

# YOUTUBE-LIKE E-LEARNING SYSTEM: THE STUDY OF PEERS INFLUENCE AND ENJOYMENT

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## Abstract

*The present study aims to identify behavioral intention of YouTube-like e-learning system's users in the context of peers' influence. This research emphasize the motives of peers' when learning their peers' video in the YouTube-like e-learning system. Our conceptual framework included two main global constructs which are YouTube characteristics which focused on peers and enjoyment. Sample data is collected from 110 respondents who will use our self-developed YouTube-like e-learning system prototype. This study resulted that word of mouth of peers is become the predictor of continuance intention. Moreover, enjoyment is the strongest predictor of continuance intention, while enjoyment itself is predicted by humor sense of peers. We suggested that YouTube-like e-learning system can be used as open e-learning system framework due to the continuance intention of YouTube users when learn specific materials uploaded by their peers. Implications and limitations of our study are discussed.*

**Keywords:** YouTube, e-learning, peers, enjoyment, word of mouth

## Introduction

According to the International Telecommunication Union (ITU) in 2011, 39% population worldwide and 77% population of developed country are using internet. E-learning also becomes major influence. However, while e-learning has been promoted to various levels of users, the intention to continue using such system is still very low (Hsu & Chiu, 2004). In addition, the acceptance–discontinuance anomaly phenomenon (users discontinue using e-learning after initially accepting it) frequently occurs (Roca, Chiu, & Martinez, 2006). YouTube is one of the most popular video sharing in the world today. According to YouTube statistics, more than 1 billion unique users visit YouTube each month; in 2011, YouTube had more than 1 trillion views or around 140 views for every person on Earth; and YouTube now have more than a million creators from over 30 countries around the world earning money from their YouTube videos. Their great achievement lies in the combination of the content-rich videos and, equally or even more importantly, the establishment of a social network (Cheng, Dale, & Liu, 2007).

Web 2.0 (McAfee, 2006) can be described as an “architecture of participation”, which facilitates ease of usage, gives immediate feedback on the user interface and structural levels, and values each user's contribution. Several examples of Web 2.0 activities are blogs, file and media sharing, wikis, social networking sites, web applications, etc. These technologies are often associates with social communication as well as rich user experiences and opportunities for playfulness (Cheung & Vogel, 2011). Several researches mentioned about users acceptance in using Web 2.0 as an e-learning media. Cheung and Vogel (2013) predicted the key factors of user acceptance of collaborative technologies in e-learning using Web 2.0 technology. Web 2.0 also used as a learner-centered approached while considering the use of self-publishing, peer-driven online learning, and social networking (Chatti, Dahl, Jarke, & Vossen, 2008). However, there are few studies that focus on predicting user acceptance of e-learning technologies in Web 2.0 environments for learning. YouTube is categorized as Web 2.0 application which considered as the third-party of video sharing.

In order to understand continuance intention, a research model was developed. YouTube have many characteristics and this study focus on one of them which is peers influence. This constructs added as external

variable which influence enjoyment in using YouTube-like e-learning system. Prior studies have been developed theoretical models to understand the behaviors associated with continuance intention of using web-based learning (Cheung & Vogel, 2011; Chiu & Wang, 2008; Lee M. C., 2010) and the user acceptance of YouTube (Lee & Lehto, 2013). However, most of the research model developed did not consider YouTube characteristics as the key factors in continuance intention.

By developing a YouTube-like e-learning system as an environment, this study also addresses the need for developing research models that explain the user continuance intention in using YouTube-like e-learning system based on peers influence. The main contribution of this paper are the examination of key determinants of YouTube characteristics focused on peers that explain the continuance intention in using a YouTube-like e-learning system.

This paper comprises eight sections. Section 2 describes the details of the environment of YouTube-like e-learning system called YouLearn. Section 3 provides summary of related literatures. The proposed research model and hypotheses are presented in Section 4. Section 5 includes a description of the research methodology. The research results and data analysis are presented in Section 6. Discussion on the research results is presented in Section 7 and conclusions are provided in Section 8.

