

To Elluminate or Not to Elluminate? That is the question

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Abstract— Using the Unified Theory of Acceptance and Use of Technology (UTAUT), we have tried to find out the factors that could explain the acceptance of Elluminate by business students. A Sample of 167 students enrolled in a management information systems course was obtained. Regression analyses were made to test the hypotheses. Results had shown that the intention to use Elluminate was positively influenced by performance expectancy, effort expectancy and social influence. Performance expectancy was proven to be the strongest predictor of the intention to use Elluminate. Independent variables have explained 43.6% of the variance of the dependent construct. Using the UTAUT model in the educational field is one of the theoretical contributions of this research. University administrators can use obtained results to make an informed choice about the use of the technology in the educational context.

Index Terms— Blended learning, Elluminate, Webinar, UTAUT, SPSS.

I. INTRODUCTION

The use of synchronous communication technologies has been gaining more ground both in the educational and the organizational contexts. The last decade witnessed the emergence of a new trend mixing synchronous and asynchronous tools. In the educational context, this trend was known as “Blended learning” (Baehr, 2012). Among the synchronous technologies that were used to support blended learning, organizations and universities have adopted instant messaging, web conferencing, real-time audio and video conferencing, and shared applications. Even though these communication means contribute to enhance collaboration and for some extent learning, their acceptance by users was seldom studied. We deem it essential to explore this question as it was proven that users’ resistance to the technology may lead to its failure. The impact of this failure may be fatal because the technologies used for synchronous communications are expensive. The concerned technology here was the webinars and more especially Elluminate. Obtained results may help decision makers in the academic domain to make informed choices about the best mean to support blended learning in order to satisfy more “customers” all over the world.

II. LITERATURE REVIEW

Online learning has been growing exponentially in higher education (Allen and Seaman, 2004; Gosmire et al., 2009) thanks to many advantages that it offers like temporal and spatial flexibility for students, financial benefits for the universities (Gosmire et al., 2009), and effectiveness (Myers and Schiltz, 2012). The most pursued aim of distance learning is academic performance. Some studies revealed that academic performance was higher for online students as compared to those enrolled in face-to-face courses (U.S. Department of Education, 2010). To academic performance, many teachers strive to join students’ satisfaction as for those attending face-to-face courses. Some research results highlighted the effect of synchronous interactions in increasing students’ satisfaction and improving their learning with online courses (Schubert-Irastorza and Fabry, 2011; Skylar, 2009). Synchronous course delivery mode was proven to improve direct interaction, learning support, and motivation in distance courses (Fabry, 2012; Fearson et al., 2012). Many research results supported these assertions and added to previous advantages flexibility, idea sharing, better communication (Fearson et al., 2011), and students’ performance enhancement (Chan, 2011). According to Myers and Schiltz (2012) and Wang and Hsu (2008), these technologies can create a familiar learning environment for online students. The use of synchronous communication tools may contribute to strengthen teacher presence, to allow for instant and clear feedback, to facilitate group decision-making, and to develop a spirit of learning community.

Webinars are an example of these technologies that organizations and universities use to support online training and courses. They enable to transmit video, audio, images, to use whiteboard, and to share applications in real-time, permitting synchronous interactions between all participants. The synchronous communication offered by the webinars permits interactivity through live communication. Furthermore, webinars enable busy students to follow the same course by a later listening to the recordings of the live sessions. These two possibilities are known to significantly decrease the cost of instruction because students don’t need to travel to attend classroom sessions.

As the use of webinar technology is relatively new in online courses, research on this synchronous tool in the educational context is not widely available (Myers and Schiltz, 2012; Skylar, 2009; Wang and Hsu, 2008), especially quantitative research. For instance, de Gara and Boora (2006), Myers and Schiltz (2012), and Wang and Hsu (2008) revealed positive impacts of the use of this technology on students' learning. However, to our knowledge, no study has yet spotted the acceptance of this technology by students. The objective of this study was then to: "Find the factors that affect the willingness of students enrolled in university courses to listen to live or recorded webinar sessions". We think that it is important to know why students accept or reject such a technology before expanding its use, especially when it represents a huge investment. This investment will be better allocated if we "act" on the factors behind the acceptance or the refusal.

