

LiveDVD 線上影片英語學習與管理系統平台 之創新應用與成效評估

黃大夫

南臺科技大學人文社會學院

dfjhuang@stust.edu.tw

摘要

台灣技職科大英語教育成效除了老師與學生個人因素外，學校層級因素包含教育科技融入課程與成效管理模式等也能產生正面影響。本論文呈現多媒體輔具（LiveDVD 線上影片英語學習系統）應用於科技大學英語教育的 3 年期行動研究成果，及如何善用校園英語學習與管理系統來做有效學習管理以提高學生英文學習動機。本研究涵蓋學生英語影片學習方案與規定，科技部產學計畫影片延伸學習與評量工具製作，以及成效評估模式建立。本研究採用 3 種學習成效評量指標：(1) LiveDVD 學習態度，(2) 使用時數與英檢證照取得關連性分析，與 (3) LiveDVD 相關變數與英文能力及證照取得之關連性。主要研究工具包含學習系統後台收集學生使用時數等資料，以及用來了解學生對 LiveDVD 學習態度之間卷。資料分析方法包含描述統計外，採用卡方獨立性分析以及結構方程導向之路徑分析來分別檢視以上三個評量指標。本研究主要發現如下：(1) 學生大致上對 LiveDVD 學習平台 3 個相關面向議題有正面之評價，C 組比 A,B 組學生同意度高，(2) LiveDVD 使用積極度與英檢證照取得有顯著正相關，(3) LiveDVD 使用動機對英文能力有直接影響，對英檢證照取得有間接影響。本研究顯示教育科技與管理模式有助於英語學習，這對台灣技職大學英語教育帶來實質參考價值。

關鍵詞：LiveDVD 線上影片英語學習系統，科技輔助語言學習，電腦輔助語言學習，結構方程導向路徑分析

Innovative Application and Outcome Assessment of the LiveDVD Online Film-based English Learning and Management System

Da-Fu Huang

College of Humanities and Social Sciences, Southern Taiwan University of Science and Technology

Abstract

This paper presents the result of a three-year action research plan involving the innovative application of “LiveDVD”, a web-based English learning system loaded with VODs and embedded into the English learning program of a polytechnic university in Taiwan. The LiveDVD action plan involves requirement on students’ use of the LiveDVD system, creation of learning and assessment materials for the target VODs, and outcome management. For outcome evaluation, three indicators were posited to gauge (1) students’ attitudes toward LiveDVD learning, (2) the association between use activeness of LiveDVD and pass status of English proficiency certificates, and (3) the causal relations between LiveDVD-related variables (i.e. use motivation, learning features, and learning regulation) and English learning outcome. A survey questionnaire was employed to collect response

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Corresponding author: D. F. Huang, College of Humanities and Social Sciences, Southern Taiwan University of Science and Technology, Tainan, Taiwan.

data of students' opinions of LiveDVD, whereas the LiveDVD management platform generated the use statistics of LiveDVD. Descriptive statistics, the chi-squared test of group independence, and an SEM-based path analysis were performed to address the afore-stated purposes respectively. The findings of the project include: (1) students have overall positive responses to LiveDVD, (2) use of LiveDVD is positively and significantly associated with the pass status of English proficiency certificates, and (3) use motivation has direct effect on English proficiency and indirect effect on English proficiency certificates. This project shows positive effects of the education technology along with a viable outcome management on students' English learning, having implications for running English education programs particularly at large polytechnic universities in Taiwan whose students come with a lower English ability and motivation.

Keywords: Technology Enhanced Language Learning, Computer Aided Language Learning, SEM-based Path Analysis, LiveDVD

I. Introduction

1. Background and motivation

Vocational higher education has hardly been the government's top priority, and schools in this system have long been criticized by policymakers and EFL teachers for having undesirable English learning standards. In a formal school English learning setting, two critical but long neglected elements conducive to successful English education at polytechnic universities are, arguably, an effective learning tool or program and outcome management. Lack of learning motivation of students, especially those of vocational and technological universities, has long been claimed to cause undesirable outcomes of English education in Taiwan. In a technology-friendly age, language learning enhanced and aided by technology has been a vital issue in ESL/EFL teaching and learning. How to best utilize education technology to enhance English learning becomes particularly significant in terms of increasing, on a large scale, the learning motivation of low achievers in the polytechnic universities in Taiwan. Teaching approaches geared towards initiating self-directed learning via technology-mediated support with a view to enhancing learning motivation have hence been gaining ascendancy in English learning settings across different educational levels in Taiwan. Over the last decade, actual English teaching practices aided by computers or multi-media along with related research on the impact of these practices have been implemented at all levels of education in Taiwan. Regrettably, however, very little attention was paid in the past to the management issue with a view to running the education program effectively to achieve the expected objectives. Neither has any endeavor been made to achieve a reliable and valid evaluation of the outcome associated with the technology-mediated learning of a larger student population as an indicator of the effect of the learning technology as well as the success of an English education program. The purpose of this paper is therefore to document the process, method, management and result of embedding the technology enhanced learning aid to the English education program of STUST as a long-term action research project.

It is vital that the technology aided learning tool to be implemented on a large scale for English education purposes at polytechnic universities be conceived as a means to inspire learning confidence in students and facilitate self-directed learning as a long term goal. More importantly, learning aided by such a tool can be monitored and managed so that the university can be held accountable for the learning outcomes by taking actions to achieve better results based on the ongoing feedback from the monitoring mechanisms. One of the few technology aided learning tools that claim to help achieve the preceding goals is a web-based English learning system brand named "LiveDVD", which makes customizable learning features accessible, drawing on the

uploaded VODs on the platform.

2.LiveDVD Online Film-based English Learning and Management System

As a versatile web-based VOD-focused English learning and management system and a technology enhanced language learning tool, LiveDVD is characterized by a series of learner-friendly and helpful features along with a powerful management module.

(1) Learning features

Students can connect to the system platform to watch the uploaded films anywhere on campus, the majority of which are feature films in the video-on-demand (VOD) format authorized for on-campus use only under the principle of the protection of intellectual property rights. The LiveDVD system platform can accommodate 600 concurrent users to access as many as around two hundred VODs on the LiveDVD server, ranging from a myriad of categories of feature films to quality documentaries for English learning purposes. While watching a film on LiveDVD, students are expected to learn English by using a series of functions or features, including, among others, (1) display of multi-mode film subtitles (see Figure1), (2) key word search and playback of movie clips, (3) the on-line dictionary, (4) collection of movie lines and words, (5) English vocabulary difficulty levels based on the GEPT and TOEIC word lists.



Fig.1 The multiple subtitle display mode of LiveDVD

(2) The Management Module

The LiveDVD system comes with a powerful management platform, or module, specifically for school administrators and language center teachers. The management module known as WEBMEN (see Figure 2) is a customized platform to enable language centers to collect and analyze students' use and learning data of LiveDVD. The main function of the management platform is to establish students' learning profiles and track their learning hours, movies watched, practice tests completed, and specific features practiced. All types of learning data can be exported for statistical analyses and assessment for administrative, teaching and research purposes. The administrator of LiveDVD can also upload movies and subtitles via the platform.



