

## Exploring Veterinary Science Students' Digital Literacy and Their Disposition toward the Use of Online Games for Learning English

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### Abstract

For the Net Generation Learners, computer literacy has played an important role academically and non-academically. To promote an edutainment atmosphere for language learning, a game-based e-learning (or online) material is a state-of-the-art alternative. In order to develop a game-based e-learning program for Veterinary Science students, their attitudes and disposition toward the use of online games for learning English needs to be explored. The questionnaires and semi-structured interviews served as research instruments. The responses from 111 Veterinary Science sophomores were both qualitatively and quantitatively analysed, and the findings showed their digital literacy levels as well as positive attitudes and disposition toward the use of online games, which can be used when designing an e-learning (or online) edutainment game for the English for Veterinary Profession I course.

**Keywords:** digital literacy, using online games for learning English, multiliteracy, edutainment

### 1. Introduction

Nowadays, learners' lives are surrounded by technology, especially the Internet, starting from getting up in the morning to sleeping at night. When they get up in the morning, they may turn on the radio or TV, and some may check their Facebook comments and e-mails via their mobile phones or notebooks. When they want to go out, they check the directions or bus schedules online. At school, they use the computer and the Internet to access the information. After they go home, they also use the Internet for doing homework, downloading songs and programs, or watching online video clips. It is inevitably said that the Internet plays an extremely important role in students' lives, including their studying lives. In the educational field, those born in the period after 1980 are called a number of things, including "the Net Generation (or Net Gen) learners" (Oblinger and Oblinger, 2005; Howe & Strauss, 2000). Apart from studying, the Net Gen students use the Internet for their entertainment purposes as well, and playing online games is one of them. Most online games use English as a medium for instruction. There have been certain advantages seen to using online games to improve students' learning, including English language skills (Johnson Smith, Willis, Levine, and Haywood, 2011). Therefore, the educators have attempted to mix education with entertainment in the classroom, dubbing this combination *edutainment*.

With the coincidence of the new policy of Chulalongkorn University Academic Affairs Department, all faculties have been encouraged to produce e-learning courses for the students. Thus, a game-based supplementary e-learning program for English for Veterinary Profession I has been inspired, based on the concept of edutainment, in order to fulfil the following goals: enhance learner autonomy and motivation, supplement existing courses, enhance the learning experience, help foster an optimal language learning environment, and provide students with an instructional alternative.



As a consequence, in order to design a suitable game-based supplementary e-learning ESP program, the students' existing levels of digital literacy and their disposition toward the use of online games for learning English need to be explored and investigated.

## 2. Research Questions

There are three research questions for the study:

- 2.1 What are the existing levels of digital literacy among students that can be applied / transferred to an online gaming environment?
- 2.2 What are students' dispositions towards the use of online games for learning English?
- 2.3 How do students deal with language challenges when playing an online game in English?

## 3. Research Objectives

In order to gain better understanding of issues related to the application of online tools to the teaching and learning of English for specific purposes within a specific course, the study aims at:

- 3.1 investigating the existing levels of digital literacy among the veterinary science students,
- 3.2 explaining their dispositions toward the use of online games for learning English, and
- 3.3 investigating the strategies that the students use to deal with the language challenges when playing an online game in English.

## 4. Literature Review

In this paper, there are two topics of the literature that need to be reviewed: edutainment and multiliteracy.

### 4.1 Edutainment

*We already have too much medicine that is (cognitively) good for the patient—who will not take it—and medicine that patients find delicious—but that contributes little to their cognitive abilities.*

(Simon, 1995, p. 508)

There is a big gap between what kids are required to do in school and what they do for fun. School covers “required and important” materials, but kids, frankly speaking, are uninterested and unmotivated. These kids, nevertheless, are greatly motivated by what they do for fun (like interactive, entertainment games). Since student engagement strongly correlates with academic achievement (Fredricks & Eccles, 2006; Fredricks et al., 2004; Finn & Rock, 1997), these two worlds must be united. Combining school material with games has tremendous potential to increase learning, especially for lower performing, disengaged students (Shute, Ventura, Bauer, & Zapata-Rivera, 2009). The concept of *Edutainment*, therefore, has emerged.

Edutainment is derived from two words: “education” and “entertainment” (Singhal & Rogers, 1999). As defined by Rapeepisarn, Wong, Fung, & Depickere (2006), “edutainment is the act of learning heavily through any of various media such as television programs, video

games, films, music, multimedia, websites and computer software” (p. 29).

