted.

I had included open-ended questions, restricted questions, as well as partially open-ended questions. “Advantage of open-ended questions is the richness of the information obtained” (Bordens & Abbott, 2008, p. 287). Restricted questions yield data that are easier to summarize and analyse” (p. 288). Partially open-ended ones gives the participants the options to choose from, as well as space to write if the options are not sufficient for them (p. 289).

Analysis of the Measurement Model

For the measurement and analysis of the data gathered for my exploratory study, I used descriptive statistics. This particular kind of statistics allows us to “summarize the properties of an entire distribution of score with just a new numbers” (Bordens & Abbott, 2008, p. 391). This seemed really relevant for my small sample size of 24 (i.e. n=24). I used statistical functions like mean, mode, standard deviation, and distributions for the most part for summarizing my data. Data is also visually represented using bar graphs, line graphs, scatter plots and pie charts.

I used the SPSS (Statistical Package for the Social Sciences) software and also Microsoft Excel software for my data analysis.

Chapter 4: Findings

Background on Findings

The purpose of the online survey was to find out how the metadata attached to YouTube videos influences user's video selection (R1). The intent of this study was also to discover if there are any other aspects than the metadata that influence individuals when selecting YouTube videos (R2). The anticipated result of this study was to inquire in-depth about the online-learning behavior of self-learners, and test the defined hypotheses to study the relation between people's academic / professional background and skills, the video metadata, and users' final decisions on the videos.

Based on the TRA research model, research hypotheses were developed to answer the aforementioned research questions as:

Hypothesis 1: *The self-learner's attributes incurs changes in his/her opinions regarding the videos. (H1)*

Hypothesis 2: *The metadata on YouTube videos invite changes in self-learner's opinion about that video. (H2)*

Hypothesis 3: *The self-learner's beliefs regarding the YouTube technology incurs changes in his/her opinion about the videos and metadata. (H3)*

The purpose of this study was achieved by investigating participants' IT skills, social-media skills, their self-directed learning capabilities, and examining their opinions about the YouTube video metadata.

Findings from the Survey

There were 30 participants (i.e. n=30) in the study. The data were anonymized before using it for analysis. The participants are referred to in this report as P1, P2 . . . P30, sorted according to the timestamp the survey was completed, in ascending order.

The results of the survey indicated the factors that self-learners use to decide in their video selection for the online learning process. The outcomes show a relation between those learners' IT skills and self-directed learning abilities in relation to the video selection process during the learning content selections.

The findings section is divided into 5 themes:

1. End-User Analysis – which covers the data-presentation regarding user's background, IT skills, Internet/Social Media Skills, and self-directed skills. Also covers the preference of learning styles by users.
2. Analysis of the usage of YouTube in learning.
3. Analysis of participants' view about using YouTube / video platform for IT learning.
4. Participants' view on the metadata, and their reliance on it for their video selections.
5. Weighting of participants' own opinions and other users' opinions in the video selection process.

The conclusions then shows how the metadata attached on YouTube's videos correlate to the learner's decision making process. The findings attempt to reveal the directions that the end-users might choose because of being in IT professions / academics. It is also discussed how the data-collection uncovered the uniqueness of IT learners' requirements in their study process.

Section 1: End-User Analysis

The first section of the survey, End-User Analysis, collected information about the participants' profession / academics, and information about their IT skills and self-directed learning skills. Their learning styles and preferred learning methods were also collected. This information aided in weighting the end-user's background and self-learning readiness which was later related with his/her learning process and YouTube behaviors.

Participants were asked to categorize themselves as either IT professionals or IT students at the beginning of the survey. They were asked to self-report their IT skills, self-directed learning skills, and internet skills. Among the 30 participants, 73% among the participants were IT Professionals and remaining 27% were students, as shown in Figure 2. This helped me to confirm that they are really active in the IT sector and also ensured the data collected will be relevant for the study.

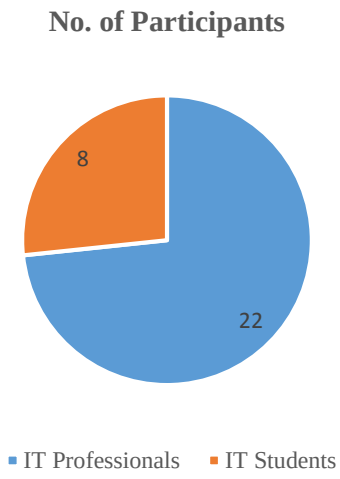

Figure 2. Categorization of participants in the study.

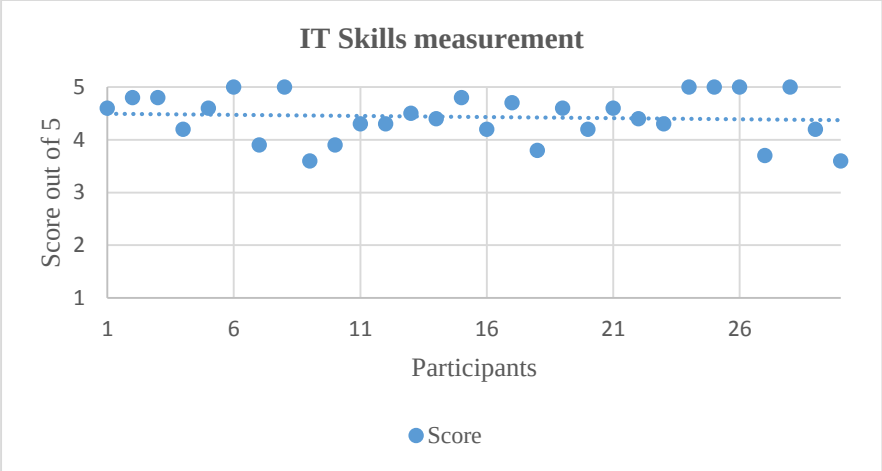

Figure 3. Scatter Plot showing the participants' grading for IT Skills in 5-scale point where 1 is the lowest grading which means less skills and 5 is the highest meaning more skills in IT

Based on Wheeler et al (2008)'s recommendation in their wiki-based studies, to confirm that the participants are properly equipped with relevant IT and Internet skills before the data-analysis, they were asked to rate themselves in 10 IT topics. Six participants reported 70-80% for their IT skills and the remaining 24 rated them above 80%.

After the IT related scale-based questions, I had asked the participants about their learning habits. Majority among them said they frequently used either face-to-face or interactive video-based learning, but the results were not very significant (refer to Figure 4).

The participants were then asked 13 different scale-based questions to determine their self-directed learning readiness. Also, because my focus was on the use of YouTube in the self-learning process, some very general online-activities based questions were asked too.

This gave me a foundation to start specific discussions around YouTube relating to online self-directed learning which follows in the next sections.

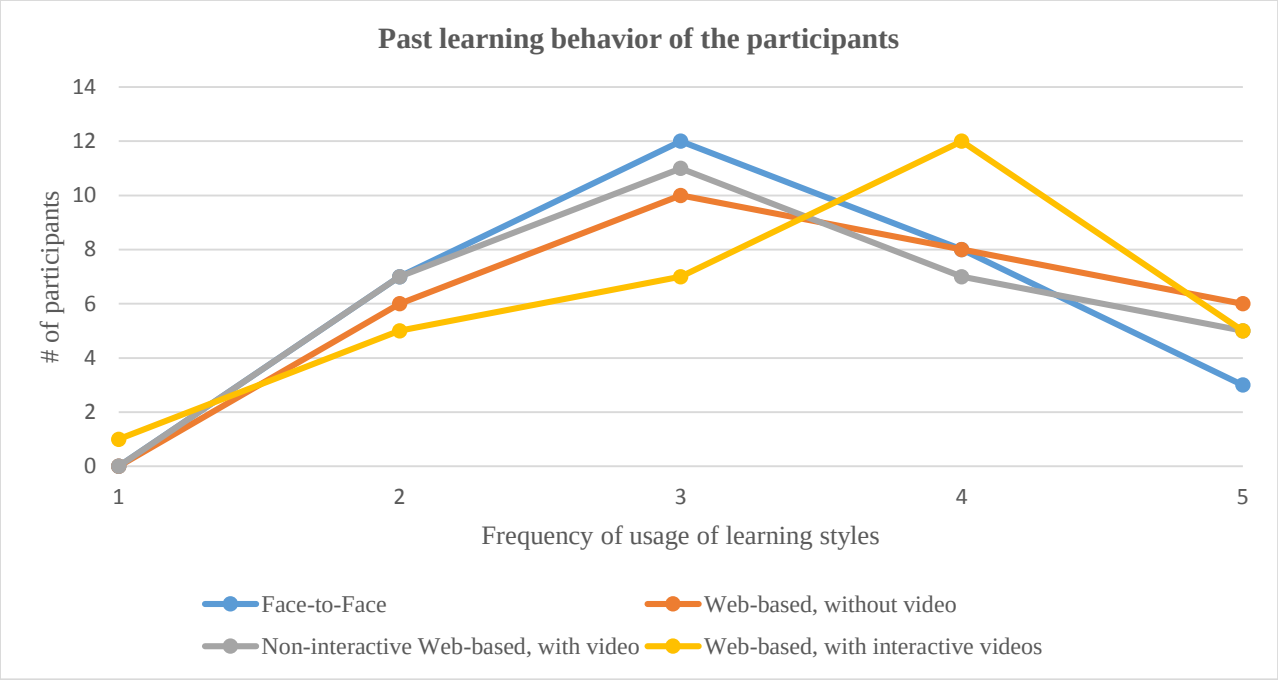

Figure 4. Scatter plot showing past learning behavior of the participants. Frequency of usage of learning styles is displayed out of 5 scale-point where 1 is the least usage of the learning style and 5 is the highest.