Fig.2 The management of movies on WEBMEN

3. The LiveDVD Learning Action Plan

The LiveDVD learning action plan involves implementation of the learning regulations embedded into the design of the required English course, the LiveDVD competition activities, and creation of extended learning materials for selected VOD films under the NSC Industry-Academic Collaboration Project.

(1) Learning Regulations

To ensure that students use LiveDVD as expected by the school, a minimum learning-hour-per-semester requirement is set for every participant of the required English course. The compliance with the requirement will be taken into account for final assessment of students' performance in the required course. Students are also required to view at least one VOD film on LiveDVD every semester, and are tested at the semester end on the designated film as an estimate of their learning achievement of the film.

(2) Competition Activities

To facilitate learning English by LiveDVD, put learning into practice, and make learning more fun, the LiveDVD competitions were held regularly since 2012. Under the guidance of the course instructors, students taking required courses were asked to enter the contests as a team. The two major LiveDVD contests are the English listening competition and the English Triathlon competition.

(3) NSC Industry-Academic Cooperation Project on LiveDVD and Technology Transfer

Learning regulations and competition activities may motivate students to use LiveDVD, but additional learning aids can be more helpful by making VOD-based learning well focused and guided. Supported by the grant of National Science Council in 2011, an industry-academic collaboration project was established between the Language Center of STUST and CHICOVERY Co. to create additional learning materials for the 20 VODs (e.g. *A Christmas Carol*, *Slumdog Millionaire*, *Tuesdays with Morrie*, etc.) that are uploaded on the LiveDVD platform. The developed materials include (1) film-based English word glosses, (2) English and Chinese learning guides, and (3) assessment materials.

(4) Monitoring, Warning and Tutoring Mechanism

Aside from the powerful learning aid of LiveDVD, a reliable monitoring and warning mechanism is all the more critical to assure that students are on the right track of learning, and can make timely adjustments of their learning pace and receive support when encountering difficulties in the learning of English. The LiveDVD management platform helps track the learning status of students and alert them to catch up with their learning

whenever it falls short of expectations. Based on the output data from the management platform, statistical reports on students' learning hours will be presented to the school top management and department heads, who would take actions to urge those fall behind in learning to catch up.

II. Literature Review

To better understand the essential theoretical background regarding the LiveDVD system as a technology aided language learning aid, what follows, mainly based on Author et al, is aimed at reviewing essential research on multimedia and computer aided language learning and language learning motivation.

The strengths of LiveDVD essentially relate to employing multimedia to intrigue learners and engage them in learning English. Multimedia provides variety and excitement to a computer-supported teaching and learning environment, adapting instruction to the diverse learning preferences of students (Zaidel & Luo, 2010). Advanced multimedia instruction heightens visual aspects of communication, provides dynamic learning experiences and raises learning results (Wang, 2008). Multimedia materials such as DVDs and VODs as effective self-directed learning aids enhances students' comprehension and memory, increases their motivation, and promotes their concentration on the content in a near natural environment (Astleitner & Wiesner, 2004; Deimann & Keller, 2006; Guariento & Morley, 2001). Using multimedia to develop learners' comprehension has been widely investigated in the past decades (Synder, 1988; Weyers, 1999). Quite a few studies, in addition, have shown the important role of motivation in language learning, particularly in the successful acquisition of a second language (Gardner & Lambert, 1972; Gardner, 1976; Oxford & Shearin, 1994; Dörnyei, 2001). To better understand the essential theoretical background regarding the LiveDVD system as a technology aided language learning aid, what follows, largely derived from Huang and Lin (2014), is aimed at reviewing essential research on multimedia and computer aided language learning and language learning motivation, especially Kelly's (1987) ARCS learning motivation model.

1. Multimedia and Computer Aided Language Learning

Multimedia interacts with the learners, providing them with a combination of sound, pictures and texts. Learners can choose from a menu what they want to attempt next. Furthermore, the novelty factor present in multi-dimensional authenticity and up-to-datedness as well as the applied nature of the materials tend to enhance motivation and can accelerate the learning process (Hogan & Whittle, 1997). The use of the aid of multimedia, such as DVDs, computers, graphics and broadcast in the teaching and learning of a language is both common and expected.

Several studies have found that a combination of media, such as audio and visual aids (Edasawa, Takeuchi & Nishizaki, 1990; Holobow, Lambert & Sayegh, 1984; Parry & Meredith, 1984), and sequential or simultaneous use of a variety of media formats in a given presentation or self-study program (Terrell, 1993; Li, 2016), can facilitate language learning. As Liou (1997) noted, learners achieve a better understanding of a given combination of audio with texts. Video films are able to present complete communication situations. When learners simultaneously watch and hear the video films, the information from the screen can help them understand when and where the action is taking place. The combination of sound and vision is dynamic, immediate and accessible (Lonergan, 1992). In a sense, the virtual world can be more real than the standard classroom setting in terms of authentic language learning because students can access actual life and perceive realistic learning activities (Kearsely and Marquardt, 2001). Films are also employed as valuable teaching aids in sharpening students' power of observation, developing their skills, and the habits of perceptive watching (Eken, 2003). BavaHarji, Alavi, &

Letchumanan (2014), moreover, showed that the effects of viewing captioned instructional videos are greater on vocabulary acquisition and language proficiency development than on content comprehension, and suggested that captioned instructional videos can be deemed as a promising media to enhance language learning. As can be seen in the widespread use of computer aids, effective access to a myriad of media formats is believed to be one of the most practical ways to help EFL learners achieve motivational self-regulation.

Multimedia has been widely investigated for teaching languages (Astleitner & Wiesner, 2004; Köbler et al., 2015; Mayer, 1997; Roseman et al., 2015; Weyers, 1999). For example, multimedia helps learners to gain broad access to oral communications audiovisually (Smith, 1997; Willberschied & Berman, 2004). Moreover, interactive video or materials have changed students from passive observers to active participants (Chavez, 1998; Goh, 2002; Kaur et al., 2014; Keller, 1983). Technology aided teaching featured by both authenticity and uniqueness is capable of creating sufficient information to provide learners maximum linguistic and cultural input, and increasing learners' motivation (Stempleski & Arcario, 1992). The different aspects of authenticity created by multimedia technology are facilitating to language learning (Kramsch and Andersen, 1999; Rost, 2002), for they provide rich input for the EFL learning environment by integrating phonetic, syntactic, semantic, pragmatic, and socio-cultural features (Guariento & Morley, 2001). Prior literature nevertheless also showed that multimedia technology, when overused or inappropriately embedded into class learning, could bring about negative effects on language learning. Secules, Herron & Tomasello (1992), for instance, pointed out the likely contexts where watching videos could constrain comprehension or acquisition of language skills. Sherman (2003) suggested that teachers not simply play audio visual aids with bilingual subtitles for improvement of EFL learners' comprehension, but take more time to identify the needs of their students as well.