Edutainment can be classified in many ways, depending on the criteria chosen. It can be classified by location, purpose and content, target group, and type of media (White, 2003, as cited in Rapeepisarn et al., 2006). The purpose of edutainment is to design and implement a media message that is meant to simultaneously entertain and educate, so as to foster its target audience’s knowledge about an educational issue, enhance positive attitudes, and lead to discernible behavioral changes (Singhal & Rogers, 1999). If done correctly, the benefits are manifold and will affect numerous stakeholders, such as governments, broadcasting networks, educators, commercial sponsors, and audiences (Brown, 1991, as cited in Singhal & Rogers, 1999). In education especially, edutainment can lead to many benefits.

Research has shown that implementing edutainment results in a number of positive outcomes. One of the most successful examples of an edutainment program is the US children’s television program, created in 1969, known as *Sesame Street*. Statistics show the program is watched by 12 million Americans weekly. Its target audience is preschoolers, and its main objective is to prepare these watchers for school by teaching them letters, numbers, shapes, and social values such as kindness and cooperation. It achieves its goals through the use of songs, animations, live-action films, special effects, and celebrity visits. Findings indicate that viewers of *Sesame Street* consistently score higher than non-viewers on tests in all curriculum areas. According to Lesser (1974), The success of *Sesame Street* comes from blending the technology of television with the art of entertainment and specific educational aims. Beyond that, Pierfy (1977) reported that twenty-two simulation and gaming studies came to the same conclusion that the use of these edutainment alternatives could lead to greater retention of knowledge when compared to conventional classroom instruction. Furthermore, students expressed greater interest when simulation and games were introduced, than when classes were conducted without these added edutainment options. Similarly, Phanarangsarn (2000), in a qualitative study to investigate the effects of English grammar teaching songs, discovered that participants had an easier time remembering grammar rules more precisely when compared to simply reading the information. The participants viewed the use of songs as innovative, authentic, and unique, and deemed the technique new and interesting. More recently, Resnick (2004) found that the creativity of Singaporean students increased after they were exposed to edutainment in the form of an activity wherein they utilized their strong math and science skills to create a model robot. The results of the research showed that these students found greater enjoyment in their learning and realized more readily the beneficial applications of their academic knowledge.

#### **4.2 Multiliteracies in an English Classroom**

In the digital age, language-based literacy pedagogy is not enough for the development of literacy practices. We cannot deny that every day children experience and get involved in multimodal textual practices outside their classrooms, which are scarcely recognized as a part of school literacies (Unsworth, 2001, p. 7). It is generally accepted that computers are not merely tools for typing, but can be used for multiple purposes, academically and non-academically, such as searching for information, communicating with friends and teachers, and organizing tasks. For better or worse, computer environments have been primary spaces where much education happens (Selber, 2004, p.3). At present, computers play an important role in teaching, including language teaching, which can make a difference from teaching in environments mediated by traditional technologies like paper,



pens, and chalkboards. The Internet and other computer applications (Selber, 2004, p. 3) have become a major part of the instruction across the entire curriculum.

There have been many studies of the use of ICTs in the English teaching class; for example, the use of e-mail exchanges between 9<sup>th</sup> graders and pre-service graduates at a university (Borsheim, 2004), a project that connected a ninth-grade English classroom in Colorado with English classes grades 7-12 in remote, rural Alaska and a poet in Vermont in an online poetry exchange (Van Wyhe, 2000), and the use of electronic trapping of mouse, digitized text, and images to help students become “scholars” (Hogue, Nellen, Patterson & Schulze, 2004). It can be undeniably said that multiliteracies are related to English teaching classrooms since the advanced ICTs nowadays allow multiliteracies to happen.

The concepts of “*multiliteracies*” have served as a very important role in various areas of study, including EFL teaching (Royce, 2002). The term ‘multiliteracies’ refers to “multimodal ways of communicating through linguistic, visual, auditory, gesture and spatial forms. To be multiliterate requires the knowledge and skills needed to read, write, and use spoken and written language and sounds and images (Hill, 2007, p. 56). Hill (2007, p. 57) also adds that the term ‘multiliteracies’ includes electronic literacies, technoliteracies, digital literacies, visual literacies, and print-based literacies”. To explore multiliteracies, Kress & Van Leeuwen (2001) say one requires an understanding of semiotic theory—the study of signs and symbols—to know how symbols, in the form of letters and words, drawings, icons of different types (e.g. photographs, colors and animation/movement), can communicate meanings. In this way, Hill (2007, p. 57) claims that computers are ‘symbol machines’ that let children negotiate a complex interplay of multi sign systems (e.g. video clips, music, sound effects, icons, virtually rendered paint strokes, text in print-based documents), multiple modalities (e.g. linguistic, auditory, visual, artistic), and recursive communicative and cognitive processes (e.g. real-time and virtual conversations, cutting/pasting text, manipulating graphics, importing photographs).