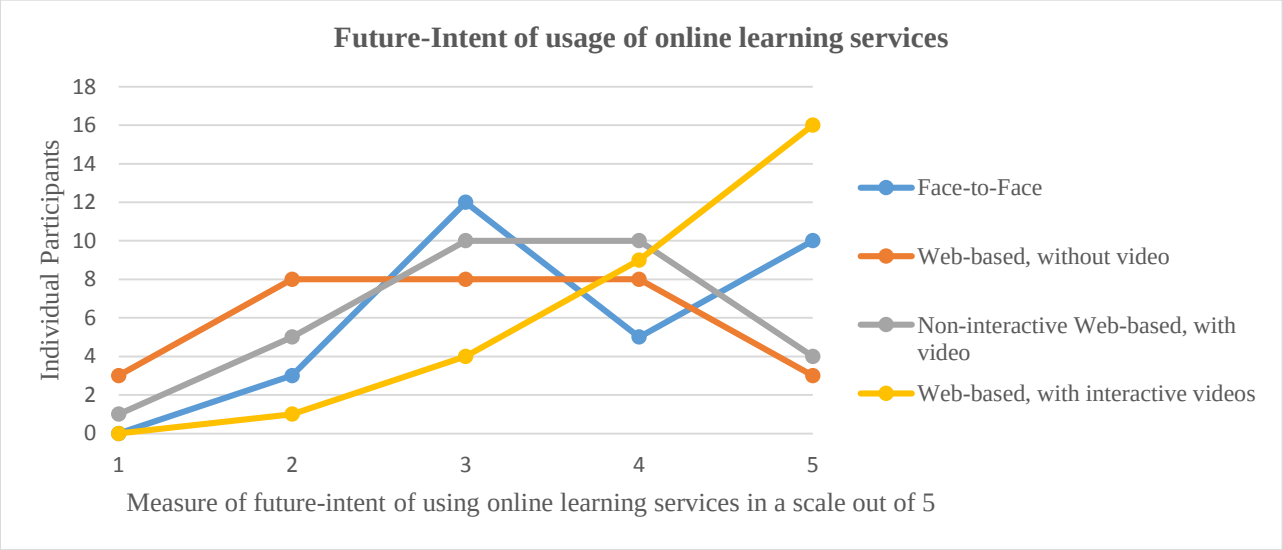

Figure 5. Scatter plot showing future intent of usage of online learning services. Intention of frequency of usage for learning styles is displayed out of 5 scale-point where 1 is the least usage of the learning style and 5 is the highest.

If we compare these two charts where figure 3 shows the present usage of the learning styles and figure 4 shows what the participants actually want to use in the future, we can see the use of web-based video-oriented services increasing. This might be happening because of the

technical inclination of the participants, or could also be because of participants' self-directed skills.

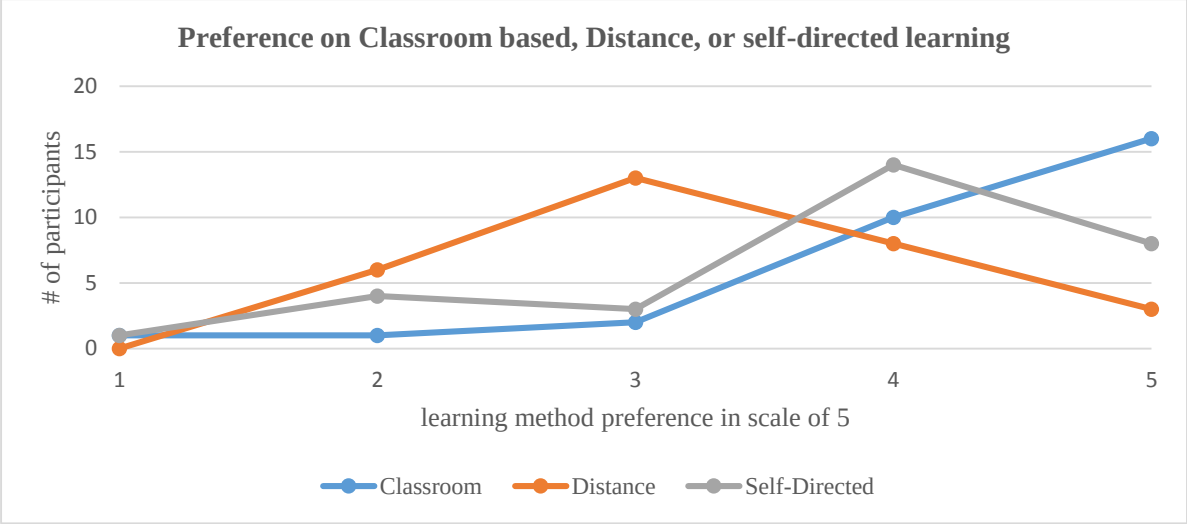

Figure6. Scatter plot showing preference on Classroom based, Distance, or Self-Directed learning styles. For the learning method preference, it is displayed out of 5 scale-point where 1 is the least preferred and 5 is the highest.

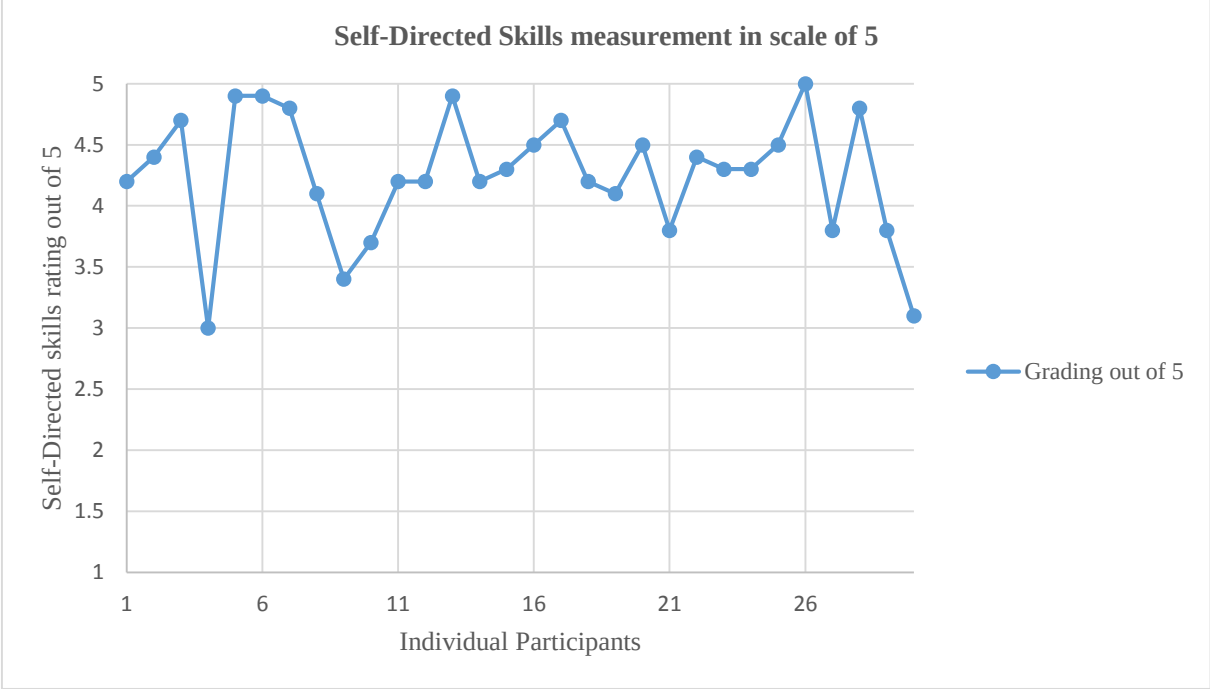

Figure 7. Scatter plot showing Self-Directed Skills measurement in scale of 5. The self-directed rating is measured out of 5 scale points where 1 is the least skill and 5 means highly skilled. The grading out of 5 represents the average of the answers for the 13 questions asked to measure the self-directed skills.

Twenty-seven percent of the total participants were students, among which 50% said their self-directed skills were below 4 in a 5-scale measure. The remaining 73% were professionals in the IT field among whom only 14% had their self-directed skills measurement less than 4. This result suggests that experienced individuals perceive themselves as having more self-directed skills. Candy (1991) claimed that 80 - 100% among the 10 – 20 % of the adults who participate in continuing education programs participate in self-directed learning activities. This claim only based itself on the adult population, but my results take Candy's finding further by including the usage of self-directed learning in the IT community.

Similarly, the internet/social-media efficacy skills for the students and the professionals turned out at 82% and 88% (when the ratings out of 5 were converted to percentage separately for the students and professionals) respectively which might imply that the professionals have more self-directed skills and more Internet/social-media skills.

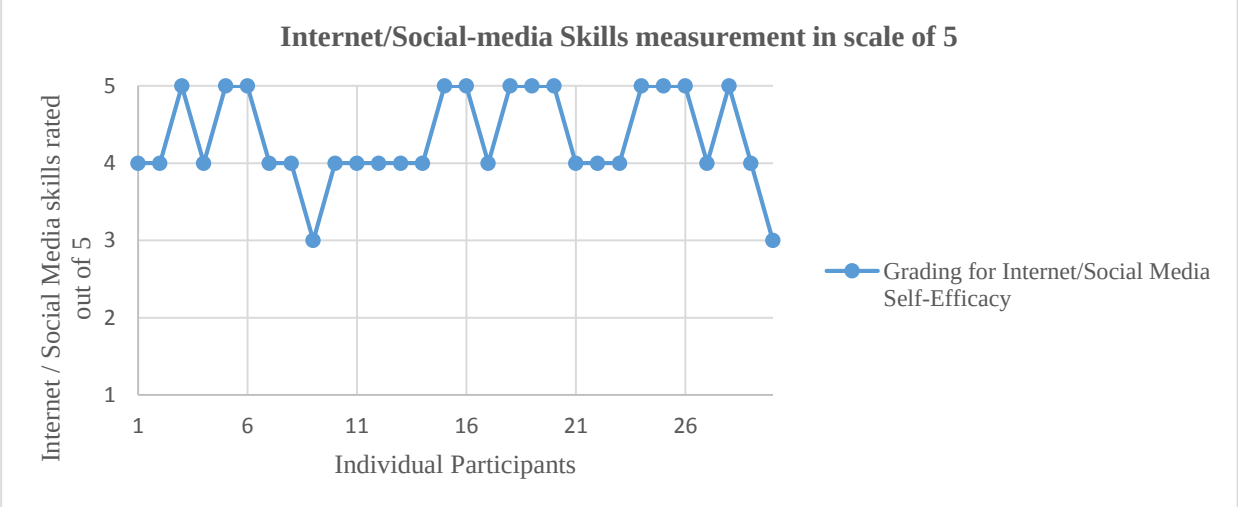

Figure 8. Scatter Plot showing Internet/Social-media Skills measurement in scale of 5. In the 5 scale-point measure, 1 is the least skilled, and 5 is the highest. The grading out of 5 represents the average of the answers for the 8 questions rounded to the nearest whole number.