Warschauer (1996) discussed in great detail the motivational aspects of learning with computers or computer aided language learning (CALL), and cited a vast literature related to this issue (e.g. Armour-Thomas, White & Boehm, 1987; Brown, 1986; Chapelle & Jamieson, 1986; Hicken, Sullivan & Mein, 1992; Kinzie, Sullivan & Berdel, 1988; Mosley & Chen, 1984; Perez & White, 1985; Peterson & Sellers, 1992; Pollock & Sullivan, 1990; Relan, 1992). The most frequently-cited motivating aspects of computer-assisted learning or instruction include (1) the novelty of working with a new medium (Warschauer, 1996), (2) the individualized nature of computer-assisted instruction (Relan, 1992; Hung & Higgins, 2016), (3) the opportunities for learner control (Kinzie, Sullivan & Berdel, 1988; Pollock & Sullivan, 1990; Williams, 1991), and (4) the opportunities for rapid, frequent non-judgmental feedback (Armour-Thomas, et al., 1987; Wu & Chen, 1992).

2. Language Learning Motivation

Motivation is the crucial factor that urges and maintains behavior over time. Motivation not only influences how people will devote themselves to their assignment but also makes up for the deficiencies of learners' learning condition. In language learning, motivation is recognized as one of the primary factors which affect the success of learning the target language (Dörnyei, 1998). Positive learning motivation helps learners participate in what they learn, contributes to their progress in mastering a foreign language and helps them build better language ability. On the contrary, passive learning motivation causes resistance to learning. Pintrich, Marx and Boyle (1993) explicated motivation as an internal factor to inspire, guide, and sustain the actions. After interacting with personal characters, motivation will further affect behaviors. Psychologists also consider motivation as one of the major determinants of academic achievement and work productivity (Keller, 1987). Keller (1979) believed that external conditions could be successfully constructed to facilitate and enhance learners' motivation on education while pointing to most instruction design's lack of the intention to motivate. Based on this notion, Keller (1984, 1987) integrated several learning theories and developed the ARCS (Attention, Relevance, Confidence, and Satisfaction)

model.

In foreign language education, researchers have been investigating the relationship between learning motivation and target language achievements for decades. Gardner and Lambert (1972) found that L2 achievements were related to both language aptitude and motivation, and distinguished the integrative from instrumental motivation. Ryan and Deci (2000) proceeded to distinguish extrinsic from intrinsic motivation. Marshall (1987) defined “motivation to learn” as the meaningfulness, value, and benefits of academic tasks to the learner, and many research studies have shown that intrinsic and extrinsic motivations are related to language learning. Intrinsic and extrinsic motivations are not opposite, and they are regarded as a continuum (Dörnyei, 2001). Intrinsic motivation is the most self-determined form of motivation (Noels, Clement, & Pelletier, 2001), and it refers to doing an activity for the inherent satisfaction of the activity itself. Deci and Ryan (1985) emphasized that intrinsic motivation indicated that people who chose what to do in the tasks for their own sake instead of any apparent rewards, and the intrinsically motivated behaviors were aimed at bringing about certain internally rewarding consequences, feelings of competence and self-determination. Intrinsic motivation, moreover, referred to motivation to engage in an activity because it was enjoyable and satisfying, or giving feelings of accomplishment (Lepper, 1988; Noels, Pelletier, Clément & Vallerand, 2003). Extrinsically motivated learners, in contrast, learn to pursue external goals such as good grades and satisfying recognition, or some separable outcomes or rewards (Brown, 2000; Lepper, 1988; Noels, Pelletier & Clément, 2001).

III. Method of Outcome Evaluation

This section addresses the outcome assessment indicators, the participants, data collection instruments and data analysis methods.

1. Outcome Assessment Indicators

The advantages engendered by technology enhanced learning can be particularly significant for an educational institution such as a polytechnic university with a large student population which, on the average, lacks English learning motivation. To evaluate more comprehensively and objectively students' learning outcomes and processes associated with LiveDVD, the following assessment indicators are proposed: (1) students' opinions of LiveDVD learning, (2) association between usage hours and pass status of English proficiency certificates, and (3) relationship among the variables underlying the LiveDVD learning.

(1) Participants

The LiveDVD learning system was first implemented in the fall semester of 2011, and since then, the first and second year students have been required to view the uploaded VODs on the LiveDVD platform. Since the fall semester of 2012, both first and second year students have been using the system concurrently within the same semester. To appropriately assess the results of learning aided by LiveDVD, the student participants for this project are targeted at the first and second year students who entered STUST between the 2011 and 2013 academic years. The number of incoming first-year students each year is estimated to be around 3000. To elicit their feedback regarding LiveDVD learning, the students are invited to complete a questionnaire survey voluntarily. As one of the graduation requirements, the students of STUST must pass a specified standard of English ability indicated by a variety of English proficiency certificates recognized by the university. The most common types of such certificates the students submit for proof of their English ability include TOEIC, BULATS, CSEPT, GEPT, IELTS, and ITP.

(2) Instruments

The statistics of the LiveDVD usage hours and students' usage behaviors can be obtained through the LiveDVD management module or WEBMAN. The management module is extremely crucial in that it provides information regarding to what degree and how the students use LiveDVD as required by the university, and helps evaluate whether they use LiveDVD in a desirable manner. To find out about students' perceptions of learning by LiveDVD, a survey questionnaire, the Questionnaire on LiveDVD Learning 1 (QLDVDL1) (see Appendix 1) was designed, piloted in the spring/2012 semester with 2 first-year classes, and administered at the end of the semester for the first time, yielding a Cronbach alpha of 0.92. The questionnaire consisted of 6-point Likert scale items, ranging from "1" (strongly disagree) to "6" (strongly agree). Three major components of statements were constructed. The first component of the questionnaire includes items to measure the participants' motivation and perception of learning by LiveDVD. The second component includes items intended to ascertain students' perceptions of the learning features embedded in the LiveDVD learning platform. The third component, moreover, intends to gauge students' thoughts on the regulations set by the university. One open-ended question was also included to collect the respondents' additional thoughts concerning their experience in LiveDVD learning.

(3) Data analysis

For the analysis of students' attitudes toward LiveDVD, the descriptive statistical summary of the response data of QLDVDL1 will be presented. Comparative results will be presented across three different ability groups. Results reported for this indicator are based on the survey conducted in the spring/2013 semester.