Digital literacy is one of the multiliteracies. Digital literacy is the ability to understand and use information in multiple formats from various sources when presented through computers (Gilster, 2000, p. 215). As the use of the Internet is now growing, even in education, acquiring digital literacy for Internet use involves mastering a set of core competencies including critical thinking, targeting the reading using the model of the electronic words, and developing search skills (Gilster, 2000, p. 216).

## 5. Research Design

This is a survey study using a set of questionnaire (Appendix 1) as a primary research instrument, along with semi-structured interviews. The questionnaire was designed to collect students’ demographic data and their attitudes towards the use of online games. It is divided into two main parts. The first one contains eleven multi-choice questions (some need answers to be filled.) dealing with personal information (gender, grades in Experiential English I and II they took in the first year at the university, and their GPAX) and their use of the Internet and online games. The other part is composed of eighteen 4-point-Likert-scale questions, which elicit students’ attitudes toward the use of online games for English language learning.

Semi-structured interviews were performed with twelve randomly selected students. They were asked to obtain in-depth information on the use of online games for English language instruction.

Both instruments were validated by three experts in the field of ESL and ELT using the checklists, and the responses from the checklist were calculated by Item-Objective

Congruence (IOC) Index (Turner & Carlson, 2003). All teachers were satisfied with the developed questionnaire and the interview questions, with the mean score of 0.85 from the IOC Index. There were a few comments and suggestions from the experts for editing regarding spelling and wording. Revisions were then made. After that, a pilot study was made with 30 Veterinary Science students who enrolled in the English for Veterinary Profession I course in the academic year 2010. The responses from the pilot study provided the Cronbach's alpha reliability of the questionnaire at 0.89. Then, some revisions were made.

## 6. Data Collection

The population of the study consisted of 111 students who enrolled in the English for Veterinary Profession I course in academic year 2010. All of them served as the sample group of the study. They were asked to complete a set of questionnaires, and 12 of them (10.8%) were randomly selected to be interviewed. The interviews were tape-recorded.

## 7. Findings

### 7.1 Findings from the Questionnaires

The data from the questionnaires has been quantitatively analyzed using the SPSS Program to obtain the descriptive statistics, frequency, percentage, means scores and S.D. and descriptively presented as follows:

#### PART 1: Students' Demographic Data and Their Use of the Internet and Online Games

The first part of the questionnaire contains eleven multi-choice questions, dealing with personal information (gender, grades in Experiential English I and II they took in the first year at the university, and their GPAX) and their use of the Internet and online games. The findings of the first part of the questionnaires are presented as follows:

Table 1: The response of question 1 (The sample group presented by gender)

Male	Female	Total
35 (31.5%)	76 (68.5%)	111 (100%)

Table 2: The response of questions 2-3 (The students' grades of the course "Experiential English I and II")

Grades	A	B+	B	C+	C	D+	D	F	TOTAL
Experiential English I	10 (9%)	23 (20.7%)	27 (24.3%)	39 (35.1%)	5 (4.5%)	7 (6.3%)	-	-	111 (99.9%)
Experiential English II	11 (9.9%)	19 (17.1%)	25 (22.5%)	39 (35.1%)	12 (10.8%)	4 (3.6%)	1 (0.9%)	-	111 (99.9%)



Table 3: The responses of questions 4-5 (Time spent on the Internet and online games)

Questions	None	Less than 1hr	1-2.59 hrs	3-4.59 hrs	5-6.59 hrs	More than 7 hrs
Q4: On average, how many hours a day you spend on the Internet?	-	7 (6.3%)	48 (43.2%)	36 (32.4%)	13 (11.7%)	7 (6.3%)
Q5: On average, how many hours a day you spend on online games?	48 (43.2%)	40 (36.0%)	13 (11.7%)	8 (7.2%)	2 (1.8%)	-

Table 4: The responses of question 6 (Favorite types of online games)

Question	Action / Shooting / Battle	Card / Gambling	Racing / Simulation	Adventure	Puzzle / Strategy	Role-play
Q6*: What type of online games do you most like to play?	41 (36.9%)	14 (12.6%)	21 (18.9%)	41 (36.9%)	37 (33.3%)	42 (37.8%)

\*Notes: The respondent can choose more than one answer.