We can see from the above chart that only 2 participants among the 30 rated their Internet / Social Media skills below 80% (this number was obtained by converting the rating out of 5 into percentage). This implies that most of the people with an IT background have good internet / social-media skills.

Summing up the results from the end-user analysis section in the online questionnaire, IT skills in the participants was seen to be high which gives more reliability to this IT community related study and its results. The majority of the participants rated their IT skills higher than 80%. Per the discussions in this section, past usage of either face-to-face or interactive video-based learning was seen to be comparatively higher than the other modes of learning. Despite the past usage statistics, participants were seen to intend to use web-based, and more video oriented services in the future. The results also suggested that IT professionals tend to have more self-directed skills as well as Internet/Social media skills compared to the students in the same IT sector.

Section 2: Analysis of YouTube usage in self-learning

Because the main focus of the study lies with YouTube and its videos, I created a section in the online surveys to gather information about why people go for YouTube and what features on YouTube they preferred or disliked. This was done to answer my research question regarding what the other factors are besides metadata that people rely on for their learning decisions. Some open-ended questions were also posed in order to gain insight on users' views on YouTube or the videos. Ninety percent among the total participants were YouTube users whereas the remaining 10% had not considered YouTube as a learning platform.

Table 1

Number of participants who agreed on statements about YouTube

Statements about YouTube	**% of people who agreed among the total YouTube users (n=27)**
It can be accessed in any electronic device with Internet Access	85
YouTube has most of the things I need to learn already available	85
I don't have to pay for materials on YouTube	85
It is very easy to find materials on YouTube	78
I can see the feedback about the videos before I watch it	78
Anybody can share videos on YouTube	70
Most experts share their knowledge on YouTube	67
It has the newest information available	63
Because of the availability of like and comment features, you like to have discussions going in the learning videos	44
It is difficult to find the proper video often	41
Other (effective and efficient way to know the information)	3
Other (you can visually follow step by step a set of instructions)	3

Note. Statements starting with "Other" were entered by the participants themselves

From the data tabulated in the above table, it certainly seems like the majority of participants liked to see the feedback for videos in the form of comments and likes. It can also be seen that they prefer YouTube over other similar platforms because anybody- whether amateur or professional, can share contents on YouTube. Most of the participants reported that the accessibility of YouTube on many devices, and the fact that YouTube a free service were important to them.

Because the use of metadata relates to the content searching process, I had asked participants to rate their search experiences on YouTube. They reported an 80% satisfaction rating with YouTube on average. This calculation did not include participants who said they do not use YouTube for learning purposes.

There are many websites on the internet which provide YouTube-like services, and also a lot of paid and unpaid services which presents intense competition. Therefore, it seemed important to understand if the author of the online content is an amateur or a professional. A mix of results was found when participants were asked about whether they watch professional or amateur videos. As we can see from Table 2, participants did not seem interested about professionals or amateurs for their purposes except the 7% participants who noted that they only watch contents created by professionals.

Table 2
Number of participants who prefer either professionals, amateurs or both

# of people	**Preference on Content Creators**
18	I watch videos by Professionals and Amateurs both
7	Depends of what I am looking for
2	I watch videos only by Professionals

When asked about learning IT related topics using YouTube, we can infer from Figure 9 that most of the participants indicated that they use YouTube for their IT learning because they can see demonstrations done by people in similar fields with step by step instructions on how to do specific tasks. There were fewer people who noted that they use YouTube because of the comments under the videos or because of big companies uploading their videos to the YouTube website.

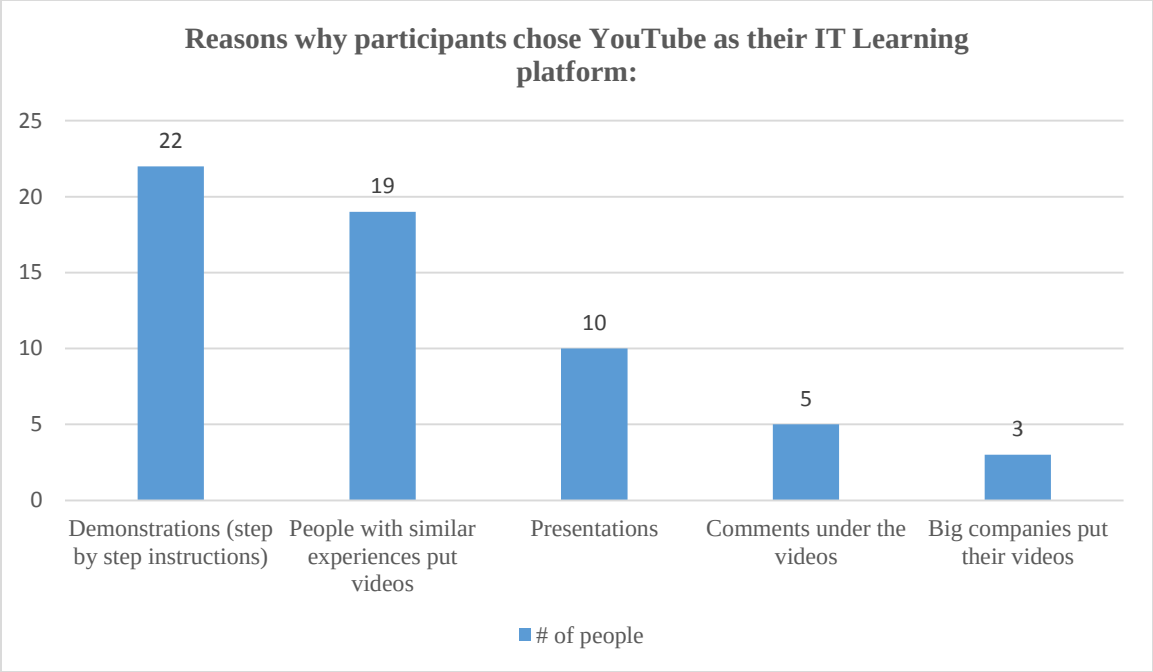

Figure 9. Bar Graph showing Reasons why participants chose YouTube as their IT learning platform

Section 3: What participants said about using YouTube / video platform for IT learning?

I included an open ended question for the users to explain what they felt about YouTube platform for their IT related learning purposes. This allowed me to gather some important information about using a video platform for learning. There was another open ended question at the end of the survey asking what the participants' liked or disliked about YouTube which contributed some noteworthy viewpoints as well.

Table 3
Participants' views about YouTube as a learning platform

Participant	Views about YouTube
P3	"Variety of users and perspectives"
P4	"I'm a visual learner and I like to see videos that I can follow at my own pace. I think it is very convenient when you can pause/rewind/stop the video in case you didn't understand something. I don't usually check the comments on the video because most of the time they are not informative, you have to go through a lot of comments to actually find a good answer or something you can trust."
P6	"I got lots of learning resources through you tube demo during studies or self-learning period. I prefer the steps on videos to solve my problems. I am still looking for the professional video to enhance my daily working techniques and latest knowledge."

P13	"Breadth of videos with presenters of varying degrees of experience/technicality which can be viewed to better match the viewer's experience/technical knowledge for easier learning"
P16	"the thing about you tube is that anybody can make comments as long as you have an account but not really making sure that they have the right facts before making such comments."
P18	"It's much easier to understand with video. "
P19	"A lot of Videos show you a different video from the subject/title of the clip."
P27	"Language problem. Some important matters are not in English"
P28	"In general, the videos of the IT professional for any e-learning or any IT certification course e.g. A+, Microsoft, Oracle would be very relevant."
P29	"It is easily accessible and free platform but also it is very difficult to find what you are actually searching for"

Table 4

Additional comments that participants made about liking or not liking YouTube as a learning platform

Participant	**Additional comments user made about what makes them LIKE / NOT LIKE YouTube for learning IT**
P4	The only way to know if the video contains the topic you are specifically looking for is by watching the video. Even when you have the option to fast forward it, sometimes you have to go through a lot of useless information in order to find what you are looking for. You can't do searches within a video, you can't do a search (ctrl F) and it will let you look up the key words you are interested in, you will have to watch the whole thing to see if it was helpful or not.
P6	1. I like YouTube because it has many information. 2. I sometimes become disappointed not finding the video which I want to see. 3. I found some videos very useful but found very low quality or removed 4. For the learning purpose the YouTube videos should be categorized and require to meet some aspects like quality, reliability and availability requirements.
P14	What I dislike about YouTube is that sometimes the information provided in videos happens too quickly and you are constantly pausing and rewinding the video to catch the information. I also dislike at times that almost anyone can post anything so there is a lot of information available without merit or validity behind it. What I like about YouTube is that I can find a lot of information, even if some of it may be irrelevant, I get to see many different methods of how people learn and different outcomes of that learning. YouTube is great to help you self-learn also!
P18	Like-> Lot of resources available Unlike --> lot of useless videos
P28	LIKES: Using YouTube to reach the media is cheap and easy. YouTube will show all most any video. The service is clean and clear. You can stay up to date with the new videos at YouTube. Expressing your creativity through YouTube is a major benefit. Getting to know people through YouTube is great.

	Learning through YouTube is great. You can get a good deal of information to many people in a short amount of time Becoming a member is easier. Ease of use. No need for tons of equipment, computer, video equipment, microphone and editing software. Saves money on marketing. NOT LIKE: Advertisement. There is violence on some of the videos on the site. There are explicit videos. There is some animal abuse in the videos. Teens are recording violence to post on YouTube. There could be issues of privacy invasion. There could be copyright infringement issues.