III. RESEARCH QUESTION, MODEL AND HYPOTHESIS

For the purpose of this research, Elluminate was the webinar system that was used to answer the first research question. This latter was formulated as follow:

"What are the factors that influence the acceptance of Elluminate as a webinar system by students enrolled in an undergraduate university course?"

The research model relied on the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003). UTAUT is an integrative and a global model, derived from several known models and theories developed to explain technology acceptance by its users (Ajzen, 1991; Compeau and Higgins, 1995; Davis, 1989; Davis et al., 1989, 1992; Fishbein and Ajzen, 1975; Moore and Benbasat, 1991; Schifter and Ajzen, 1985; Taylor and Todd, 1995; Thompson et al., 1991). For the purpose of this study, the explanatory variables that we retained from the basic model of UTAUT were:

- Performance Expectancy (PE) which is the degree to which a student believes that using Elluminate will help him attain gains in academic performance. This construct was proven to be the strongest (Venkatesh et al., 2003) positive predictor of behavioural intention (AbuShanab et al., 2010; Eckhardt et al., 2009; San Martin and Herrero, 2012).
- Effort Expectancy (EE) is the degree of ease in using Elluminate by students. Elluminate is known to be an easy-to-use and a user-friendly software. As most students in our sample were accustomed to the use of technology thanks to their young age and to their experience with computers, we think that the ease of use of the webinar system will enable a quicker adoption.
- Social Influence (SI) is the degree to which a student perceives that important people, like friends, family members or other students, believe he should use Elluminate. Previous models assessing adoption have shown that SI had a positive relationship with the intention to use a technology (AbuShanab et al., 2010; Eckhardt et al., 2009; San Martin and Herrero, 2012; Venkatesh et al., 2003).

- Facilitating Conditions (FC) is the degree to which a student believes that an organizational and technical structure exists to support the use of Elluminate. The presence of this structure may make most users inclined to adopt the system (AbuShanab et al., 2010; Eckhardt et al., 2009; San Martin and Herrero, 2012).

The dependent variable is the Intention to use Elluminate (IUE). Measuring this construct allows for predicting the acceptance of this technology. Considering the above-cited dependent constructs, we propose to test the following hypotheses:

H₁: Performance expectancy (PE) will affect positively the intention to use Elluminate (IUE).

H₂: Effort expectancy (EE) will affect positively the intention to use Elluminate (IUE).

H₃: Social influence (SI) will affect positively the intention to use Elluminate (IUE).

H₄: Facilitating conditions (FC) will affect positively the intentions to use Elluminate (IUE).

Figure 1 depicts the research model and the hypotheses that we have tested.

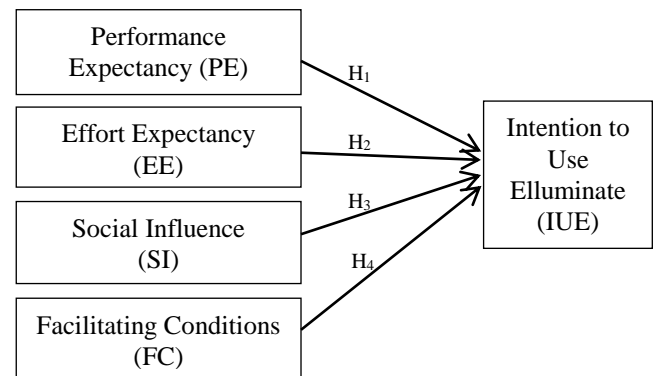


Figure 1. Research model

IV. METHODS AND PROCEDURE

The study sample was made of students enrolled in an undergraduate management information systems course of a business program in Laval University (Quebec, Canada). One of the reasons for choosing this course was that students were using Elluminate and were thus able to inform us about their future adoption of this technology for other courses. Even though we have measured students' intention to use Elluminate at the end of the semester, we think that four months did not made them active adopters of the technology.