Table 5: The responses of question 7 (Purposes and duration of the Internet use)

	Purposes	Frequency (Percentage)	Average amount of time (minutes)
Academic	- Doing homework	94 (84.7%)	102
	- Searching for information	77 (69.4%)	38
	- Reading academic articles / books	23 (20.7%)	15
	- Downloading for academic purposes	36 (32.4%)	35
	<b>MEAN</b>	<b>57.5 (51.8%)</b>	<b>47.5</b>
Entertainment	- Chatting / online socializing (e.g. Facebook, MSN, Tweeter)	95 (85.6%)	156
	- Listening to music	78 (70.3%)	285
	- Watching video clips / movies	86 (77.5%)	66
	- Playing (online) games	34 (30.6%)	52

	Purposes	Frequency (Percentage)	Average amount of time (minutes)
	- Sending and reading e-mails	49 (44.1%)	30
	- Downloading for entertainment purposes (e.g. games, songs, movies, video clips, applications, etc.)	69 (62.2%)	74
	- Others	-	-
	<b>MEAN</b>	<b>68.5 (61.7%)</b>	<b>110.5</b>

\*Notes: The respondent can choose more than one answer.

Table 6: The responses of questions 8-11 (The Internet and online game use)

Questions	Frequently	Sometimes	Hardly	Never	I don't have one.
Q8: In a day, how often do you access the Internet?	75 (67.6%)	32 (28.8%)	4 (3.6%)	-	-
Q9: In a day, how often do you play online games via your mobile phone?	12 (10.8%)	14 (12.6%)	9 (8.1%)	47 (42.3%)	29* (26.1%)
Q10: In a day, how often do you play online games via a laptop or a personal computer (PC)?	16 (14.4%)	27 (24.3%)	22 (19.8%)	43 (38.7%)	3 (2.7%)
Q11: In a day, how often do you play online games via tablets (e.g. iPad, Samsung Galaxy)?	7 (6.3%)	10 (9.0%)	5 (4.5%)	25 (22.5%)	64 (57.7%)

\*Notes: 29 respondents claimed that they did not have Internet access on their mobile phone.

In summary, the sample group consisted of 111 Veterinary Science sophomores: 35 males and 76 females, whose English ability in this class is in the upper-intermediate to advanced level. Forty-eight out of 111 students (43.2%) spend 1-2.59 hours a day surfing the Internet and 36 students (32.4%) spend 3-4.59 hours on the Internet. Sixty-three students (56.8%) play online games, and 40 of them (36%) spend less than one hour a day playing online games. As for the type of online games, role-play ranks first, which accounts for 37.8%. Adventure and action/shooting/battle came second, which is both responsible for 36.9%. Third came puzzle/strategy, contributing 33.3%. Racing/simulation and card/gambling ranked fourth and fifth, responsible for 18.9% and 12.6% respectively.



In terms of their academic use of the Internet, doing homework ranks first, which accounts for 84.7%. Second, third and fourth came searching for information, downloading for academic purposes, and reading academic articles/books, responsible for 69.4%, 32.4%, and 20.7%, respectively. As for their entertainment purposes, the highest response was chatting/online socializing, which accounted for 85.6%. Second and third came watching video clips / movies and listening to music, responsible for 77.5 % and 70.3 %, respectively. Fourth came sending and reading e-mails, making up 44.1%. The last one was playing (online) games, which contributed 30.9%.

In a day, 75 students (67.6%) frequently access the Internet, while only four students (3.6%) hardly accessed the Internet. Forty-seven students (42.3%) never played online games via their mobile phones, while 12 students (10.8%) frequently played online games via their mobile phones. Forty-three students (38.7%) never played online games via a laptop or a personal computer, whereas 16 students (14.4%) frequently played online games via a laptop or a personal computer. Finally, twenty-five students (22.5%) never played online games via a tablet, while 7 students (6.3%) frequently played online games via a tablet. Sixty-four out of 111 students (57.7%) revealed that they did not have tablets.