When users were given the opportunity to enter any comments about YouTube, 5 among the 30 participants gave detailed notes on what they liked and what they did not like about YouTube for learning. P14 mentions: "I … dislike [YouTube] at times that almost anyone can post anything so there is a lot of information available without merit or validity behind it" (refer to Table 4). This raises a serious reliability issues regarding the metadata in the videos. P4 mentioned: "The only way to know if the video contains the topic you are specifically looking for is by watching the video" (Refer to Table 4). YouTube includes the information about the video, and many comments including a number of likes and dislikes, however people do not seem to completely rely on that information when deciding to view a video. Several participants mentioned about benefits of having lots of resources being available on YouTube including P14, P18 and P28 in Table 4. There were participants worried about having to go through lot of useless information in the process like P4, P6, P14, and P18.

When asked to rate YouTube as a learning platform, the average rating given by the participants (n=27) in percentage was determined to be 80% which seems to be a positive result. This is also obvious from the affirmative comments they provided in table 3.

Section 4: Metadata:

Metadata are the essential parts in the contents which keep the flow going in the videos and makes them "living, organic, constantly undergoing process of re-contextualization" (Waldron, 2013, p. 259). Metadata were thought of as a positive experience in learning, as well as something with an adverse factor in the videos which could either change the learner's opinions in a positive or a negative way. Seventy-one percent among the participants in this study thought that a high number of likes and views meant the video was good. Sixty-three percent among the participants noted that more comments means more popular topic. Fewer people agreed that people who uploaded a high number of videos are not necessarily experts in the field.

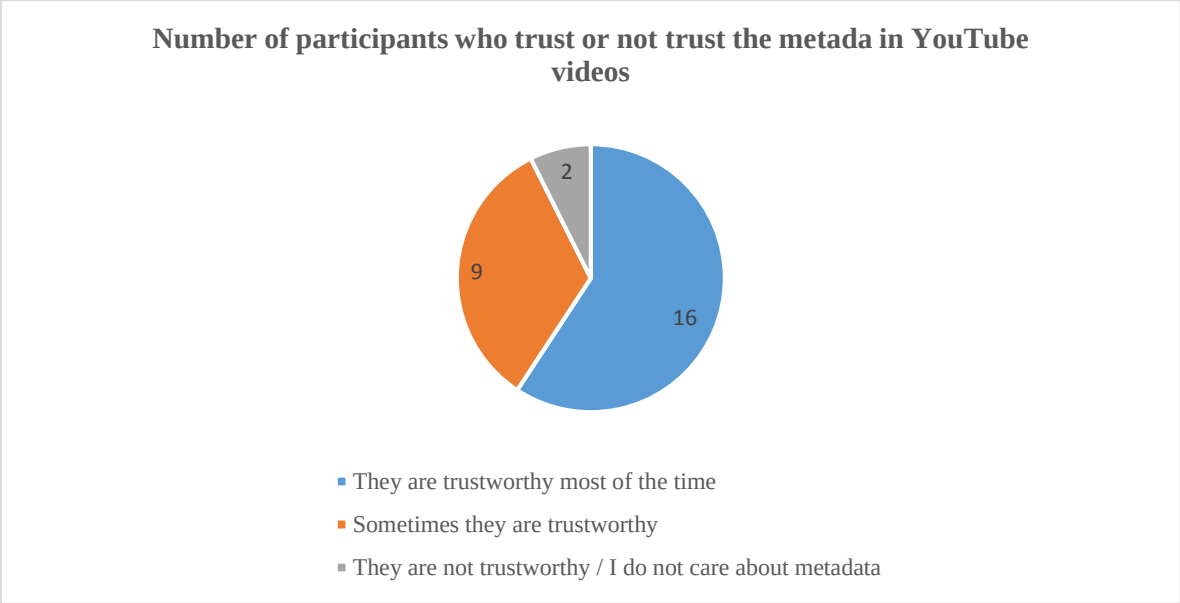

Figure 10. Pie Chart showing the number of participants who trust or do not trust metadata in YouTube. This chart shows data from 27 among the 30 participants as 3 among them said they don't use YouTube for learning.

Table 5

Number of times people who saw positive or negative metadata and what happened:

# of people	Seen a good number of likes and started watching the video, and later didn't like it	# of people	Seen a video with very less likes and number of views and, and later found it very helpful
8	2-5 times	**7**	2-5 times
6	6 to 10 times	**9**	6 to 10 times
7	more than 10 times	**3**	more than 10 times

Eighty-one percent of YouTube users who participated in this study stated that they often watch YouTube videos based on the number of likes it received. The majority of them also reported that once they started watching a specific video, they have decided to not watch it later at least more than 5 times. They also mentioned they often preferred videos with a few number of likes/views.

Section 4: Case-based Questions on Metadata:

When asked a general question about Microsoft Windows XP, most of the participants said that they would choose the number of views, number of likes, and the comments from the metadata, which they thought - might help them in the video-filter process.

Table 6
Metadata and the number of people who would consider those metadata when searching for "How to upgrade windows XP computer to windows 7?"

Metadata	**# of people who chose that metadata**
Number of views	19
Number of likes	17
Read the comments	12
Who created the video?	10
Look for other sources than YouTube	8
Number of comments	6

When asked about a more recent topic, most participants said they would look for the date the video was uploaded and after that they would look for the number of likes and comments.

Table 7
Metadata and the number of people who would consider those metadata when searching for "Which of the following would you check to find about a recent issue in Windows 8?"

Metadata	**# of people who chose that metadata**
Date the video was uploaded and check the earliest video	19
Number of likes	16

Read the comments	14
Number of comments	11
Date the video was uploaded and check the oldest video	5
number of views	1

I asked the participants one more question about a very general issue which occurs with wireless routers often. They chose the metadata – likes and comments as their top choices.

Table 8
Metadata and the number of people who would consider those metadata when searching for "Which of the following would you check to find about the wireless function in your router not functioning?"

Metadata	**# of people who chose that metadata**
Number of likes	16
Read the comments	16
Number of comments	14
Date the video was uploaded and check the earliest video	13
Date the video was uploaded and check the oldest video	5

From the data collected from the case-based questions, it seems like the end-users generally look for number of likes, views, and comments. They chose to go with the date when the videos were uploaded for a recent topic. Other results were not as significant from the case based questions.

Section 5: Weighing of participants' own opinions and other users' opinions in the video selection process

People are more likely to successfully perform an intentioned behavior if they have a high degree of perceived self-efficacy or perceived behavioral control (Fishbein & Ajzen, 2010, p. 67). Following that idea, after assessing the participants' self-efficacy skills and behavioral-control skills (i.e. self-directed skills), I asked them to rate the strength of their own opinions

about these YouTube videos, as well as the impact that the metadata embedded in those videos might have in their content-selection process. The difference in the participants' self-efficacy skills and behavioral-control skills was determined later to find out what actually has more impact on end-user decisions.

Table 9

How much weight did participants give for the metadata, and their own opinions in their video selection process?

Participant	Perceived weight for METADATA	Perceived weight for participant's OWN OPINION	More weight given to:
P1	2	4	Own
P3	4	5	Own
P4	4	3	Metadata
P5	1	5	Own
P6	3	5	Own
P7	4	3	Metadata
P8	4	4	Both
P9	3	4	Own
P11	4	4	Both
P12	4	4	Both
P13	3	4	Own
P15	3	5	Own
P16	3	5	Own
P17	3	5	Own
P18	5	5	Both
P19	4	5	Own
P20	3	5	Own
P21	3	4	Own
P22	3	4	Own
P23	3	3	Both
P24	5	5	Both
P25	3	4	Own
P26	5	5	Both
P27	4	4	Both
P28	1	5	Own
P29	4	4	Both
P30	3	3	Both

Note: The "More weight given to" column was calculated using the values assigned to the Metadata and the participants own opinions and finding which one is bigger, smaller or similar to the other value. Among the 30 participants, 3 said they don't use YouTube, therefore there is 27 records. The following Figure 11 shows the aggregated result in a bar-chart format.

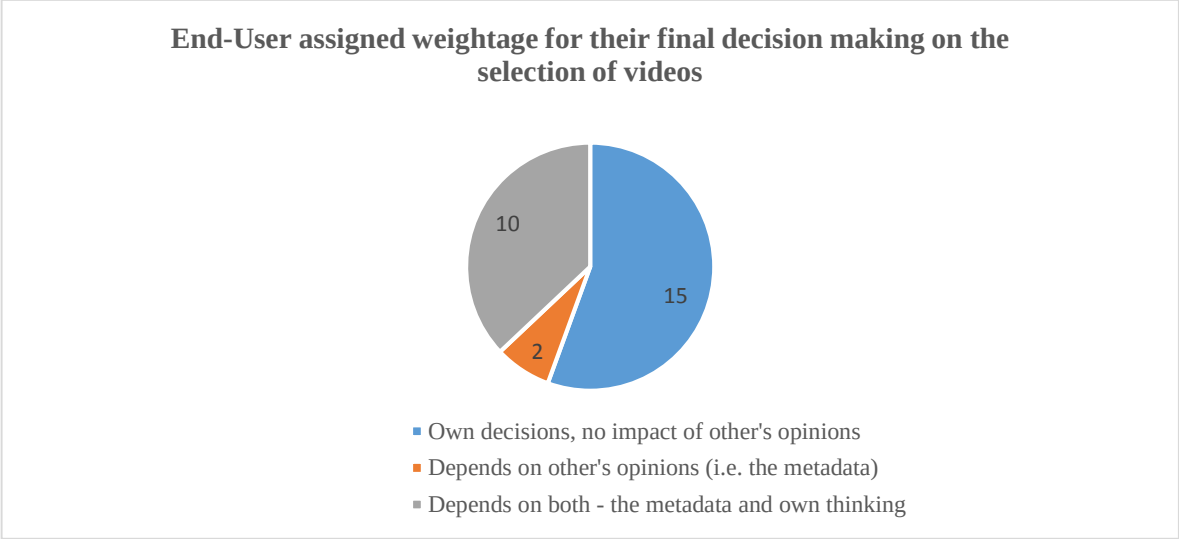

Figure 11 Pie Chart showing the End-User assigned weightage for their final decision making on the selection of videos. This chart shows data from 27 among the 30 participants, as 3 among them said they don't use YouTube for learning.

Among the participants who said that they do use YouTube for their learning purposes, 55% people said their decision is based on their own intentions behind that decision, not the metadata. Thirty-seven percent said they were not sure what has more impact for them – the metadata or their own decisions both play roles. Seven percent of the participants said they use metadata in their final video selection decision.