The course was a distance-learning course, so all the necessary material was available online. To this material, the teacher added weekly classroom sessions broadcasted live and recorded via Elluminate. The main activities of these sessions were to explain the material available online and to answer students' questions. In this blended learning formula, students had the possibility to follow all the course online, to listen to live sessions without attending the classroom, to

listen to recorded sessions later in the week or the semester, or to combine all these different alternatives. Elluminate was thus an additional “tool” intended to support their learning in the context of an online course.

To collect data, we have used a quantitative methodology based on an online questionnaire containing 27 closed-ended questions (seven-point Likert-type scales from 1 = Strongly disagree to 7 = Strongly agree). We have adapted and translated – to French - the measurement instruments from previous research that have proposed and used the UTAUT model (Venkatesh et al., 2003). For the performance expectancy construct, questions dealt with the role of Elluminate to make learning activities easy, performing, efficient, fast making, and to help guarantee better marks. Effort expectancy was measured with questions about the easiness of the interaction with the system and the competencies and the learning skills needed to use it. Social influence was a more complex construct as it was approached into two ways. First, some questions were about the importance of the opinion of important and influential people when the respondent uses Elluminate. Second, respondents were inquired about the image, prestige, and valorization that the use of Elluminate can bring to them. Facilitating conditions were measured by questions about the availability of human, technological and personal resources to use Elluminate. Two items were added to these questions, one for gender (coded 1 for male and 2 for female) and one for age (a free-entry field). Finally, students were also asked about their major type.

Data collection was made at the end of the semester and lasted five weeks. With a response rate of 35.5%, we have obtained 167 valid responses among the 470 students enrolled to the course. The sample was made of students that have used Elluminate from 0 to 18 times, whether it was live or delayed.

For data analysis, we have used the SPSS software for the descriptive statistics, the measurement of instruments’ reliability and validity and hypotheses testing.

V. RESULTS

Descriptive statistics

The sample was mostly made of female students with a proportion of 62.9% (105 female students) against 37.1% for male students. Concerning the age, most students were between 20 and 24 years old (70.1%). 13.8% of the students were younger than 19 and 16.1% were between 25 and 45 years old. Most students were enrolled in thing-oriented programs like accounting, finance, and operation management (53.89% of the sample) and 62 students (37.12% of the sample) were in person-oriented majors such as management, marketing, and management information systems. Thing-oriented refer to majors where courses and learning activities focus essentially on physical objects, numeric data, procedures and sequential representations while person-oriented programs encompass majors where course content and learning activities are centred on people and human relationships (Fallan, 2006). Fourteen students come from unspecified fields.

Reliability and validity

As most measurement instruments were validated by previous studies, we have assessed their validity by means of a confirmatory factor analysis. As we can see in Table 1, all item loadings were > 0.5 as it was recommended by Nunnally (1978), except for three items that were dropped from the facilitating conditions construct. Table 1 made us confident about the reliability of the measurement instruments because the Cronbach Alphas for all constructs were satisfactory (> 0.7 as recommended by Nunnally (1978)).

Table 1. Constructs validity and reliability

Constructs/items	Loadings	Constructs/items	Loadings
Performance Expectancy (PE) <i>Cronbach alpha = 0.950</i>		Social Influence (SI) <i>Cronbach Alpha = 0.848</i>	
PE1	.814	SI1	.781
PE2	.846	SI2	.797
PE3	.877	SI3	.549
PE4	.926	SI4	.577
PE5	.886	SI5	.765
PE6	.917	SI6	.810
PE7	.904	SI7	.794
PE8	.729		
Effort Expectancy (EE) <i>Cronbach alpha = 0.905</i>		Facilitating conditions (FC) <i>Cronbach Alpha = 0.851</i>	
EE1	.912	FC1	.933
EE2	.851	FC2	.933
EE3	.885		
EE4	.890		
Intention to Use Elluminate (IUE) <i>Cronbach Alpha = 0,959</i>			
	IUE1	.954	
	IUE2	.956	
	IUE3	.974	