## PART 2: Students' Attitudes toward the Use of Online Games for English Language Learning

This part of the questionnaires contains eighteen 4-point-Likert-scale questions, which elicit students' attitudes and disposition toward the use of online games for English language learning. The interpretation of the scores in PART 2 is as follows: totally disagree = 1, disagree = 2, agree = 3, and totally agree = 4. The students' responses are presented in the table below.

Table 7: Students' Attitudes toward the Use of Online Games for English Language Learning

Statements	Totally disagree	Disagree	Agree	Totally agree	Mean	S.D.
1. I like playing online games.	22 (19.8%)	33 (29.7%)	46 (41.4%)	10 (9%)	2.40	.907
2. I get both knowledge and entertainment from online games.	10 (9%)	25 (22.5%)	65 (58.6%)	11 (9.9%)	2.69	.772
3. Online games can be a good medium for learning.	7 (6.3%)	27 (24.3%)	69 (62.2%)	8 (7.2%)	2.70	.695
4. Online games can be a good medium for teaching and learning English.	4 (3.6%)	18 (16.2%)	76 (68.5%)	13 (11.7%)	2.88	.643
5. I like playing online games which use English as a medium of instruction.	9 (8.1%)	18 (16.2%)	64 (57.7%)	20 (18.0%)	2.86	.807
6. Using English as a medium of instruction within an online game can discourage me from playing it.	29 (26.1%)	64 (57.7%)	18 (16.2%)	-	1.90	.646
7. An online game in English can help me improve my overall English skills.	2 (1.8%)	12 (10.8%)	83 (74.8%)	14 (12.6%)	2.98	.556
8. An online in English can help me improve my English speaking skills.	17 (15.3%)	58 (52.3%)	33 (29.7%)	3 (2.7%)	2.20	.724



Statements	Totally disagree	Disagree	Agree	Totally agree	Mean	S.D.
9. An online game in English can help me improve my English listening skills.	8 (7.2%)	41 (36.9%)	55 (49.5%)	7 (6.3%)	2.55	.723
10. An online game in English can help me improve my English reading skills.	3 (2.7%)	5 (4.5%)	72 (64.9%)	31 (27.9%)	3.18	.635
11. An online game in English can help me improve my English writing skills.	16 (14.4)	54 (48.6%)	39 (35.1%)	2 (1.8%)	2.24	.716
12. An online game in English can help me improve my English grammar skills.	16 (14.4%)	66 (59.5%)	28 (25.2%)	1 (0.9%)	2.13	.648
13. An online game in English can help me improve my English vocabulary skills.	1 (0.9%)	7 (6.3%)	69 (62.2%)	34 (30.6%)	3.23	.598
14. Even though I might not understand certain words in English in the online game, I am still happy to play it.	2 (1.8%)	15 (13.5%)	68 (61.3%)	26 (23.4%)	3.06	.664
15. Before starting to play an online game, I read the instructions carefully.	12 (10.8%)	59 (53.2%)	37 (33.3%)	3 (2.7%)	2.28	.690
16. When playing an online game, I prefer using trial and error to referring to the rules.	1 (0.9%)	31 (27.9%)	64 (57.7%)	15 (13.5%)	2.84	.654
17. Do these features influence me when I choose an online game?	2 (1.8%)	2 (1.8%)	50 (45.0%)	57 (51.4%)	3.46	.629
- Beautiful pictures / Colorful Graphics						
- Clear commands	4 (3.6%)	12 (10.8%)	73 (65.8%)	22 (19.8%)	3.02	.674
- Consistent navigation	4 (3.6%)	35 (31.5%)	60 (54.1%)	12 (10.8%)	2.72	.703
- User-friendly navigation	4 (3.6%)	7 (6.3%)	78 (70.3%)	22 (19.8%)	3.06	.636
- Challenging tasks	3 (2.7%)	10 (9.0%)	66 (59.5%)	32 (28.8%)	3.14	.686
- Easy tasks	8 (7.2%)	39 (35.1%)	50 (45.0%)	14 (12.6%)	2.63	.797
- Variety of tasks	1 (0.9%)	4 (3.6%)	68 (61.3%)	38 (34.2%)	3.29	.578
- Immersiveness (Being a part of the game)	3 (2.7%)	7 (6.3%)	53 (47.7%)	48 (43.2%)	3.32	.713
- Easily accessed technical support	4 (3.6%)	12 (10.8%)	73 (65.8%)	22 (19.8%)	3.02	.674
- Few technical difficulties	6 (5.4%)	25 (22.5%)	62 (55.9%)	18 (16.2%)	2.83	.761
- Interactivity (with objects and other players)	2 (1.8%)	18 (16.2%)	65 (58.6%)	26 (23.4%)	3.04	.687
- Popularity of the game among my friends	8 (7.2%)	17 (15.3%)	66 (59.5%)	20 (18.0%)	2.88	.783
- Constantly updated features	5 (4.5%)	11 (9.9%)	64 (57.7%)	31 (27.9%)	3.09	.745
- Others: (please specify) .....	-	-	-	-	-	-
18. While playing an online game, when I come across an English word that I do not understand, I ...						
- ask my friend(s)	14 (12.6%)	20 (18.0%)	66 (59.5%)	11 (9.9%)	2.67	.824