### **The YouTube-like e-Learning System Environment**

The environment used in this research developed using Joomla Content Management System (CMS) which is Web 2.0 platform. Joomla is a free open source content management framework and built on a model-view-controller framework for publishing web content. Joomla is written in PHP and uses object-oriented programming techniques, also uses MySQL as database. It provides page caching, blogs, search, polls, and support for language internationalization. As of July 2013, Joomla has been downloaded over 35 million times (Leadership Highlight, 2013). W3Techs analyzed that Joomla is estimated to be the second most used content management system (CMS) on the Internet after WordPress.

To build a YouTube-like e-learning system environment, present study used ContusHD Video Share free Joomla extension that provides YouTube API for videos sharing and uploading. This extension can manage any kind of videos in any kind of categories provided in the website. This study is pilot tested to Management course conducted in National Taiwan University of Science and Technology, therefore the categories provided in the web site divided into 18 chapters based on the Management textbook. This environment called YouLearn and provides two languages, English and Traditional Chinese, to facilitate the participants who were not using English as a mother language. The various feature of the YouLearn can be accessed through the menu bar on the top side of the screen. The features of the YouTube-like e-learning system include: video sharing, video uploading, comments, search, language translation, and survey form. The front page of the website shown the featured videos in the playlist, recent videos, popular videos, and categories provided. The YouTube-like environment can be a third-party between YouTube and users especially in e-learning context. Today, users are likely to actively engage in constructing knowledge or seeking information from accessible resources that meet their needs (Oum & Han, 2011).

Figure 1. YouLearn

Video can be a powerful educational and motivational tool, but a great deal of the medium's power not lies in it but how it is used. Duffy (2008) noted that "YouTube can be used to create a learning community where everyone has a voice, anyone can contribute, and the value lies equally within the creation of the content and the networks of learners that form around content discovered and shared." (p.125). YouTube is mostly used for entertainment videos which less than five minutes. Educational videos found in YouTube mostly are longer than five minutes which is bored for people who want to learn something faster and fun. In this study, video uploaded to YouLearn must less than five minutes to prevent risk of users' boredom in using it and have their freedom to make their own videos. By employing Web 2.0 tools in the YouTube-like e-learning system environment, users are not just become a producer but also a consumer of materials. Participants can share their thoughts to their peers' videos by commenting on the videos. This also helps teacher see students' activity in e-learning environment.

## Literature Review

### Enjoyment

Igbaria et al. (1996) defined perceived enjoyment as a reward derived through the use of the technology or service studied, and it has been shown to influence consumers' use of mobile services in uses and gratification research. Davis (1992) defined perceived enjoyment as "the extent to which individual perceives using a technology to be enjoyable in its own right, apart from any performance consequences that might be anticipated". The enjoyment experience contributes to intrinsic motivation by "sustaining the willingness to continue and persist in the activity" (Reeve, 1989). When people enjoy some activity, it means that they have performed well and "they tend to persist in (e.g. show intrinsically motivated behavior toward) those activities for their own sake" (Reeve, 1989). Thus, a positive affect circumstance can stimulate individuals' intrinsically

motivated behaviors and thus enhance their enjoyment experiences and their desire to spend more time on enjoyable tasks (Isen & Reeve, 2005). Previous research has been found examined the perceived enjoyment in many research areas, such as e-learning (Yi & Hwang, 2003; Lin, Fernandez, & Gregor, 2012; Ainley & Ainley, 2011), mobile service (Head & Ziolkowski, 2012), online shopping (Chu & Lu, 2007; Koufaris, 2002), and mobile adoption behavior (Nysveen, Pedersen, & Thorbjørnsen, 2005).

### **E-learning**

E-learning is an inclusive term that describes educational technology that electronically or technologically supports learning and teaching. Bernard Luskin, a pioneer of e-learning, advocates that the "e" should be interpreted to mean "exciting, energetic, enthusiastic, emotional, extended, excellent, and educational" in addition to "electronic." This broad interpretation focuses on new applications and developments, and also brings learning and media psychology into consideration (Luskin, 2010). Many researches have been found extending many kind models to examine factors affecting e-learning experience (Chiu & Wang, 2008; Lin K. M., 2011; Chatti, Dahl, Jarke, & Vossen, 2008; Farahat, 2012; Lee & Lehto, 2013).