Hypotheses testing

Using multiple regression analysis, we have tested the research hypotheses with a stepwise method. As we can see in Table 2, path coefficients were significant for the direct links between the independent variables PE ($\beta = .660$, sig. = .000, $p \leq 0.001$), EE ($\beta = .124$, sig. = .047, $p \leq 0.05$), and SI ($\beta = .265$, sig. = .001, $p \leq 0.001$), and the dependent variable IUE. With these results, hypotheses H_1 , H_2 and H_3 were supported confirming the positive links between the three first constructs and the dependent variable.

As it was proven by previous research, performance expectancy was the strongest predictor of the intention to use a technology (Anderson et al., 2006; Khechine et al., 2013; Venkatesh et al., 2003). This result may be different if the study was made in the organizational context. Indeed, students look not only for a better learning, but also and sometimes mostly for an improved performance. This result is strengthened by the young age of the students enrolled in the course whose first concern is often the performance. Indeed, performance could play a major role in their job search and their application for graduate programs.

Effort expectancy affected positively the intention of students to use Elluminate. This result was confirmed by previous studies both in the educational context and in other fields (Torres Maldonado et al., 2011). In the context of our study,

the easiness of use of the system encouraged students to use it. Before adopting Elluminate, students had to use another home-made system that allowed for creating podcasts that can only be listened to after the classroom session. The system was difficult and unfriendly. As noted by Khechine et al. (2010), a lot of students did not adopt the podcasting technology because of many hurdles that they encountered, which was not the case of Elluminate.

Social influence was also a predictor of the intention to use Elluminate. This result was confirmed by other studies in different contexts (Lin and Anol, 2008, Torres Maldonado et al., 2011). To measure social influence, students were asked about prestige and academic development when using Elluminate. The positive effect of social influence on the intention to use Elluminate can be explained by the fact, in a business school, students attach importance to others' opinion. Their image is often based on the criteria of approval by colleagues and teachers.

The fourth hypothesis involving facilitating conditions was not supported. In the context of this study, the technological and organizational infrastructure that supported the use Elluminate was available and easily accessible. Students were provided with an online tutorial, an onsite help desk, and a regularly updated technological infrastructure related to Elluminate. Supportive and knowledgeable staff was working five days a week, not only to answer students' questions quickly, but also to strive to meet their demands. However, business students of the administrative sciences faculty were accustomed with the technological and organizational support. Indeed, they used different technologies and get accustomed to be well supported since the earlier 2000s.

The R² value was 0.432, meaning that more than 43.2% of the variance in the intention to use Elluminate construct was explained by the three dependent and significant constructs.

Table 2. Regression coefficients and significance

	Path		
	Coefficient	t-value	Sig.
Intention to Use Elluminate (IUE)		R² = 43.2%	
PE	0.660	11.290	.000***
EE	0.124	2.000	.047*
SI	0.265	3.453	.001***
FC	0.097	1.582	.116

*** p ≤ .001 **p ≤ .01 * p ≤ .05

VI. CONCLUSION AND CONTRIBUTIONS

The aim of this research was to find out the factors than can explain the behavioral intention of students to use Elluminate in an undergraduate course. Results had shown that performance expectancy, effort expectancy and social influence are the three constructs that affected positively the intention to use this system. We think that in a context where the technology affects users' lifestyle and represents an expensive investment, it is important to look for the acceptance of this technology by its users before its adoption.

On the practical side, knowing students' incentives to use webinar will give educators the proper information that would enable them to make informed decisions about adopting such technology. Obtained results could provide higher education administrators and decision makers with research-based guidance about if and how to implement webinar in online academic courses

On the theoretical side, the use of this "innovative" – UTAUT - model represents a great contribution as studies that have used it can be counted of the fingers of one hand. To our knowledge, only two studies applied this model to the webinar concept (Khechine et al., 2013; Lakhali et al., 2013).

VII. REFERENCES

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