Statements	Totally disagree	Disagree	Agree	Totally agree	Mean	S.D.
- ask my teacher(s)	39 (35.1%)	61 (55.0%)	11 (9.9%)	-	1.75	.625
- guess the meaning from the context clue(s)	1 (0.9%)	3 (2.7%)	70 (63.1%)	37 (33.3%)	3.29	.562
- ignore it	7 (6.3%)	42 (37.8%)	52 (46.8%)	10 (9.0%)	2.59	.744
- look it up in a paper dictionary	14 (12.6%)	33 (29.7%)	49 (44.1%)	15 (13.5%)	2.59	.879
- look it up in an online dictionary / an online translating service / a search engine (e.g. Google)	6 (5.4%)	13 (11.7%)	60 (54.1%)	32 (28.8%)	3.06	.789
- Others: (please specify) .....	-	-	-	-	-	-

In summary, the responses in part two of the questionnaires can be categorized into four main aspects. The first aspect is relevant to students' attitudes toward online games (questions 1-6). Fifty-six students like playing online games. Seventy-six students (68.5%) accepted that they got both knowledge and entertainment from online games. Seventy-seven students (69.4%) thought that online games could be a good medium for learning, and 89 students (80.2%) thought that online games could be a good medium for teaching and learning English. Moreover, 84 students (75%) liked playing online games which used English as a medium of instruction, while only 18 students (16.2%) agreed that using English as a medium of instruction within an online game discouraged them from playing it. All in all, the students liked playing online games, and they thought online games could be a medium for teaching and learning English. Moreover, English instruction in a game was not an obstacle for them to play a game.

Next, questions 7-13 reflect the students' attitudes and disposition toward the use of online games for learning English, in terms of skill-building. Ninety-seven students (87.4%) accepted that an online game in English could help them improve their overall English skills. The frequencies of the responses showed that an online game in English language could help them improve their vocabulary skills and reading skills most, accounting for 92.8%. Second and third came listening skills and writing skills, responsible for 55.8% and 36.9%, respectively. Speaking skills ranked fourth, contributing 32.4%. The last one was grammar skills, making up 26.1% of the responses.

Questions 14-16 and 18 concern with how the students access help when facing English instruction in an online game. Ninety-four students (84.7%) accepted that although they might not understand certain words in English in the online game, they were still happy to play it. Moreover, before starting to play an online game, 40 students (36%) read the instructions carefully. However, 79 students (71.2%) preferred using trial and error to referring to the rules when playing an online game. When the students came across an English word that they did not understand while playing an online game, 107 students (96.4%) guessed the meaning from the context clue(s). Ninety-two students (82.9%) looked it up in an online dictionary, an online translating service, or a search engine (e.g. google).

Seventy-seven students (69.4%) asked their friend(s). Sixty-four students (58.6%) looked it up in a paper dictionary while 62 students (55.8%) ignored it. Only 11 students (9.9%) asked their teacher(s).

Lastly, question 17 elicited the students' attitudes toward the features that influence them when choosing an online game. The features that had influenced the students when they choose an online game were rearranged according to the percentage as follows: beautiful pictures / colorful graphics (96.4%), variety of tasks (95.5%), Immersiveness (being a part of the game) (90.9%), User-friendly navigation (90.1%). Fifth came three features—clear commands, challenging tasks, and constantly updated features, accounting for 88.3%. The next features were interactivity (with objects and other players) (82%), popularity of the game among their friends (77.5%), few technical difficulties (72.1%), and consistent navigation (64.9%). The last feature was easy tasks (57.6%).