### **Web 2.0 Technology**

Web 2.0 (McAfee, 2006) can be described as an "architecture of participation", which facilitates ease of usage, gives immediate feedback on the user interface and structural levels, and values each users' contribution. Users can interact to each other in a social media dialogue in web 2.0. Examples of web 2.0 sites are wikis, blogs, social network, online message, and file sharing. Despite the growing interest of Web 2.0 technology, there is a lack of studies investigating the adoption behaviors of this technology. The emergence of Web 2.0 technology provides an opportunity to develop online learning tools enabling students to not only participate in online activities more actively, but also to learn from their colleagues. Chen, Hwang, and Wang (2012) used Web 2.0 as an e-learning media for annotation system called MyNote. The evaluation results showed that, with factor analysis, interactivity, usefulness, helpfulness, and willingness for future use were categorized to represent the perceptions of MyNote (Chen, Hwang, & Wang, 2012). Palacios-Marqués, Cortés-Grao, and Carral (2013) also mentioned about the importance of project manager to handle the process making of e-learning in Web 2.0 environment.

### **YouTube**

YouTube is a video sharing website which uses HTML5 and Adobe Flash Video technology to display a wide variety of user-generated video content. Most of the content of YouTube uploaded by individuals, but many companies, such as TED, CBS, CNN, etc., also provides their materials in YouTube channel as part of the YouTube partnership program. Since its launch in 2005, YouTube has become the most popular free video-sharing website for user-created content (UCC) or user-generated content (UGC) (Ryu, Kim, & Lee, 2009). A unique feature of YouTube is that it enables any subscribed member to create, upload, and share a wide range of content ranging from homemade video to movie scenes (Lange, 2007). Previous studies which include YouTube in their research are limited. One of them studied the factors affecting user acceptance of YouTube (Lee & Lehto, 2013). Lee and Lehto (2013) mentioned a factor affecting perceived usefulness which is YouTube-self efficacy. Other study determined the characteristics of short video sharing which resulted that the links to related videos generated by up-loaders' choices form a small-world network (Cheng, Dale, & Liu, 2007).

YouTube is the most frequently used social media tool in the classroom (Moran, Seaman, & Tinti-Kane, 2012). Students can share their videos with their friends, rather than listening to teacher in the traditional e-learning methodology. Students can give their comments each other and learning using YouTube need a short time based on the short-video sharing compared with traditional e-learning which is take a long time to learn. The content features of YouTube are also richer and more update all the time. But the quality of current e-learning system is more stable than YouTube, because of the quality of the materials are from different sources.

Sherer and Shea (2011) claimed that YouTube increased participation, personalization (customization), and productivity. YouTube also improved students' digital skills and provided opportunity for peer learning and problem solving (Sherer & Shea, 2011). Eick and King (2012) found that videos kept students' attention, generated interest in the subject, and clarified course content. Additionally, the students reported that the videos helped them recall information and visualize real world applications of course concepts.

### **Network externalities**

Katz and Shapiro (1985) defined network externalities as "the value or effect that users obtain from a product or service will bring about more values to consumers with the increase of users, complementary product, or service." For instance, when the number of information system users reaches a critical mass, the system will be more valuable and it will attract more users to join. As such, the number of users is one of the factor that

drive network externalities. There are two types of network externalities defined by researchers (Katz & Shapiro, 1985; Gupta & Mela, 2008; Lin & Bhattacharjee, 2008), which are direct and indirect. Direct network externalities arise when consumer utility depends directly on the total number of purchasers of the same network product (Katz & Shapiro, 1985). On the other hand, indirect network externalities display and increased sense of user value from using a product or service (Katz & Shapiro, 1985).

As new participants enter the network, the existing users gain more choice regarding communication, thus can access greater network utility (Lin & Bhattacharjee, 2008). Social network like YouTube works the same way. The more people join to YouTube, the more valuable YouTube will be. It will attract more people to use and attract many software developers to build the third-party of YouTube, for example is e-learning. Make a social network like YouTube as an e-learning is a challenge. Lin and Bhattacharjee (2008) believed that the utility of users also comes from social effects. Sledgianowski and Kulviwat (2009) argued that social network is a pleasure-oriented information system that the people becomes more willing to use as more friends or peers join (Baker & White, 2010; Li & Bernoff, 2008).