As for the association of LiveDVD use and pass status of English proficiency certificates, a Chi-squared group independence test was performed using R package v.3.1.0 (R Core Team, 2014) to test the independence of the variables of LiveDVD use level and the certificate pass status as an indication of whether the degree of LiveDVD use is statistically associated with whether students eventually acquire the English proficiency certificates. The database for this analysis derived from data collected at the end of the spring/2014 semester with the then-junior classes, which represents the year of classes to first use LiveDVD since its launch in 2011 and have a larger sample of English proficiency certificates for analysis. For the purpose of performing the Chi-squared independence test, the first categorical variable, Use Level (of LiveDVD), was operationalized to have 5 levels, ranging from 'Level 1' (Very Passive Use) to '5' (Very Active Use). The target students for this analysis who have logged on to the LiveDVD platform and done the learning as required by the school for an accumulated number of hours two or more times higher than the required amount of time would be assigned to the group of 'Very Active Use' or 'Level 5'; those with an accumulated number of hours one to two times higher than the school requirement would be assigned to 'Active Use' group or 'Level 4'; those with an accumulated number of hours one time more or less than the total hours required by the school would be assigned to 'Normal Use' group or 'Level 3'; those with an accumulated number of hours one to two times lower than the school requirement would be assigned to 'Passive Use' group or 'Level 2'; those with an accumulated hours two or more times lower than the required total hours by the school would be assigned to 'Very Passive Use' group or 'Level 1'. The other categorical variable, Pass Status (of English proficiency certificates), was operationalized as either 'Pass' or 'Level 1' or 'NonPass' or 'Level 2'. A five-by-two contingency table can hence be generated for the Chi-square analysis to test the independence of the two variables.

The last assessment indicator was intended as a means to examine the causal relationship among LiveDVD learning motivation, learning features, English proficiency, and pass status of English proficiency certificates as an indication of the effect of LiveDVD on the English learning achievement represented by passing an English certificate. For this purpose, an observed variable and SEM-based path hypothetical model was put forward as presented in Figure 3. The posited model consists of six exogenous and independent variables, namely, Group,

Year, Learning Features (LF), Learning Regulations (LR), Use Motivation (UM), and English Proficiency (EP), and five endogenous and dependent variables, namely, LF, LR, UM, and Certificate Attainment (CA). To evaluate and test the proposed model, a valid sample from 1739 students of STUST was obtained through the administration of the survey instrument QLDVDL2 in the spring/2014 semester, and the OV-based path analysis was conducted using LISREL 9.1 to yield the results. The QLDVDL2 is a slightly modified version of QLDVDL1 by using 7-point, instead of 6-point, Likert scale items.

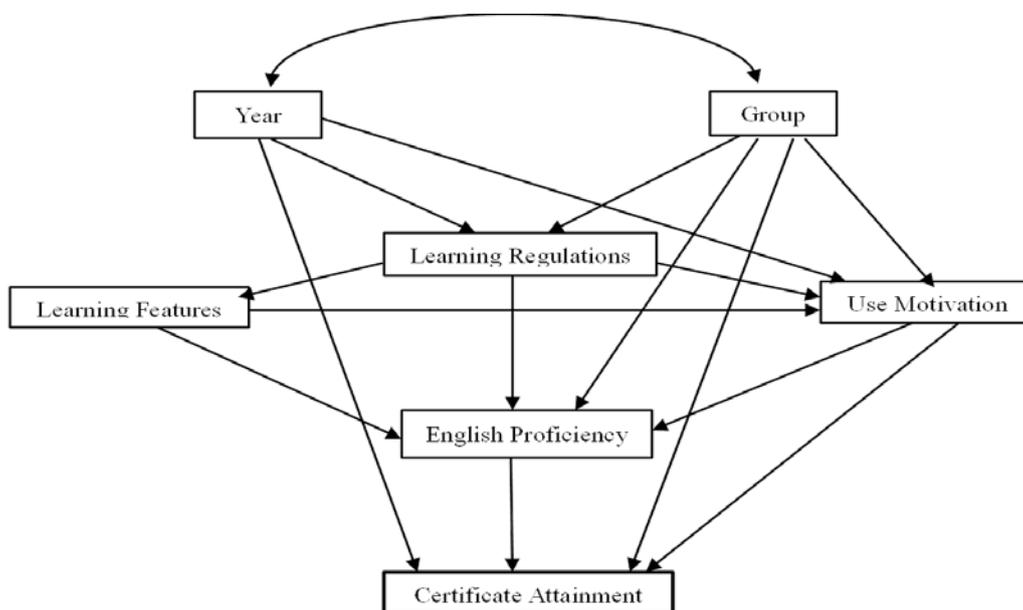


Fig.3 The hypothetical model on LiveDVD

Table 1 below compiles the information of assessment indicators, data collection instrument, the data analysis methods, data collection time, data source and the sample on which the analysis is based.

Table 1 LiveDVD assessment indicators, data collection and analysis methods

LiveDVD Assessment Indicators	Data collection Instrument	Data collection time	Sample source	Sample size	Data analysis methods
1.Student attitude	QLDVDL1	spring/2013 semester	1 st /2 nd /3 rd - year classes	1756	Descriptive statistics using SPSS 19.0
2.Use level/Pass status association	1.LiveDVD Management Module 2.Official English proficiency certificate tests	spring/2014 semester	3 rd -year classes	3144	Chi-squared group independence test using R package 3.1.0
3.SEM-based path model on LiveDVD	QLDVDL2	Spring/2014 (Model 2)	1.1 st -year classes 2.1 st /2 nd /3 rd - year classes	1739	SEM-based path analysis using LISREL 9.1 & SPSS 19.0

IV. Result

1. The Survey Questionnaire

This section continues to present the results of the QLDVDL1 in terms of the descriptive statistics of the items subsumed under the questionnaire’s three components: Learning Motivation, Learning Functions, and Learning Regulations. Overall results and the comparative results across three ability levels (Levels A, B, C) are shown below. In terms of the cumulative percentage of the responses of “4”, “5”, and “6” as an indication of the strength of approval to an item statement, Figures 4 to 6 present the overall statistics of Q1-Q17, Figures 7 to 9 show the cross-group results.