Among the 27 YouTube users, 15 people gave a higher rating to their own-decision making for the video selections. Among those, 3 participants turned out to be IT students and remaining 12 were professionals. Seventeen said that they mostly look at the date when the video was posted. Fifteen said that they check the number of 'likes' and 'dislikes. Twelve among them said that they check comments.

Research hypotheses and their relation to the findings

The research hypotheses and the related findings from the data collection are tabulated below which shows whether the data collection proved or disproved those suppositions.

Table 10
Did the data collection proved or disproved those hypotheses?

Hypothesis	**Explanation**
The learner's attributes incur changes in his/her opinions regarding the videos. (H1)	From table 9, it was found that the majority of participants were capable of deciding on the video contents using their own experiences and knowledge which are their individual attributes. That proves the hypothesis H1.
The metadata on YouTube videos invite changes in learner's opinion about that video. (H2)	H2 was found to be a neutral statement – neither completely agreeable, nor disagreeable. Reliability of the metadata was in question by the participants. "Anyone can comment in the YouTube video . . .", ". . . almost anyone can post anything so there is a lot of information available without merit or validity behind it" (refer to table 3). Figure 9 shows the overall participants' reaction about the metadata which does not show significant results about the use of metadata in the final decision-making.
Learner's beliefs regarding the YouTube technology incurs changes in user opinion about the videos and metadata. (H3)	The accessibility of YouTube in most internet-enabled electronic devices, and the free service availed by YouTube were seen to be the top reasons for its use (refer to Table 1). Because of that, anybody can comment on the videos, and anybody can create videos too. This appeared to be why people have to go through many comments to find a proper video, and they have to question whether the information in the video is reliable (refer to table 3). Thus, the data gathered from the questionnaire showed that what individuals think about YouTube does affect their opinions about the videos and metadata. H3 was found to be correct.

Chapter 5: Analysis and Discussions

The Analysis and Discussions section now shows the results obtained from the data-collection. Findings are analyzed, and it is shown how the findings answered the research questions. Finally, the results are summarized in the conclusions, the limitations of the study are put forth in the subsequent section, and then some suggestions for future researches are briefed.

The analysis part is now divided into 3 sections. The first section will discuss general findings relating to why people use video-based learning? Why go for self-directed learning and why use YouTube? The second and third parts directly correlate to the research questions and will delve into answering them in regards to the findings.

Why video-based learning? Why self-directed learning? Why use YouTube?

A mixture of results was found when participants were asked about their past learning styles. As shown in Figure 4, the results were not significant. When I asked them about what their intentions are in using the learning styles in future, I saw a higher trend towards web-based interactive videos, which can be found in Figure 5. This confirms that people in the IT community are now willing to learn more using video-based services. This might be a direction to go for the IT training service providers on the internet. Because the study was restricted to IT field, the results might not be generalized to other fields though.

Another interesting thing I noticed is that majority of the participants rated their self-directed skills as being higher than 4 out of 5-scale point measure, as depicted in Figure 7. This could represent why people were more comfortable using online tools for learning purposes and to manage their learnings themselves. From the same figure, I also noticed that among 27% of the student participants, half of them said their self-directed skills fall below 4 out of 5-scale

point measure. In case of the 73% professionals, only 14% among them said their level of self-directed skills are below 4. This could mean that the professionals have more self-directed skills because of their greater online experience and maturity. It is still possible that generalizing the data for the IT students might not be very reliable as they were only 27% among the total participants. Future researches may be able to better investigate this.

Per Figure 8, Internet/Social-Media skills turned out to be very high for both the student and professional groups. Eighty-two percent students rated themselves higher than 4 out of 5 scale point. Eighty-eight percent professionals rated themselves above 4 on the same scale.

In total, YouTube seems to have a solid roots for all participants with IT background. Ninety percent of the YouTube using participants (n=27) mentioned that they do use YouTube for learning purposes. Also, as we can see in Table 3, most participants' mentioned that YouTube has plenty of content to choose from, and also has current. These are probably the factors that make YouTube a very popular choice. Other similar services on the internet might want to concentrate on having up-to-date topics covered on their web-sites which might give them a potential benefit.

Research Question 1: How does the metadata attached to videos on YouTube cause a difference in user selection of the video?

The participants in this study had mixed opinions about metadata. It might not be a good analysis to generalize the results from this sample I had from a snowball process to the whole YouTube community. But it certainly seems like IT-related people have diverse opinions about metadata. As mentioned in Table 4, participant P4 mentions, "I don't usually check the comments on the video because most of the time they are not informative, you have to go through a lot of

comments to actually find a good answer or something you can trust." This seems very true if we see the number of people who said if the metadata were trustworthy and the frequency in which they have found them to be trustworthy and not trustworthy. Among the participants, 16 out of 27 YouTube users among the participants mentioned that the metadata is mostly trustworthy. 23 people said that they had found the metadata on YouTube misleading where high or low numbers of metadata did not really mean that the videos are trustworthy or not trustworthy. Almost more than half of the participants thought metadata is not often trustworthy.

After gathering data about participants' background, skills and abilities, and also about how they view the metadata on YouTube videos, I am in a position to now dive into how the participants actually decided on their final content selection. When in the learning process, people are in their own to decide what materials they want to use for their learning, how they would like to proceed with their learning etc. We saw that majority of participants rated their IT skills, internet skills, as well as their self-directed skills above 80% on average. With this information, I am assuming that the participants believed themselves to be capable of deciding their learning process. They have their own skills, experiences, etc. on one side, and they also have the metadata in the videos if they prefer to check for them for their learning process. Following Martin Fishbein's and Icek Ajzen's Theory of Reasoned Action (Littlejohn & Foss, 2011, p. 93), I am weighing the metadata on YouTube videos as 'other users' opinions' and the skills, experiences and attitudes as learners' 'own opinions'. Participants were asked to give a weight on a 5-point scale to both other users' opinions effects in their decisions, as well as their own thinking/opinions. To weigh the two numbers people came up in both of these options, I calculated the difference in these values and used the difference to decide what the user gave higher weight to which is shown in Table 9. I came up with a 55% average score for people

using their own individually gained skills and abilities to decide on their learning videos. As we can see in Figure 11, only 7% of the participants said that they actually use metadata for their final decisions for the videos. The remaining 37% gave a mixed result – they might have meant they don't really know what they use to decide on the videos, or maybe they use both – others' opinions and their own opinions to come to a decision.

Research Question 2: Does the end-user video selection process relate to the credibility of the video? Or are there any other aspects that people look for when selecting a video on YouTube?

The majority of participants thought that video demonstrations were very important for them. The other factor they mentioned was that it is more helpful if people with similar experiences upload videos. These might have been the reasons why people did not seem too selective about the video creators being amateurs or professionals. As mentioned in Table 3, P3 mentioned that he likes to see "variety of users and perspectives". P13 mentions that ". . . breadth of videos with presenters of varying degree of experiences/technicality which can be viewed to better match the viewer's experience/technical knowledge for easier learning". Because there are so many videos on YouTube dedicated to a single topic, that lets the end-users see everybody's views and opinions around the topic. As P19 mentioned in Table 4, people probably like one video linking to other similar videos. This is probably a good reason why participants stated that they like people with similar experiences uploading videos as we can see in Figure 9.

YouTube can work in most of the electronic devices which have internet access. As per Table 1, accessibility of YouTube has certainly made it a top choice for people as our participants denoted. Table 1, Table 2, Table 3 and Table 4 indicated that people do not necessarily look for subject matter specialists when looking for videos, but they look for variety of resources and perspectives. Table 2 revealed the user-preferences among participants

regarding whether they liked contents provided by professionals or amateurs. The data revealed that users were not picky about the content-creator being an expert or amateur. Because YouTube is a free service, this was seen as a top choice in terms of why people use YouTube. Taking these user-preferences in favor of YouTube into consideration, I now believe that convenience of YouTube is the main factor for its popularity.

The results do not necessarily infer that YouTube is the only platform people use for IT learning though. Twenty among the 30 participants indicated that they have considered using other platforms than YouTube for their IT learning purposes. Some participants said they also use iTunes U, podcasts, Bing videos, other online-course offering websites, online seminars, forums and so on. Some pointed at IT-specific services like msdn, codeplex, codeproject etc.

Chapter 6: Conclusions, Limitations, Recommendations, and Contributions

Conclusions

Summing up the results from the online-questionnaire, it was found that the IT community prefers video-based learning over other modes of learning. Due to this very reason, the online learning service providers might want to implement a mix of video, audio, text, and animations in their online platforms. Better IT skills, internet skills, and self-directed skills appeared to be the reason why participants felt more comfortable with learning IT topics using the internet.

It was found that people do check metadata on YouTube for their decisions, but that judgment is mostly made by relying on their personal opinions about the videos. Reliance on metadata seemed to depend on the type of topics being searched. It appeared like the end-users relied on their own judgment for the videos related to general topics and long-standing subject matters, but they did check for metadata when they were looking for recent topics. This factor should probably be taken into consideration by other services similar to YouTube as well. For recent topics, the users might not yet have much experience and knowledge themselves, therefore there might be more tendency to rely on metadata; for long-standing topics, participants supposedly will have sufficient experiences and knowledge due to which they might ignore the metadata and use their personal skills.

It did not look like people only look for subject matter experts' videos on YouTube. They use the YouTube platform more because people (whether experts or amateurs) with similar backgrounds and experiences share their experiences via videos there. This gave me an impression of "straightforward learning and facilitating discourse" (Dijck, 2009) where people

share what they know using videos on YouTube, and also assist others in learning about that topic in a better way by assisting the discussions and participating with the online groups.

TRA did give me a sufficient basis to look at various factors that could have affected individual learner's decision making in their content selection process. Metadata in this study directly correlated to the subjective norms that TRA talks about. Though the findings did not show a significant impact of those subjective norms, I could have missed that dimension of end-user behavior if this study had not taken them (metadata was synonymous to subjective norms in this study) into account. The weight of end-user's own traits and opinions appeared to be higher comparing to the subjective norms which was found to be the major reason behind the end-users' final behavior in the video selection which certainly shows the successful implementation of TRA in this study. This benefit of using TRA was also demonstrated by related studies like Mohammed (2014), Aleassa et al. (2011) and Gironda and Korgaonkar (2014) which had motivated this study to follow the same trend.