### **Research model and hypotheses**

#### **Peers network externalities**

Prior researches consider network externalities as an important factors affecting users' behavior in using information technology (Gupta & Mela, 2008; Lin & Bhattacharjee, 2008; Pae & Hyun, 2002). Sledgianowski and Kulviwat (2009) believed that people tend to use information system if their peers also join to the system. Peers network externalities refer to the number of friends who use the YouTube-like e-learning system, the materials quality which peers provided in the system, the word of mouth of peers, and the humor sense of peers. The number of peers is a major factor affecting people's intention in joining YouTube-like e-learning system, especially when they are allowed to share with their friends at any time (Baker & White, 2010; Li & Bernoff, 2008). Thus, we posit that:

*H1. Number of Peers has a positive effect to user continuance intention*

Word of mouth (WOM) is the communication of information from one person, a sender, to another person, a receiver (Frenzen & Nakamoto, 1993). In this study, we use WOM as a peer communication between users. Peer to peer communication has been identified as being of particular importance to this age group, characterized as Generation Y, when they are making choice (William & Page, 2011). The choice to continue using the system can be determined using WOM of peers. Thus, we propose that:

*H2. Word of Mouth of Peers has a positive effect to user continuance intention*

#### **Flow experience and enjoyment**

Flow experience is defined as "the holistic experience that people feel when they act with total involvement" (Csikszentmihalyi, 1977). When people are in the flow state, they become absorbed in their activities and unable to recognize changes in their surroundings (Lee M. C., 2010). Flow experience can be seen as intrinsic motivation, which refers to the desire to engage in an activity for no other reason than the process of performing it (Lee M. C., 2010; Deci & Ryan, 1985; Teo, Lim, & al., 1999). Koufaris (2002) developed three constructs to measure flow which are perceived enjoyment, perceived control, and concentration. Venkatesh (2000) defined perceived enjoyment as "the extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use". Humor sense is one of the factors that can make people happy and fun, moreover it can make people enjoy. Thus, we can expect that enjoyment positively affected by humor sense of peers. Thus, we propose that:

*H3. Humor Sense of Peers has a positive effect to enjoyment*

Using a technology especially YouTube videos can bring people fun and pleasure in watch or use it. The present research consists of interactive functions related with YouTube videos and users can often obtain great enjoyment when using the system. We can thus expect that user enjoyment in using YouTube-like e-learning system can increase people's motivation in continue to use the system. Thus, we propose that:

*H4. User enjoyment has a positive effect to user continuance intention*

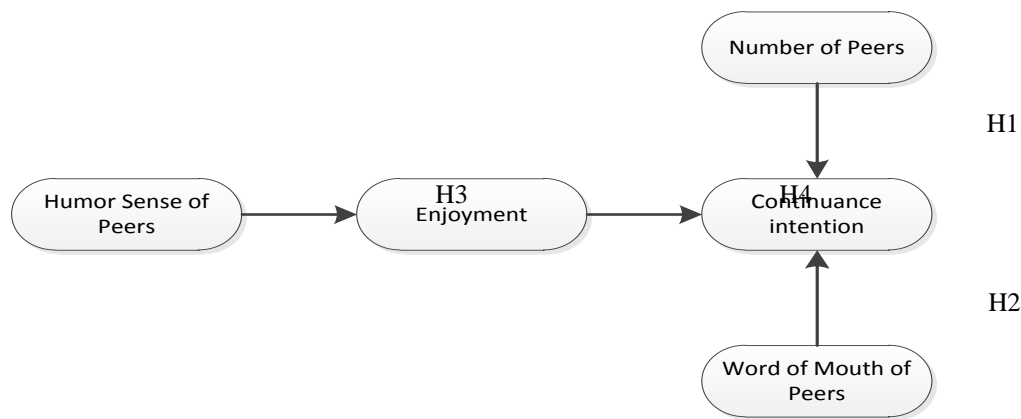


Figure 2. Model hypotheses

**Research Methodology**

The present study adopted an offline survey approach to empirically validate the proposed conceptual framework (Lee & Lehto, 2013). Structured questionnaire were designed with demographic items and thirty-two main questionnaire items which are measured using seven-point Likert-scale. This study attempts to examine the peers as key factors that influence user continuance intention in using YouTube-like e-learning system.