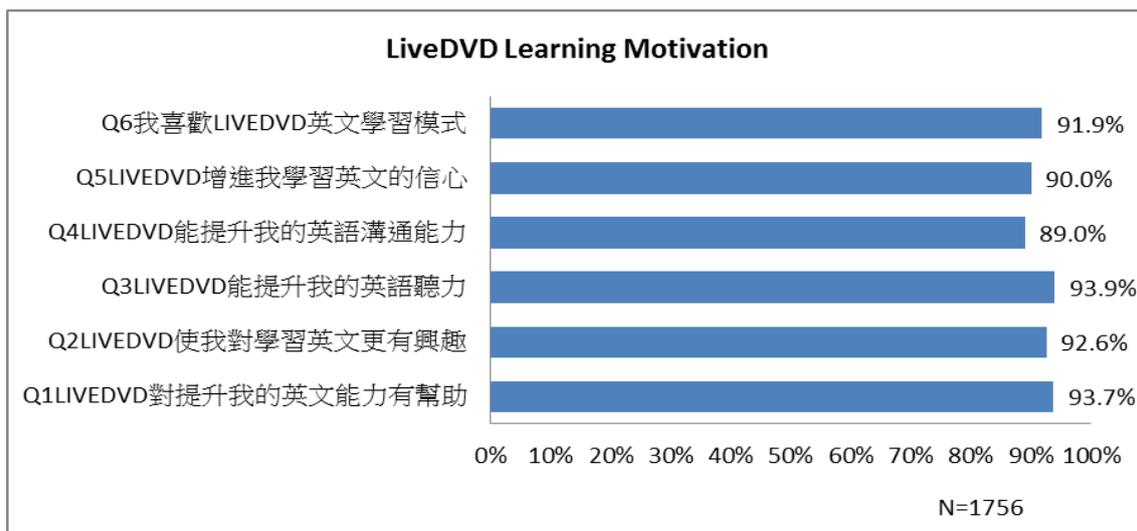


Fig.4 Overall attitude toward LiveDVD learning motivation

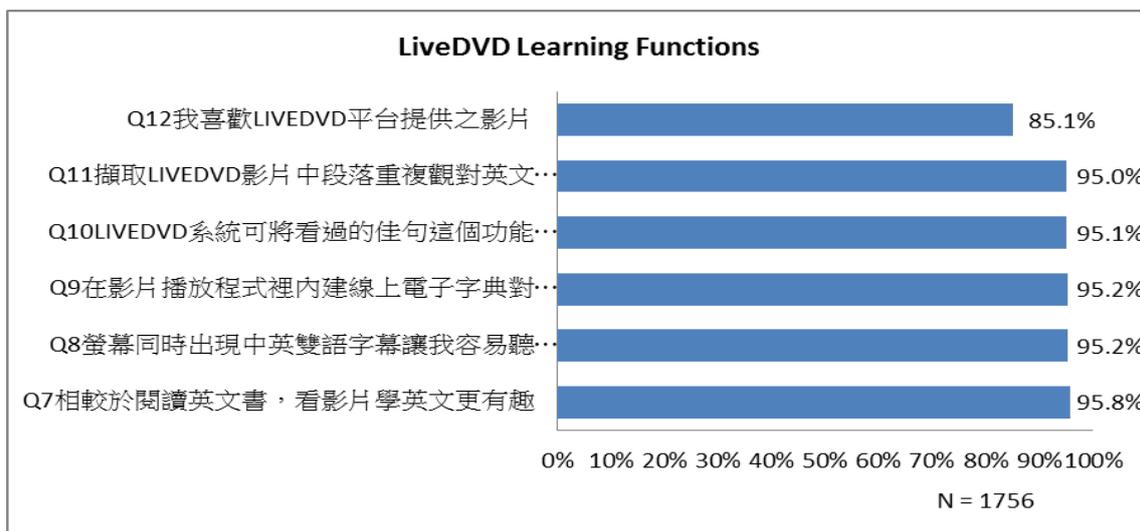


Fig.5 Overall attitude toward LiveDVD learning functions

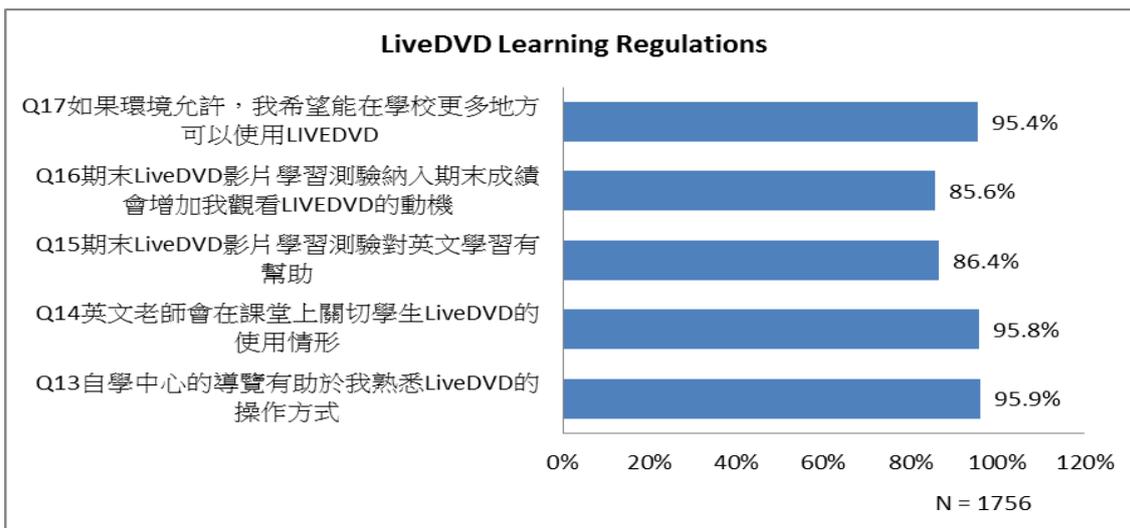


Fig.6 Overall attitude toward LiveDVD learning regulations

The preceding figures show an overall positive attitude of the students toward LiveDVD with respect to learning motivation or confidence, learning functions, and learning regulations. The relatively lower endorsement rate of Q15 and Q16 in the component of learning regulations than the other items across the three components may result from the learning stress or burden the LiveDVD learning regulations might impose on the students. It is important to find, however, that in the learning motivation component, Q3, Q1 and Q2 have the highest agreement rate, suggesting that the vast majority of students believed LiveDVD a facilitating and motivating learning tool.

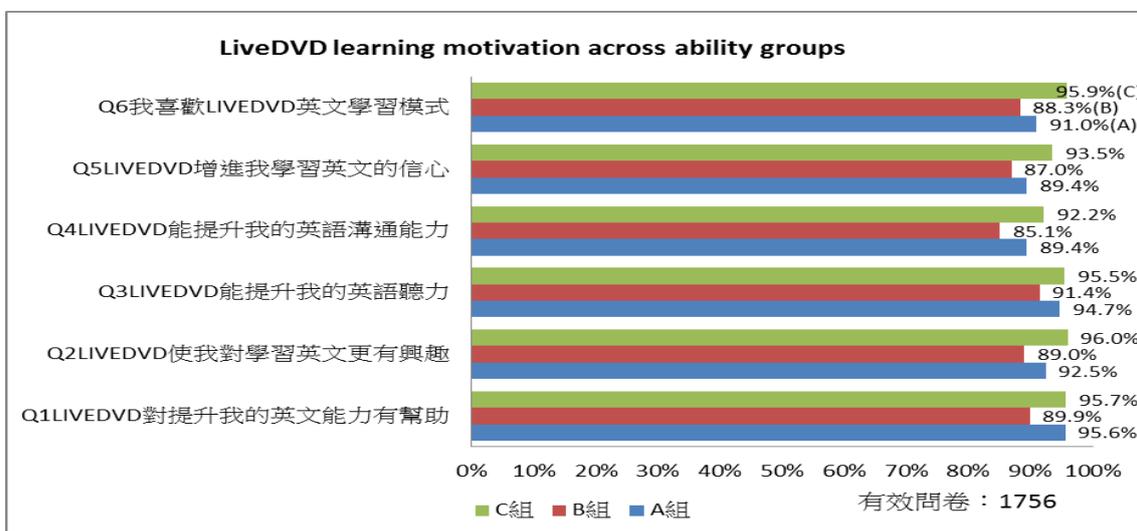


Fig.7 Attitude toward LiveDVD learning motivation across ability groups

Figures 7 to 9, moreover, show an overall higher agreement rate for Group C than for Group B and Group A in terms of the three dimensions, suggesting that LiveDVD seems to motivate more low achievers than higher achievers. An English learning tool like LiveDVD can be helpful if adopted by polytechnic universities whose priority of the English education program is to inspire confidence in students and motivate them to learn English.