Studies like Song and Hill (2007) and Candy (1991) implied that more focus was needed on self-directed learning skills of individuals which turned out particularly positive in this investigation. Merriam (2001) pointed me in the right direction by showing that the previous scholarships on self-directed learning were missing important aspects of self-learners' personal traits like their previous experiences and knowledge. These two aspects of self-learners turned out to be primary factors in their video-selection on YouTube. The metadata were found to be used only in cases where the learner's previous experiences did not play much of a role.

Limitations

The data collection could have been done in multiple ways including experimental designs and interviews. Because of time and resource constraints, I had to restrict myself with the survey approach using online questionnaires. Another limitation in this study could be the number of participants. Because of the academic nature of the project and the constraints I just mentioned, I was constrained to a reduced number of participants.

Secondly, it is important to note that the results from the online-questionnaires does not represent the entire IT learners' and professionals' population, neither the whole YouTube community. The sample size was suited for the research question but is relatively small. The sample did show a difference in IT learners' attitude towards the search of video-based contents on YouTube. But, because the study takes an exploratory approach to learn more about what variables are crucial for end-users for their final decisions, and how metadata relates to those decisions, it was restricted to a smaller domain.

Thirdly, it was seen that online questionnaire based methodology is certainly more useful in getting more data collected. But, experimental design might have been more useful for the study. Experimental study could have given separate pre-learning and post-learning data which might have shown if the metadata in the videos did actually made a difference. They provided feedback for using YouTube in table 3 and 4 which mention issues like lots of useless information and having to actually view the video to decide if it's trustworthy etc.

Another limitation in this study was that I collected participants' self-reports on IT skills, self-directed skills, and also some other questions in the online survey, which could be

misleading because people will likely overestimate their skills. Future studies could use more subjective measures for these factors rather than self-reports.

Suggestions for Future Research

The research found that the majority of IT learners do use YouTube to learn using videos in their self-directed approaches. It was also found that people do not select video based learning for each and every topic they need to learn. There were many people who still preferred face-to-face training and classes. Thus, for a best learning experience, a mix of online textual materials, videos, use of forums and websites where people can collaborate is deemed necessary. Future researchers might chose to concentrate on what type of participants need more focus on which style of learning.

Varied results were seen in the use of metadata in the videos. The participants did not really mention any solid reason why they do or do not trust the metadata for their video selection decision. It could be because the sample for the study was chosen only from a very limited IT community. It might also have been because the participants' expertise and experience so far gained played more of a role in whether to go with the metadata or not. Further researchers might want to compare results from more diverse backgrounds and see if the results correlate with each other in any factors.

Summary of Contributions

This study was able to discover some interesting behaviors in those self-directed IT learners, staying within the framework built on the theory of reasoned action by Martin Fishbein and Icek Ajzen. The literature reviews done in the course of this study directed me towards my research contributions. Some of them are depicted below:

1. Individual's personal traits like their experience and academic background were found to be the major factor for their video selection process rather than the metadata in self-directed IT learning using YouTube.

2. It was found that self-directed learners when looking for general long-standing topics base their content selection judgment on their own skills and experiences. This was found to be the case because they generally already have sufficient experience in those long-standing topics. They use metadata as a basis for their video selection decisions mostly when they did not have particular experience with that topic already.

3. IT community's trend towards video-based learning was discovered because of the specific needs in learning IT related topics. Some of the main requirements for self-directed IT learners were found to be a need to see demonstrations, presentations, and step-by-step instructions.

Works Cited

Aleassa, H., Pearson, J. M., & McClurg, S. (2011). Investigating Software Piracy in Jordan: An Extension of the Theory of Reasoned Action. *Journal of Business Ethics*, 663-676. doi:10.1007/s10551-010-0645-4

Artino, A. R. (2007). Online military training: Using a social cognitive view of motivation and self-regulation to understand students' satisfaction, perceived learning, and choice. *Quarterly Review of Distance Education, 8(3)*, 191-202.

Berk, R. A. (2009). Multimedia teaching with video clips: TV, movies, YouTube, and mtvU in the College Classroom. *International Journal of Technology in Teaching and Learning, 5*(1), 1-21.

Bhattacherjee, A. (2012). *Social Science Research: Principles, Methods, and Practices* (2nd ed.). Tampa, Florida: Open Access Textbooks. Retrieved from http://scholarcommons.usf.edu/oa_textbooks/3

Bordens, K. S., & Abbott, B. B. (2008). *Research Design and Methods: A process Approach* (8th ed.). New York, NY: McGraw-Hill.

Candy, P. (1991). *Self-Direction for Lifelong Learning.* san Franscisco, CA: Jossey-Bass.

Caplan, P. (2003). Metadata Fundamentals for All LIbraries.

Chang, S. H., & Smith, R. A. (2008). Effectiveness of personal interaction in a learner-centered paradigm distance education class based on student satisfaction. *Journal of Research on Technology in Education, 40(4)*, 407-426.

Cheng, G., & Chau, J. (2009). Digital video for fostering self-reflection in an ePortfolio environment. *Learning, Media and Technology*, 337-350. doi:10.1080/17439880903338614

Chickering, A. W. (1964). Dimestions of independence: The findings of an experiment at Goddard College. *Journal of Higher Education, 35*(1), 38-41.

Chow, W. S., & Chan, L. S. (2008). Social network, social trust and shared goals in organizational knowledge sharing. *Information & Management, 45*, 458-465.

Chu, R. J., & Tsai, C. C. (2009). Self-directed learning readiness, Internet self-efficacy and preferences towards constructivist Internet-based learning environments among higher-aged adults. *Journal of Computer Assisted Learning, 25*, 489-501.

Chu., R. J., & Chu, A. Z. (2010). Multi-level analysis of peer support, Internet self-efficacy and e-learning outcomes: The contextual effects of collectivism and group potency. *Computer & Education, 55*, 145-154.

Chuchinprakarn, S. (2005, Jan). *Application of the Theory of Reasoned Action to On-line Shopping.* Retrieved April 02, 2014, from http://www.bu.ac.th/knowledgecenter/epaper/jan_june2005/supanat.pdf

Cisco Internet Business Solutions Group. (n.d.). *Higher Education Trends & Statistics, Issue 1*. Retrieved 06 01, 2014, from Higher Education Trends & Statistics, Issue 1, Cisco Systems: http://www.cisco.com/web/about/ac79/edu/trends/issue01.html

CNNMoneyTech. (2011, June 1). *The Internet in 2015: Video and mobile are breaking the Internet*. Retrieved March 1, 2014, from Video and mobile are breaking the Internet: http://money.cnn.com/2011/06/01/technology/cisco_visual_networking_index/index.htm

Creative Research Systems. (n.d.). *Sample Size Formulas for our Sample Size Calculator - Creative Research Systems*. Retrieved 5 1, 2014, from Sample Size Formulas for our Sample Size Calculator: http://www.surveysystem.com/sample-size-formula.htm

deMarrais, K., & Lapan, S. D. (Eds.). (2004). *Foundations for Research: Methods of Inquiry in Education and the Social Sciences.* Mahwah, New Jersey: Lawrence Erlbaum Associates.

Dijck, J. v. (2009). Users Like You? Theorizing Agency in User-Generated Content. *Media,, 31*(1), 41-58. doi:10.1177/0163443708098245

eBizMBA. (2014, March). *Top 15 Most Popular Web 2.0 Websites*. Retrieved from Top 15 Most Popular Web 2.0 Websites: http://www.ebizmba.com/articles/web-2.0-websites

Fishbein, M., & Ajzen, I. (1975). *Beliefs Attitude, Intention and Behavior: An Introduction to Theory and Research.* Philippines: Addison-Wesley Publishing Company.

Fishbein, M., & Ajzen, I. (2010). *Predicting and Changing Behavior - The Reasoned Action Approach.* New York, NY: Psychology Press.

Fisher, M. J., & King, J. (2010). The self-directed learning readiness scale for nursing education revisited: A confirmatory factor analysis. *Nurse Education Today*, 44-48. doi:10.1016/j.nedt.2009.05.020

Flew, T., & Smith, R. (2011). *New Media: An Introduction.* Don Mills, Ontario, Canada: Oxford.

Gironda, J. T., & Korgaonkar, P. K. (2014). Understanding consumers' social networking site usage. *Journal of Marketing Management, 30*(5-6), 571-605. doi:10.1080/0267257X.2013.851106

Greenberg, J. (2005). Understanding Metadata and Metadata Schemes. *Cataloging & Classification Quarterly, 30*(3/4), 17-36. doi:10.1300/J104v40n03_02

Guglielemino, L. M. (1977). Development of the Self-Directed Learning Readiness Scale. *Dissertation Abstracts International, 38(11a)*.

Hanson, G., Haridakis, P. M., Cunningham, A. W., Sharma, R., & Ponder, J. D. (2010). The 2008 Presidential Campaign: Political Cynicism in the Age of Facebook, MySpace, and YouTube. *Mass Communication and Society, 13*, 584-607. doi:10.1080/15205436.2010.513470

Harper, D. D. (Ed.). (2008). *Education for a Digital World, Advice, Guidelines, and effective Practice From Around the Globe.* Vancouver: BCcampus and the Commonwealth of Learning.

Hart, I. (2001). Deschooling and the Web: Ivan Illich 30 Years On. *Routledge*, 69-76.

Hsu, C.-L., & Lin, J. C.-C. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & Management, 45*, 65-74.

Knowles, M. (1975). *Self-directed Learning.* New York, NY: Associated Press.

Kuo, Y.-C., E.Walker, A., Schroder, K. E., & Belland, B. R. (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. *Internet and Higher Education, 20*, 35-50.

Littlejohn, S. W., & Foss, K. A. (2011). *Theories of Human Communication* (10th ed.). Long Grove: Waveland Press Inc.

Manochehri, N. (2008). Individual Learning Style Effects on student satisfaction in a web-based environment. *Int'l J of Instructional Media, 35*(2), 221-228.