**Questionnaire development**

In this study, we used a structured questionnaire consisting of two parts. The first part is the demographic information about the participants which had five demographic items including age, gender, and YouTube experience. The second part of the questionnaire measures the constructs in the research model, in conjunction with thirty-two main questionnaire items (see Table 1). The items in the constructs measured using seven-point Likert-scale, with answer choices ranging from “strongly agree” (1) to “strongly disagree” (7). Most of the constructs derived from previous researches. But there are two self-developed constructs, humor-sense of peers and word of mouth of peers. The development instruments were then reviewed by three experienced doctoral students to ensure its accuracy, specificity, and the format of the questionnaire (Lee & Lehto, 2013). Comments were gathered from them and the questionnaire revised several time. Then, the instruments were translated into Chinese and translate back to English to ensure the readability. Several items were revised according to suggestions to make the wording more acceptable and understandable.

Table 1. Questionnaire items used in this study

Items	Source
Number of Peers	Lin and Lu, 2011
NP1 I think many friends in this class use YouLearn	
NP2 I think most of my friends in this class use YouLearn	
NP3 I anticipate many friends in this class will use YouLearn in the future	
Humor Sense of Peers	Self-constructed
HSP1 I think many friends in this class have a humor sense	
HSP2 I think many friends in this class like to make a joke	
HSP3 I think many friends in this class like to make a humorous presentation in the class	
Word of Mouth of Peers	Self-constructed
WOM1 My friend told me that YouLearn is good	
WOM2 My friend persuaded me to use YouLearn	
WOM3 My friend recommended me to use YouLearn	
Enjoyment	Lee, 2010; Moon and Kim, 2001
E1 Using YouLearn is pleasurable	
E2 I have fun when using YouLearn	
E3 I find using YouLearn to be interesting	
Continuance Intention	Chiu and Wang, 2008; Bhattacharjee, 2001 ;
CI1 I will see videos in YouLearn in the future	

CI2	I will use YouLearn in the future	Roca, 2006
CI3	I will continue using YouLearn in the future	
CI4	I will recommend that others use YouLearn	

### Data collection

This study aims to investigate the key factors about user continuance intention in using YouTube-like e-learning system. In order to make the study not become over-generalization, it focuses on the factors of user continuance intention in a specific course delivery context (Cheung & Vogel, 2013). We investigated the user continuance intention in a "Management" course conducted in National Taiwan University of Science and Technology during fall semester 2013. During the course, students need to make a video in a specific chapter decided by teacher assistant and specific deadline given to the students. The video needs to be uploaded into YouLearn which is a YouTube-like e-learning system. Before midterm and final-term, students were asked to use YouLearn and study the materials uploaded by their peers. As a rule of thumb, Hair, Black, Babin, Anderson, and Tatham (2006) suggested that a sample size of between 150 and 400 may be sufficient to achieve statistical power necessary for structural equation models with three or more measurement items per construct (Lee & Lehto, 2013). The structured questionnaire was pilot tested to a sample of 120 students and a total of 110 questionnaire collected for further data analysis. The overall response rate is 91.7%. The final sample consists of 55 females (mean age = 18.44) and 55 males (mean ages = 18.67). The majority of the respondents have the YouTube experience in more than four years. Table 2 summarizes the sample profile of the respondents.

Table 2. Summary of Measurement Scales

Item	Demographic	Frequency	Percentage (%)
Age	17	1	.9
	18	63	57.3
	19	37	33.6
	20	5	4.5
	21	3	2.7
	22	1	.9
Gender	Male	55	50.0
	Female	55	50.0
YouTube Experience	< 1 year	32	29.1
	1 - 2 year	6	5.5
	2 - 3 year	11	10.0
	3 - 4 year	12	10.9
	> 4 year	49	44.5
Total		N=110	100.0

### Data Analysis

This research used SPSS and Partial Least Square (PLS) for data analysis. SPSS used for measure the demographic scales and the descriptive statistics. PLS was used because its premises are less limiting and the sample size was relatively small (Cheung & Vogel, 2013). Software SmartPLS 2.0 was used to assess the measurement and structural model of this research.