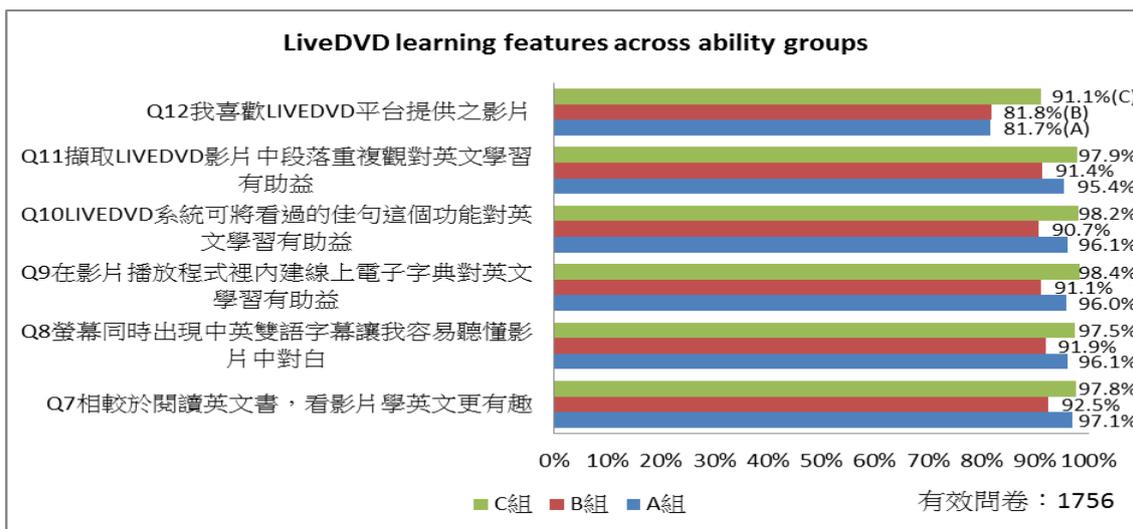


Fig.8 Attitude toward LiveDVD learning features across ability groups

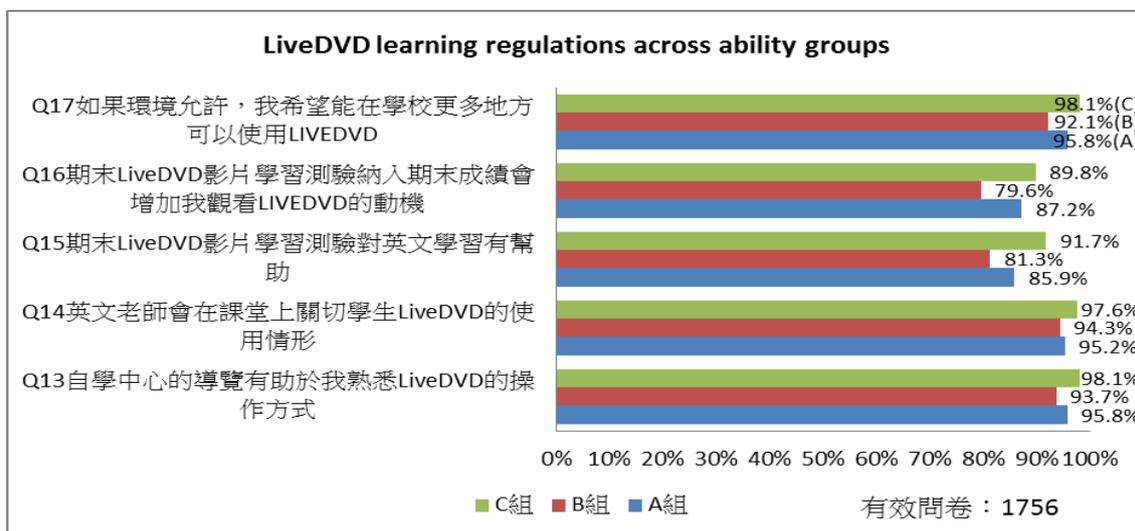


Fig.9 Attitude toward LiveDVD learning regulations across ability groups

In addition to the quantitative data presented in the preceding, the qualitative data from students' responses to the open-ended question eliciting their thoughts on the LiveDVD learning were also collected and analyzed. Among the 1756 valid samples, around one sixth, or 300, of the respondents provided additional comments, which touched on various LiveDVD features and can be summarized below in terms of why LiveDVD appealed to them and what they think can be improved.

As far as the advantages of LiveDVD are concerned, students shared quite a variety of experiences. Most of the respondents, for example, thought that LiveDVD offers a more intriguing avenue for learning English than traditional approaches. To some other respondents, in addition, LiveDVD provides a better way to learn English vocabulary with the features of an easy-to-access online dictionary and word/phrase search as well as repeated listening practice. Also appealing to students is the wide selection of films from which students can pick their favorites according to their needs. Interested learners of English also found LiveDVD a remarkable tool to learn authentic English situated in real use scenarios and cultivate cross-cultural and social linguistic literacy by thoroughly analyzing the discourse in the film.

Some students, on the other hand, did not have as satisfying experiences in using LiveDVD as expected. Some of the respondents, engineering students in particular, recommended that more choices of VODs be made

available on the platform. Many of the available VODs were simply not as new as the films being shown in the theaters. In addition, the problems of Chinese subtitle translations resulting from the imperfection of the word recognition software were pointed out. Still other students tended to have reservations about the LiveDVD learning regulations, which they believed had exerted an extra burden on the existing learning load in their professional coursework. A few respondents who endorsed the LiveDVD learning approach suggested that more space be made available in the Foreign Language Self-learning Center, as they thought the two-story center with 120 seats was crowded with people most of the time, and it was not easy to secure a seat via either the online or onsite reservation system.