Merriam, S. B. (2001). Andragogy and Self-Directed Learning: Pillars of Adult Learning Theory. *New Directions for Adult and Continuing Education, 89*, 3-96.

Merrigan, G., Huston, C. L., & Johnston, R. (2012). *Communication Research Methods.* New York, NY: Oxford.

metacafe. (n.d.). *Web 2.0 video clips sharing community*. Retrieved March 01, 2014, from Metacafe: The Video Entertainment Engine: http://www.metacafe.com/aboutUs/

Mohammed, A. B. (2014, January). Determinants of Young Consumers' Online Shopping Intention. *International Journal of Academic Research, 6*(1), 475-482. doi:10.7813/2075-4124.2014/6-1/B.64

National Information Standards Organization. (2004). *Understanding Metadata.* Bethesda, MD, USA: National Information Standards Organization Press. Retrieved June 1, 2014, from http://www.niso.org/publications/press/UnderstandingMetadata.pdf

Noel-Levitz. (2011). *National online learners priorities report.* Retrieved from https://www.noellevitz.com/upload/Papers_and_Research/2011/PSOL_report%202011.pdf

Oestreicher-Singer, G., & Zalmanson, L. (2013, June). Content or Community? A Digital Business Strategy for Content Providers in the Social Age. *MIS Quarterly, 37*(2), 591-616.

Reima Al-Jarf, K. (2011). Helping medical students with online videos. *International Journal of Language Studies, 5(3),* 99-110.

Schepp, B., & Schepp, D. (2009). *How to make money with YouTube?* McGraw-Hill.

Song, L., & Hill, J. R. (2007). A Conceptual Model for Understanding Self-Directed Learning in Online Environments. *Journal of Interactive Online Learning, 6*(1), 27-42.

Statistics Canada. (2008, December 01). *Education Matters: Insight on education, learning and training in Canada*. Retrieved March 01, 2014, from Learning online: Factors associated with use of the Internet for education purposes: http://www.statcan.gc.ca/pub/81-004-x/2007004/10375-eng.htm

Turel, O., Serenko, A., & Bontis, N. (2007). User acceptance of wireless short messaging services: Deconstructing perceived value. *Information & Management*, 63-73.

Waldron, J. (2013, January 28). User-generated content, YouTube and participatory culture on the web: music learning and teaching in two contrasting online communities. *Music Education Research, 15*(3), 257-274. doi:10.1080/14613808.2013.772131

Wang, C., Shannon, D. M., & Ross, M. E. (2013). Students' characteristics, self-regulated learning, technology self-efficacy, and course outcomes in online learning. *Distance Education, 34*(3), 302-323.

Wheeler, S., Yeomans, P., & Wheeler, D. (2008). The good, the bad and the wiki: Evaluating student-generated content for collaborative learning. *British Journal of Educational Technology, 39*(6), 987-995. doi:10.1111/j.1467-8535.2007.00799.x

Wijekumar, K., Ferguson, L., & Wagoner, D. (2006, June 22). Problems with assessment validity and reliability in web-based distance learning environments and solutions - Free online library. *Journal of Educational Multimedia and Hypermedia, 15*(2), 199-215. Retrieved from Problems with assessment validity and reliability in web-based distance learning environments and solutions.

Williams, K. (2003). Literacy and Computer Literacy: Analyzing the NRC's Being Fluent with Information Technology. *Journal of Literacy and Technology, 3*(1).

YouTube. (n.d.). *Statistics: YouTube*. Retrieved from Statistics: http://www.youtube.com/yt/press/statistics.html

Appendices

Appendix 1: Information Letter

Study Title: Impact of User-Generated Contents on End-Users: Self-Directed Learning using YouTube

Background

You are invited to participate in the research project: "Impact of User-Generated Contents on End-Users: Self-Directed Learning using YouTube" which is being conducted at the University of Alberta. Your participation in the project is totally voluntary. This research is being conducted by Om M. Pokharel, a Master's student in Communication and Technology program, under the supervision of Dr. Gordon Gow, Associate Professor and Director of the Graduate program in Communication and Technology.

I had written emails to a few people who worked with me (at Lord Budhha Education Foundation, Kathmandu, Nepal, at Land Management Training Center, Dhulikhel, Nepal and also at TELUS Communications, Edmonton AB, Canada) to ask whether they would be willing to pass along that information to their friends and/or people they know who may also be interested in learning about this research study. I might have gotten your contact information from one of those people.

Purpose

I am doing this study to understand how the collaborative video sharing services like YouTube are taken by the end-users in their self-learning process, and how the User Generated Contents within these services assists or hinders the end-users learning process. Future researcher might be able to extend this study in a higher domain of research.

Study Procedures

The online questionnaire you received via email is being distributed to around 25 selected people who are either IT professionals, or IT students via email surveys. It should take approximately 25-30 minutes to complete the questionnaire.

Benefits

You will feel personal satisfaction from participating in the research as you will feel that you have contributed something in their profession of choice. We hope that the information I get from doing this study will help me better understand how the collaborative video sharing services like YouTube are taken by the end-users in their self-learning process, and how the User Generated Contents within these services assists or hinders the end-users learning process. Future researcher might be able to extend this study in a higher domain of research.

This study has no cost associated with it and there is no funding available either. The purpose of this study is to fulfil the requirements for the capping research project for the Master of Arts degree.

Risk

There are no known risks associated with participation in the project. If we learn anything during the research that may affect your willingness to continue being in the study, we will tell you right away.

Voluntary Participation

You are under no obligation to participate in this study. The participation is completely voluntary. You have the right to withdraw from this study at any time within 30 days from the date of survey participation, with no personal consequences. If you opt out of the research, the data collected in your survey will not be used in the study.

Confidentiality & Anonymity

The data collected in the course of this research project will be used principally in Om M. Pokharel's research project. Data withdrawal will be done within 30 days after the collection of data from the online questionnaire. As soon as the responses are coded, any information linking data to respondents except the email address will be destroyed. The email address will be retained only for the purpose of identifying future communications.

All summaries and any direct quotations from the survey will be confidential. The data will be stored in a secure password protected server availed by Google which can be accessed only by me and I have to login with the proper credentials. The data will be securely deleted after 5 years.

You can receive a copy of a report of the research findings if you contact me or my supervisor in the below mentioned email.

I may use the data obtained from this study in future research, but in that case, I will have that approved by a Research Ethics Board.

Further Information

If you have any further questions regarding this study, please do not hesitate to contact:

Research Investigator:

Om M. Pokharel

3922 105 St. NW

Edmonton, AB, T6J 2P2

EMAIL **om.pokharel@ualberta.ca**

PHONE **(+1) 780.909.3209**

Supervisor:

Dr. Gordon Gow

10230 Jasper Avenue

University of Alberta

Edmonton, AB T5J 4P6

EMAIL **gordon.gow@ualberta.ca**

PHONE **(+1) 780.492.6111**

The plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

Appendix 2: Letter for Snowball

Dear [Mr. / Ms. LAST NAME],

Thank you for your interest in my study "Impact of User-Generated Contents on End-Users: Self-Directed Learning using YouTube". I am writing to ask whether you would be willing to pass along the enclosed information to friends and/or people you know who may also be interested in learning about this research study. You are under no obligation to share this information and whether or not you share this information will not carry any consequences.

Thank you for your time and consideration.

Sincerely,

Om M. Pokharel
(Researcher)

Tel# 780.909.3209
email: om.pokharel@ualberta.ca

Attached herewith:

Cover Letter for the questionnaire

Online Questionnaire URL

Appendix 3: Cover letter for the questionnaire

May 21, 2014

Dear Participant:

You are invited to participate in the research project: "**Impact of User-Generated Contents on End-Users: Self-Directed Learning using YouTube**" which is being conducted at the University of Alberta. Your participation in the project is totally voluntary. This research is being conducted by Om M. Pokharel, a Master's student in Communication and Technology program, under the supervision of Dr. Gordon Gow, Associate Professor and Director of the Graduate program in Communication and Technology.

Significant number of websites for online learning using videos over traditional face-to-face learning has sparked my interest on how individual users feel about self-learning IT (Information Technology) topics. I will focus on learning IT topics using the Internet using YouTube.

It is important to note that I will not be addressing whether learning online yourself or learning in the traditional ways is better than the other. This will be a confidential survey which is not concerned with your private learning habits. I am only interested in attitudes and motivations leading to online learning and how the collaborative websites like YouTube help the learners with the metadata that they gather and provide from users like us to users like us.

The questionnaire you receive with this email is being distributed to around 25 selected people who are either IT professionals, or IT students via email surveys. It should take approximately 25-30 minutes to complete the questionnaire.

This project has not been funded by any company or individual. Also that not participating in this survey carries no consequences. Completing this questionnaire will be considered as consenting to participate. All summaries and any direct quotations from the survey will be confidential. As soon as the responses are coded, any information linking data to respondents except the email address will be destroyed.

There are no known risks associated with participation in the project. The researchers associated with this project will comply with the University of Alberta Standards for the Protection of Human Research Participants.

Your rights:

- You have the right not to participate in this study.
- You have the right to withdraw from this study at any time within 30 days of questionnaire completion, with no personal consequences.
- If you opt out, the data collected in your survey will not be used in the study.
- You have the right to privacy, anonymity, and confidentiality.

- You have the right to have any data collected in this study kept in a safe place.

The data collected in the course of this research project will be used principally in Om M. Pokharel's research project. Data withdrawal will be done within 30 days after the collection of data from the online questionnaire. The plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

I appreciate your taking the time to fill out the questionnaire and allowing us to use the data in my study. If you have any questions about this research project, please contact:

Om M. Pokharel
(Researcher)

Tel# 780.909.3209
email: om.pokharel@ualberta.ca

Appendix 4: Questionnaire

End-user attributes related Questions:

1. Which of the following would you categorize yourself in? (Please cross)
    - IT Student
    - IT Professional
    - Other (Please Mention): …….