### The measurement model

The descriptive statistics of mean and standard deviation were calculated for the items and constructs measured using SPSS (see Table 3). The means of constructs were rated above 3.0 ranging from 3.18 (Word of Mouth of Peers; SD=1.11) to 4.63 (Humor Sense of Peers; SD=1.14). The means of items were ranging from 3.05 (WOM2; SD=1.095) to 4.78 (HSP2; SD=1.095). Skewness and Kurtosis were used to check whether responses obtained from the survey were fairly normally distributed. Lei and Lomax (2005) suggest the cutoff of an absolute value of 2.3 for both skewness and kurtosis. As seen in Table 2, the result of skewness ranged from -.508 to .180 and the result of kurtosis ranged from -.774 to .345, implying that the responses obtained were fairly normally distributed. The cronbach's alpha scores indicated that each construct exhibited strong internal reliability which exceeds the recommended cutoff of .65.

Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy were computed for all measured items prior to proceeding with exploratory factor analysis (Hair, Black, babin, & Anderson, 2010). The result provided the suitability of conducting factor analysis, with statistics of chi-square  $\chi^2$  (496) is 3807.91 ( $p < .000$ ) and the KMO measure is .907 > .500.

Reliability was examined using the composite reliability values shown in Table 3 which all of the constructs' composite reliability was exceed recommended cutoff of .7 indicating a commonly acceptable level for confirmatory research (Chiu & Wang, 2008). Convergent validity which tests the relationship between indicators in the same construct was assessed by examining the correlation between the indicators, and construct scores were computed using PLS (Cheung & Vogel, 2013). Convergent validity was evaluated for measurement scales using three criteria suggested by Fornell and Larcker (1981) and Chin (1998); All indicator factor loading should be significant and exceed 0.5, composite reliability should exceed 0.7, and average variance extracted (AVE) from each construct should exceed 0.5.

As shown in Table 4, the factor loadings of most of all measurement items are exceed .5 except QP2's factor loading which is from Quality of Peers construct not exceed .5 and was eliminated from the further analysis. The composite reliability (CR) of all constructs was exceeding .7 and the AVE also exceeds .5 ranging. Therefore, all three conditions for convergent validity were met. For satisfactory discriminant validity, the square root of the constructs' average variance extracted (AVE) should be greater than the correlation shared between the construct and other constructs in the model Fornell and Larcker (1981). Diagonal entries in Table 5 represent the square root of AVE for each construct and shown that all diagonal values exceeded the inter-construct correlations, indicating that all constructs in the model display adequate discriminant validity.

Table 3. Descriptive statistics of measurement instruments

Construct	Item	Mean	SD	Skewness	Kurtosis	Cronbach's $\alpha$
Number of Peers (Mean = 4.03, SD = 1.19)	NP1	3.93	1.476	.180	-.444	0.7458
	NP2	4.18	1.677	.028	-.774	
	NP3	3.98	1.597	.113	-.698	
Humor Sense of Peers (Mean = 4.63, SD = 1.14)	HSP1	4.64	1.147	-.175	.213	0.889
	HSP2	4.78	1.095	-.365	.268	
	HSP3	4.65	1.178	-.271	-.574	
	HSP4	4.45	1.154	.008	-.398	
Word of Mouth of Peers (Mean = 3.18, SD = 1.11)	WOM1	3.33	1.101	-.096	.102	0.9214
	WOM2	3.05	1.095	.079	.036	
	WOM3	3.15	1.119	-.071	-.075	
Enjoyment (Mean = 3.98, SD = 1.25)	EJ1	3.94	1.251	-.508	.130	0.9548
	EJ2	4.01	1.238	-.461	.345	
	EJ3	4.00	1.256	-.481	.155	
Continuance Intention (Mean = 3.70, SD = 1.28)	CI1	3.78	1.391	.046	-.256	0.9578
	CI2	3.71	1.273	-.086	-.069	
	CI3	3.65	1.222	-.014	.224	
	CI4	3.66	1.251	-.194	.000	

Note: SD (Standard Deviation)