2. Chi-squared test of group independence

To address the assessment indicator regarding the association between the activeness of using LiveDVD and the pass status of English proficiency certificates, the third-year classes of the spring/2014 semester were chosen for investigation. This particular group of students was sampled for this investigation mainly on the grounds that these classes represent the first student population that was required to use LiveDVD since its launch in the fall 2011 semester, that they can provide more data points of proficiency certificates for analysis, and that the results based on this sample would be a significant indication of the contribution of LiveDVD to the attainment of English proficiency certificates. Table 2 presents a contingency table comprising two categorical variables, namely Use Activeness (with 5 levels of activeness) and English Certificate (with 2 levels of pass status), yielding a five by two contingency table (disregarding two columns with percentage data). To test whether the two categorical variables are independent of each other, a Pearson's chi-squared test for group independence was performed using R 3.1.0, returning a chi-squared value of 90.110 ($df = 4$) and an extremely small p-value ($p = 2.2e-16$) as shown in Table 3, rejecting therefore the null hypothesis of independence of the two variables, and suggesting that whether the students obtained English proficiency certificates is significantly associated with how actively they use LiveDVD in English learning. Figure 10 reveals furthermore the interaction between the two variables, indicating the tendency of the ever-increasing passing rate, and the decreasing non-passing rate, of English proficiency certificates with the increasingly active use of LiveDVD, and the tendency of that when the use of LiveDVD gets more active, the passing rate of English proficiency certificates would get higher and the no-pass rate get lower.

Table 2 Contingency table on Use Activeness by English Certificate

Certificate	# of students without certificate	% of students without certificate	# of students with certificate	% of students with certificate	Total student #
Use Activeness					
1 (Very Inactive)	234	64.64	128	35.36	362
2 (Inactive)	282	58.26	202	41.74	484
3 (Mid-Active)	214	49.54	218	50.46	432
4 (Active)	584	44.58	726	55.42	1310
5 (Very Active)	210	37.77	346	62.23	556
Total	1524		1620		3144

Table 3 Pearson's Chi-squared test

χ^2	df	p-value	Significance test
90.110	4	2.2e-16	Significant

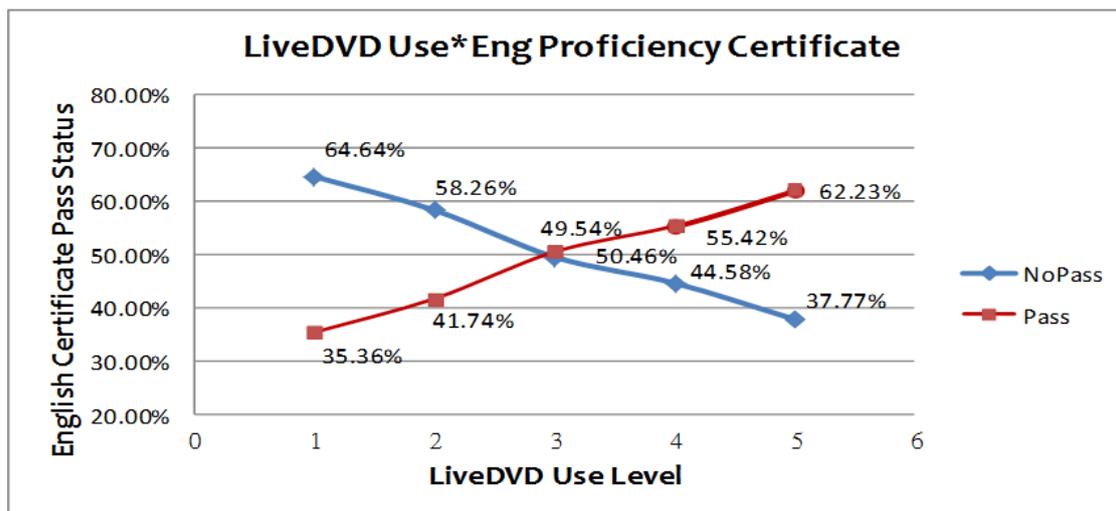


Fig.10 Association between LiveDVD use activeness and English Certificate

3. SEM-based path model

To test the SEM-based path model as represented in Figure 3, an SEM-based path analysis was performed using LISREL 9.1. The test results of the proposed path model are shown in Table 4, with the model fit statistics found to meet the commonly accepted criteria, indicating that the proposed model is not significantly different from the expected model, and suggesting that the proposed model is fairly fit for the input data. The path coefficients of the path model are presented in Figure 11, in which the solid line indicates a statistical, or statistically significant, relationship, while a dotted line refers to a non-statistical, or statistically non-significant, relationship between two observed variables.

Table 4 Model fit statistics of the proposed path model

Evaluation indicators	χ^2	df	p	χ^2/df	NFI	CFI	RMSEA	RMSR
Evaluation Criteria				< 3	>.09	>.09	<.05	<.05
Model value	1.74	5	.88	.348	.99	1.00	.00	.005

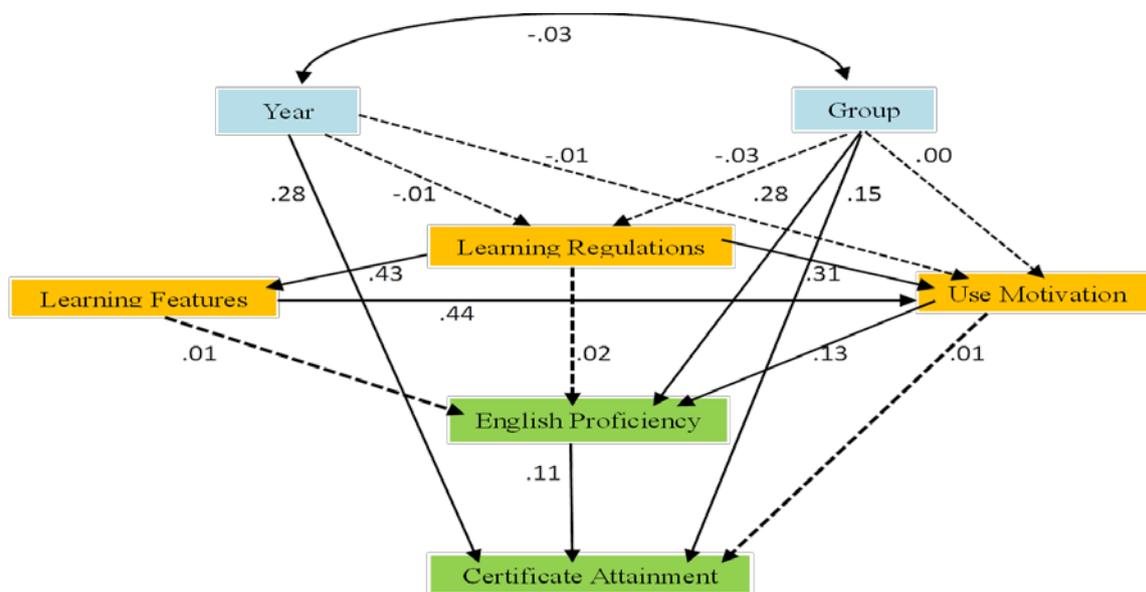
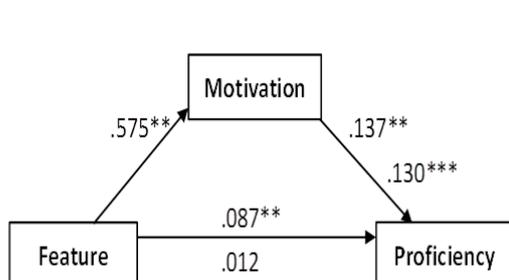