2. IT skills measurement: Please rate yourself in a range of 1 to 5 where **1 is the lowest and 5 is the highest.**

Attributes\Rating	1	2	3	4	5
Setting up a personal computer					
Using basic operating system features					
Using a word processor to create a text document					
Using a graphics and/or artwork package to create illustrations, slides, or other image-based expressions of ideas					
Connecting a computer to a network					
Using the Internet to find information and resources					
Using a computer to communicate with others					
Using a spreadsheet to model simple processes or financial tables					
Using a database system to set up and access useful information					
Using instructional materials to learn how to use new applications or features					

3. Please rate the following in terms of in **HOW MUCH FREQUENCY YOU HAVE USED** the following modes of learning:

Modes of learning	Never	Sometimes	Often	Very Often	Always
Face to face					
Web-based, without any video					
Web-based, with video (where you can't comment, or provide feedback; i.e. non-interactive videos)					
Web-based, with video with interactive (Collaborative) features (similar to YouTube)					

4. Please rate the following in terms of in **HOW MUCH YOU INTENT (OR WOULD PREFER)** to use the following modes of learning in the coming years:

Modes of learning	Never	Sometimes	Often	Very Often	Always

Face to face					
Web-based, without any video					
Web-based, with video (where you can't comment, or provide feedback)					
Web-based, with video with interactive (Collaborative) features (similar to YouTube)					

5. What type of learning-mode do you prefer? Note: Please put a cross mark on the rating you give for each category. Chose a number from 1 to 5 where **1 is the lowest preference and 5 is the highest**.

Learning Approach	1	2	3	4	5
Instructor-led face-to-face trainings (i.e. classroom-based)					
Distance learning					
Self-directed learning (learning in your own pace, with your own direction)					

6. Self-directed learning skills measurement: Please rate yourself in a range of 1 to 5 where **1 is the lowest and 5 is the highest**.

Attributes\Rating	1	2	3	4	5
I manage my time well					
I have good management skills					
I prefer to plan my own learning					
I prefer to direct my own learning					
I believe the role of the teacher is to act as a resource person					
I am able to focus on a problem					
I prefer to set my own learning goals					
I will alter my practices when presented with the facts					
When presented with a problem I cannot resolve, I will ask for assistance					
I have high beliefs in my abilities					
I am confident in my ability to search out information					
I like to gather the facts before I make a decision					
I evaluate my own performance					

7. Internet Self-Efficacy measurement (strength of your belief in your ability to complete internet related tasks): Please rate yourself in a range of 1 to 5 where **1 is the lowest and 5 is the highest**.

Attributes\Rating	1	2	3	4	5
Understanding terms/words relating to Internet hardware					

Understanding terms/words relating to Internet software.					
Describing functions of Internet hardware.					
Trouble shooting Internet hardware.					
Explaining why a task will not run on the Internet.					
Using the Internet to gather data.					
Confident learning advanced skills within a specific Internet program.					
Turning to an on-line discussion group when help is needed.					

8. Have you ever considered using YouTube as a learning platform to study IT topics?
   Note: Relevant IT topics for this survey will be learning any computer hardware like network devices and hard disks, software like MS Word, Adobe Photoshop, Windows etc.

   ____ Yes

   ____ No

   If you responded **Yes** to the above question, please proceed to question 9.

   If you responded **No** to the above question, please skip to question 26.

General Questions on YouTube:

9. If you DO use YouTube as a medium for learning IT, **please indicate all of the below statements that are applicable:**

___ YouTube has most of the things I need to learn already available

___ It can be accessed in any electronic device with Internet Access

___ It has the newest information available

___ I can see the feedback about the videos before I watch it

___ Anybody can share videos on YouTube

___ Most experts share their knowledge on YouTube

___ I don't have to pay to watch those materials on YouTube

___ It is very easy to find videos on YouTube

___ It is difficult to find the proper video often

___ Because of the availability of 'like' and 'comment' features, you like to have discussions going in the learning videos

10. What would you say about finding a proper video material on YouTube for learning IT? (Please cross)

    (1) Excellent
    (2) Very easy

(3) Okay
(4) Hard
(5) Very Hard

11. On choosing a video on YouTube, which feature do you use? (Please cross all applicable)
    (1) Comments
    (2) Number of 'like' and 'dislike'
    (3) Name of the author and YouTube profile of that author
    (4) Number of followers of that author
    (5) Date when the video was posted
    (6) Other (please mention): …….

12. Do you read the comments that people put below the videos? (Please cross)
    (1) I don't
    (2) Rarely
    (3) Sometimes
    (4) Always

13. Do you watch the training videos by professionals, amateurs or both?
    (1) Only professionals
    (2) Only amateurs
    (3) Both
    (4) Depends on what I am looking for
    (5) Amateur videos are more better most of the time
    (6) Professional videos are more better most of the time

14. When learning IT topics, what do you like the most on YouTube?
    (1) Demonstrations (step by step instructions)
    (2) Presentations
    (3) Comments under the videos
    (4) Big companies put their videos
    (5) People with similar experiences put videos
    (6) Other (Please mention): …….

15. Do you often 'like', 'dislike' or 'comment' on the videos?
    (1) I most of the time comment
    (2) I most of the time 'like' or 'dislike' them
    (3) I just like to watch videos without responding to them
    (4) I sometimes do respond
    (5) I never respond

16. What aspect of YouTube is good in using it as a learning environment?
    (1) Likes
    (2) Dislikes
    (3) Comments section
    (4) Video limits
    (5) Advertisements
    (6) Videos by amateurs

(7) Videos by professionals
(8) Others (please mention): …….

17. What aspect of YouTube is not good in using it as a learning environment?
    (1) Likes
    (2) Dislikes
    (3) Comments section
    (4) Video limits
    (5) Advertisements
    (6) Videos by amateurs
    (7) Videos by professionals
    (8) Others (please mention): …….

18. Please feel free to make any additional comments about what makes you satisfied / dissatisfied in the learning process online using YouTube.

    …….

    …….

19. If you were to rate your satisfaction with the use of YouTube as a learning tool, what would you give out of 5? (please circle)

Low satisfaction …… ……	… …… …… …….	……. High satisfaction
1	2	3	4	5

Questions regarding metadata on YouTube videos:

20. Do you think the metadata (the number of likes, dislikes, comments and number of views etc. in the videos) are trustworthy?
    (1) They are trustworthy most of the time
    (2) Sometimes they are trustworthy
    (3) They are not trustworthy
    (4) I don't care about metadata
    (5) Something else (Please mention): …….

21. Please cross ALL the ones you think are true:
    (1) The videos with high number of likes and views are always the best ones.
    (2) The videos with high number of likes and views are always the worst ones.
    (3) The videos with lowest number of likes and views are the best ones.
    (4) The videos with lowest number of likes and views are the worst ones.
    (5) The users who put more number of videos on YouTube are generally experts.
    (6) More comments means the video is based on more popular topic.

22. Have you ever seen a good number of likes and started watching the video, and later decided not to watch it anymore?
    (1) No
    (2) Yes
    If yes, around how many times?

    (1) Once
    (2) 2 to 5 times
    (3) 6 to 10 times
    (4) More than 10 times

23. Have you ever seen a video with very less likes and number of views and, and later found it very helpful?
    (1) No
    (2) Yes
    If yes, around how many times?

    (1) Once
    (2) 2 to 5 times
    (3) 6 to 10 times
    (4) More than 10 times

24. You search for 'How to upgrade windows XP computer to windows 7' on YouTube. You see 1000 results. You don't have time to check few of those videos. You want to find the best video quick. What would you look for? (Please cross multiple options if needed)
    (1) Number of likes in the video
    (2) Number of views
    (3) Read the comments
    (4) Number of comments
    (5) Who created the video?
    (6) Look for other sources than YouTube
    (7) Something else (Please mention): …….

25. Which of the following would you check to find about a recent issue in Windows 8 which YouTube has thousands of how to videos available? Please cross all applicable.
    (1) Number of likes
    (2) Number of comments
    (3) Read the comments (if available) and then decide
    (4) Date the video was uploaded – check the earliest video
    (5) Date the video was uploaded – check the oldest video
    (6) Other (please mention): ……

26. Which of the following would you check to find about the wireless function in your router not functioning? YouTube has thousands of results when you search it. Please cross all applicable.

(1) Number of likes
(2) Number of comments
(3) Read the comments (if available) and then decide
(4) Date the video was uploaded – check the earliest video
(5) Date the video was uploaded – check the oldest video
(6) Other (please mention): ……..

Questions regarding end-user perceived weight for the metadata:

27. How much does **OTHER USER'S FEEDBACK ON THE VIDEO SELECTION** impact on your decision?
    Note: Other user's feedback are generally in the form of likes, dislikes and comments.

    Low impact …… …… … …… …… ……. ……..High Impact

    1 2 3 4 5

28. How much does **YOUR OWN OPINION ABOUT THE VIDEO SELECTION** impact on your decision?
    Note: Your own opinion might form after discovering the length of the content, the user who posted the video, number of videos, Quality of the video, your opinion about the credibility of the video, or your own personal judgments.

    Low impact …… …… … …… …… ……. ……..High Impact

    1 2 3 4 5

Questions regarding whether the end-user prefers YouTube or any other platforms:

29. Have you ever considered using a different platform than YouTube for online learning? (either paid or unpaid)
    1. No
    2. Yes: _____ (please mention the name)

30. What things do you NOT like about YouTube?
    - I have never used YouTube.
    - It is difficult to find proper material on YouTube.
    - The quality of the video are not good.
    - They have advertisements.
    - There are time limits on videos.
    - People post videos about a subject even if they don't have sufficient knowledge about it.
    - Other _____

31. Please feel free to make any additional comments about what makes you LIKE / NOT LIKE YouTube for learning IT:

_____
_____
_____
_____
_____
_____

-----THANK YOU -----

Appendix 5: Ethics Approval Document

Notification of Approval

Date May 30, 2014

Study ID: Pro00048283

Principal Investigator: Om Pokharel

Study Supervisor: Gordon Gow

Study Title: Impact of User-Generated Contents on End-Users: Self-Directed Learning using YouTube

Approval Expiry Date: May 29, 2015

Thank you for submitting the above study to the Research Ethics Board 2. Your application has been reviewed and approved on behalf of the committee.

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Sincerely,

Stanley Varnhagen, PhD
Chair, Research Ethics Board 2

Note: This correspondence includes an electronic signature (validation and approval via an online system).