Table 4. The measurement model

Construct	Item	Loadings	t-Value	AVE	CR	Cronbach's $\alpha$
Number of Peers	NP1	.794	9.974	.655	.8507	.7458
	NP2	.809	12.527			
	NP3	.826	19.325			
Humor Sense of Peers	HSP1	.874	20.684	.744	.9206	.889
	HSP2	.926	23.315			
	HSP3	.794	7.455			
	HSP4	.852	24.465			
Word of Mouth of Peers	WOM1	.882	25.680	.865	.9506	.9214
	WOM2	.961	93.705			
	WOM3	.946	57.414			
Enjoyment	EJ1	.925	46.454	.918	.9709	.9548
	EJ2	.975	162.620			
	EJ3	.973	134.654			
Continuance Intention	CI1	.924	48.849	.888	.9694	.9578
	CI2	.959	71.344			
	CI3	.950	57.480			



CI4 .935 64.016

Notes: AVE (Average Variance Extracted), CR (Composite Reliability)

Table 5. Correlation matrix and discriminant validity

Construct	AVE	CI	EJ	HSP	NP	WOM
CI	.888	<b>.942</b>				
EJ	.918	.757	<b>.958</b>			
HSP	.744	.346	.371	<b>.867</b>		
NP	.655	.606	.607	.297	<b>.809</b>	
WOM	.865	.719	.678	.271	.547	<b>.930</b>

Notes: AVE (Average Variance Extracted), EJ (Enjoyment), HSP (Humor Sense of Peers), CI (Continuance Intention),

NP (Number of Peers), WOM (Word of Mouth of Peers)

### The structural model

The structural model (See Fig. 2) was evaluated by examining the structural paths, t-statistics, and R-square value using PLS. Path significances were determined using bootstrap re-sampling routine (Cheung & Vogel, 2013; Efron & Tibshirani, 1993). The number of cases used for bootstrapping is equal with the case number which is 110 cases. Table 6 represents the data analysis which is examined the path significant of each hypotheses association and  $R^2$  by each path. Since all hypotheses in the study are directional, a one-tailed t-test was used. According to the one-tailed t-test (df = 109), the 0.5 significant level or  $p < 0.5$ , requires a t-value  $> 1.982$ , and the 0.01 significant level or  $p < 0.01$ , requires a t-value  $> 2.622$  and also the 0.001 significant level or  $p < 0.001$ , requires a t-value  $> 3.382$ .

Table 6. Path significance

Path	$\beta$	t-value	Sig	$R^2$	Hyp/Supported
Number of Peers $\rightarrow$ Continuance Intention	.1589	1.9521		.666	H1/No
Word of Mouth of Peers $\rightarrow$ Continuance Intention	.3408	3.1873	**		H2/Yes
Enjoyment $\rightarrow$ Continuance Intention	.4294	3.5282	***		H4/Yes
Humor Sense of Peers $\rightarrow$ Enjoyment	.3705	5.2301	***	.137	H3/Yes

Note : \*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Continuance intention in using YouTube-like e-learning system was predicted by word of mouth of peers ( $\beta = .1589$ ) at the  $p < 0.01$  and enjoyment with  $\beta = .4294$  at the  $p < 0.001$ . Thus, H2 and H4 were supported, However, the influence of number of peers on continuance intention (H1) was not supported ( $\beta = .1589$ ,  $p < 0.05$ ). These three variables of number of peers, word of mouth of peers, and enjoyment, together accounted for 66.6% of the variance in continuance intention. Consistent with prediction, humor sense of peers had a significant and direct effect on enjoyment in using YouTube-like e-learning system with  $\beta = .3705$  at the  $p < 0.001$  significance level. Thus, H3 were supported. The amount of variance in enjoyment explained by humor sense of peers was 13.7%.