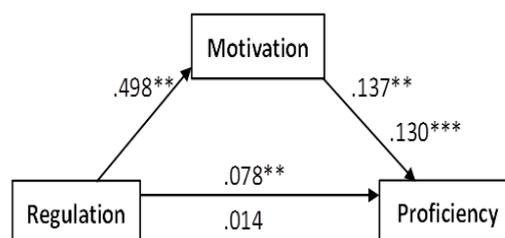
Fig.11 Path coefficients of the proposed model

As shown in Figure 11, Group and Year have a direct effect on Certificate Attainment, and Learning Feature (LF) and Learning Regulation (LR) have a direct effect on Use Motivation (UM). Moreover, LF and LR have an indirect effect on English Proficiency (EP) via UM as a full mediator variable, while UM has an indirect effect on CA via EP as a full mediator variable. To determine the mediation status of UM, a matrix correlation among LF, LR, UM, EP and CA was performed, and two regressions were conducted using EP as a dependent variable, and UM/LR and UM/LF as predictor variables. As can be found in Figure 12, with the introduction of Motivation into the path model, the statistical correlations between Motivation and Feature and Proficiency are established, but the statistical correlation originally existing between Feature and Proficiency becomes not statistical, demonstrating that UM functions as a full mediator variable for LF and EP. The same role of a full mediator variable is true of UM in the path model represented in Figure 13 where LR and EP are fully mediated by UM.



Mediation effect = .575* .130 = .075 - .012 = .063

Fig.12 UM as a full mediator of LF and EP



Mediation effect = .498* .130 = .065 - .014 = .051

Fig.13 UM as a full mediator of LR and EP

V. Conclusion and Implication

This paper presents the result of the action research project featuring the LiveDVD online English learning system embedded into the English education program of STUST in 2011 aiming to promote students' learning motivation and upgrading their English ability. Central to the project is the LiveDVD action plan which essentially encompasses learning regulations and creation of extended learning materials. To appropriately evaluate the learning outcome of students over a period of three years since the launch of LiveDVD at STUST, analyses were made to understand students' attitudes toward LiveDVD learning, association of use activeness and pass status of English proficiency certificates, and relationships among use motivation and LiveDVD learning features.

The survey result shows students' overall positive attitude towards the three dimensions of the questionnaire. The activeness of using LiveDVD, more significantly, was found to be statistically associated with the pass status of English proficiency certificates, suggesting that the more actively LiveDVD was used, the more likely students would be able to pass the English proficiency certificate tests. The testing of the proposed SEM-based path model identified use motivation as a full mediator variable between learning regulations and learning features, having a direct effect on English proficiency and an indirect effect on English proficiency certificate attainment. This result engenders the significant implication for perfecting learning features and improving learning regulations to motivate students to use LiveDVD and enhance their English ability to obtain English proficiency certificates.

This project has set a successful example of applying LiveDVD for English learning and teaching purposes to a polytechnic university education setting characterized by a large student population with an overall mid or low English entry ability and learning motivation. The outcome of this project shows that the technology enhanced teaching or learning approach such as LiveDVD can make a positive change in students' learning motivation and improve their learning outcome. Such positive outcomes have implications for future avenues of

development in both research and EFL teaching.

On the research side, this research project sampled a larger student population, included more factors than learning motivation and English proficiency into the research model, and focused on a long neglected educational context, i.e. the polytechnic rather than conventional higher education. It is these contextual factors that make the results of this project particularly significant as further research can be done, for example, by replicating the research models of this project to the contexts of other polytechnic universities in Taiwan.

LiveDVD learning regulations and learning features are found to affect use motivation, which in turn influences English learning outcome, suggesting the importance to adjust learning regulations and enhance learning functions in a way that can make more and more students comfortable with using LiveDVD.

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Appendix 1

Questionnaire on LiveDVD Learning (QLDVDL)

Student #: _____ Class: _____ Dept: _____ Year : <input type="checkbox"/> Freshmen <input type="checkbox"/> Sophomore <input type="checkbox"/> Junior <input type="checkbox"/> Senior College : <input type="checkbox"/> Bz <input type="checkbox"/> Engineering <input type="checkbox"/> Digital Design <input type="checkbox"/> Humanities Gender : <input type="checkbox"/> M <input type="checkbox"/> F (3)Ability Group : <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C							
1= Strongly Disagree, 2= Disagree, 3= Somewhat Disagree, 4= Somewhat Agree, 5= Agree, 6= Strongly Agree							
QN	Questions	(1)	(2)	(3)	(4)	(5)	(6)
Q1	LiveDVD helps improve my English ability						
Q2	LiveDVD makes me more interested in learning English						
Q3	LiveDVD helps improve my English listening comprehension						
Q4	LiveDVD helps improve my English communication						
Q5	LiveDVD increases my confidence in learning English						
Q6	I like the way of learning English by LiveDVD						
Q7	Learning English by watching films is more interesting than by reading books						
Q8	Display of English-Chinese bilingual subtitles on the monitor helps to better understand the English dialogues in the film						
Q9	The online dictionary provided in LiveDVD is conducive to English learning						
Q10	The feature of collection of useful English sentences is conducive to English learning						
Q11	The repeated playing of a selected part of dialogues helps to learn English better						
Q12	I like the VODs available on the LiveDVD platform						
Q13	The learning guide by Self-Learning Center helps to know how to better use LiveDVD						
Q14	My English teacher checks on students' status of using LiveDVD						
Q15	The test on the assigned film is beneficial to English learning						
Q16	I have a stronger motivation to use LiveDVD because the test on the assigned film is included in the final evaluation						
Q17	I wish to be able to use LiveDVD at more locations on campus						

Q18	<p>Which of the following learning features of LiveDVD do you think can help enhance your English ability: (More than one option is possible)</p> <ul style="list-style-type: none"> (1) Collection of vocabulary (2) Collection of sentences (3) Online dictionary (4) Chinese-English dual-mode subtitles (5) Repeated viewing of selected conversation segments (6) Keyword or phrases search (7) Online tests (8) Display of word-level (9) Pronunciation practice
Q19	<p>Which of the following LiveDVD features do you actually use: (More than one option is possible)</p> <ul style="list-style-type: none"> (1) Collection of vocabulary (2) Collection of sentences (3) Online dictionary (4) Chinese-English dual-mode subtitles (5) Repeated viewing of selected conversation segments (6) Keyword or phrases search (7) Online tests (8) Display of word-level (9) Pronunciation practice
Q20	<p>How many of the VODs available on the LiveDVD platform do you view a semester :</p> <ul style="list-style-type: none"> (1) The assigned one only (2) Two (3) Three (4) Four (5) Five (6) More than six
Q21	<p>Please make further comments with respect to the preceding questions.</p>