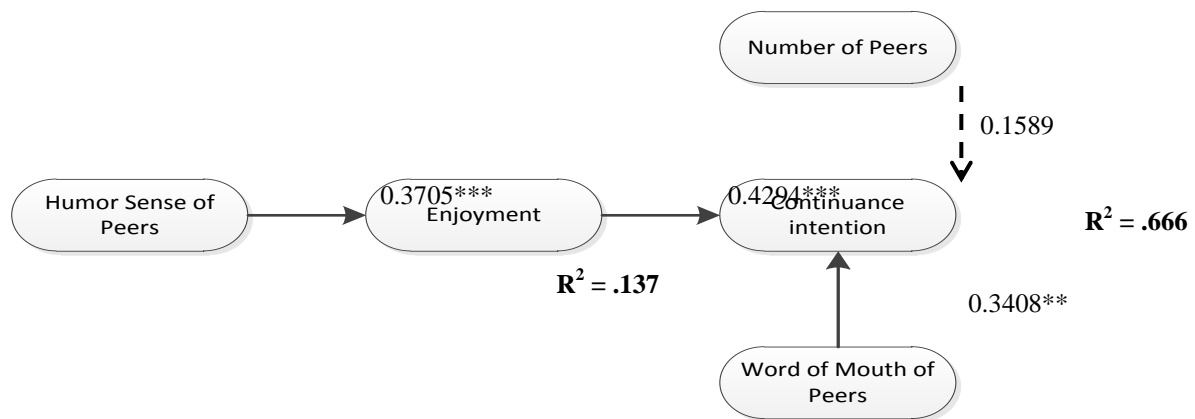


Figure 3. Hypotheses testing result

## Discussion

YouTube is a new technology in social media which become a new way in entertainment and learning. People can upload, share, and comment on their own, peers, or another people videos. This disruptive innovation can be used as a learning media using third party who implements Web 2.0 technology. To better understand the factors leading students in learn using YouTube, this study aims at identifying key determinants affecting user continuance intention to use YouTube-like e-learning system. In order to understand the specific factors that may have a significant influence on the adoption of YouTube as a new framework of e-learning system, we focus on one of the YouTube characteristics which is peers. We defined peers itself into three constructs, which are humor sense of peers, number of peers, and word of mouth of peers. Enjoyment becomes one of the construct related with humor sense of peers. Those constructs predicted having an influence on continuance intention. The present study provides a good explanation of user continuance intention, thus, a significant amount of variance in YouTube-like e-learning system continuance intention was explained (66.6%).

The results of this study show that enjoyment is the strongest predictor of user continuance intention, followed by word of mouth of peers and number of peers. The enjoyment-continuance intention link has previously been validated in mobile service research (Nysveen, Pedersen, & Thorbjørnsen, 2005) and social networking sites usage research (Lin & Lu, 2011). Word of mouth of peers is another predictor of user continuance intention. Number of peers resulted as not significant as the predictor of continuance intention even all of their peers in the class use the same system, not consistent with Lin & Lu (2011) research which said that number of peers is a predictor of user continuance intention.

## Limitation and future direction

This study has some limitations that create opportunities for future research. First, the work was conducted in a short-time, one semester is not long enough, for respondents to use the system, therefore additional time for conducting the research would give respondents time to learn and use the system. Second, because we collected the data from the same respondents, bias could arise (Lee M. C., 2010). Three, our study is conducted when the system has no video and as time goes by the videos added by users, therefore between respondents who first using and the last using have different opinion about the system, therefore future research should address this matter with provides many materials when first the system launched to users. Finally, the use of YouTube-like e-learning system involves easy to use, usefulness, system quality, and content richness might also influence student behavior. These factors were not considered in this study. Future research could extend the model using previous studies' model such as TAM, TPB, or other and provide greater insight into determinants of YouTube-like e-learning continuance intention.

## Implication

Many studies have been found focused on information technology acceptance, for this context is e-learning, and focused on Web 2.0 technology. This study attempts to develop a new model framework which is focus on the technology characteristic itself which is peers as one of the YouTube characteristics. In terms of the theory

building, the present study attempts to develop a new theory by grounding new variables in an integration of enjoyment, word of mouth, and other two variables, number of peers and humor sense of peers. Our study has shown the adoption behavior of e-learning technology using YouTube is significantly different with traditional e-learning platform.

### Conclusions

This study aims to understand peers influence in user continuance intention in using YouTube-like e-learning system. Previous studies have been found examined e-learning continuance intention. However, few researches found using Web 2.0 technology and YouTube as their e-learning technologies. This study integrate the user enjoyment and YouTube peer characteristic which defined as three constructs, number of peers, word of mouth of peers, and humor sense of peers, to measure user continuance intention. This study give a better understanding in YouTube as an e-learning is very different and significant rather than traditional e-learning system platform. A significant implication of the enhanced model is that enjoyment becomes the most significant influence in using YouTube-like e-learning system, but enjoyment is predicted by humor sense of peers. Therefore, we can conclude that peers can be main determinant in YouTube-like e-learning system user continuance intention.

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