## 7.2 Findings from the Semi-structured Interviews

Twelve students (4 males and 8 females) were randomly selected to be interviewed after they had completed the questionnaires. The interviews were audio tape-recorded and the students' responses to the questions are presented as follows:

### 1. What are the advantages of playing online games?

Twelve students accepted that they played online games: 3 often played, 8 sometimes played, and 1 hardly played. They all agreed that online games provided them advantages as follows:

- It is fun, and I am motivated. (11 students / 91.7%)
- It is challenging since I want to win the tasks. (9 students / 75.0%)
- The online game can generate my thinking and problem-solving skills. (5 students / 41.7%)
- I can play online games to kill time or relax myself (when I get stressed). (5 students / 41.7%)
- I can talk about the game with my friends. (2 students / 16.7%)

However, one student said that he hardly played online games. He did not like playing online games because it wasted his time, and he did not enjoy playing them. In his free time, he preferred work-out and sleep.

### 2. Do you think online games can help improve English skills? How?

Eleven of them (91.67%) agreed that online games helped them improve their English skills. Their reasons are presented as follows:

- I can improve my reading skills. (11 students / 91.7%)
  - o Because the online games I play use English as medium of instruction, when I play the online games, I have to translate the instructions into Thai and understand them. (11 students / 91.7%)
- I can improve my vocabulary skills. (11 students / 91.7%)
  - o I learn new vocabulary when playing the online games. Sometimes I can acquire the meaning of unfamiliar words in the online games via the context clues of the situations in the game (e.g. the word "resume"). (9 students / 75.0%)
  - o The repetitive use of vocabulary of the online game helps me acquire / memorize the vocabulary automatically. (6 students / 50.0%)



- I can improve my listening skills. (8 students / 66.7%)
  - At first, I couldn't catch what the speakers in the game were saying. However, when I played the game for a while, I could catch some words, expressions, or sentences the speakers are talking. (8 students / 66.7%)
- I can improve my speaking skills. (2 students / 16.7%)
  - Some words or expressions that I often hear when playing the game always in my head (e.g. Gotcha!, Ouch!, You win!). Sometimes I automatically use those. (1 student / 8.3%)
  - I always speak some words or expressions I hear from the game out loud and imitate the pronunciation / accent / intonation of those words or expressions. (1 student / 8.3%)
- I can improve my writing skills. (1 student / 8.3%)
  - It helps me in spelling, especially the words that I have often seen in the game. (1 student / 8.3%)
- I can improve my grammar skills. (none / 0%)

Only one student (who does not like playing online games) said that he was not sure whether online games could help him improve his English skills or not. Also, another student mentioned that he did not focus much on the (written and spoken) instructions. He just explored the game (via trial and error) when playing.

3. Do you think that an online game for the English for Veterinary Profession I course can be an alternative material for the course? Why / Why not?

All of them (100%) showed the concurrence. Their reasons are:

- It sounds fun, relaxing, and motivating. (12 students / 100%)
- If the content in the game is more or less the same as that in the coursebook, it will be great since I can play it in order to review the lessons. (7 students / 58.34%)
- It sounds convenient; I can play the game anywhere and anytime I want. (2 students / 16.67%)
- The teacher should replace the homework with this online game. (1 student / 8.34%)

4. If there is an online game for the English for Veterinary Profession I course, would you like to play it? Why or Why not?

All of the students (100%) said "yes" even though there was one student claiming that he did not like playing online games. They all thought that playing an online game in the course would not be only fun with beautiful graphics, cute animal characters, and challenging tasks, but they could also practice using English in the veterinary context and situations.

## 8. Discussions and Implications

The discussions and implications from this study can be categorized into three categories: the existing levels of digital literacy among students that can be applied / transferred to online gaming environment, the students' dispositions toward the use of online games for learning English, and the strategies they deal with the language challenges during playing an online game in English.

### **8.1 The existing levels of digital literacy among students that can be applied / transferred to online gaming environment**

Nowadays, almost no one especially the Net Gen learners, can deny that they are not exposed to ubiquitous technology every day and every time. From the findings, the Net Gen learners employ the Internet and computer for both their entertainment and communicative purposes (e.g. downloading music and video clips, watching movies/clips, listening to music, online socializing and playing (online) games), and their academic purposes (e.g. doing homework, searching for information, reading academic articles/books, downloading articles or programs for academic use). The Net Gen Learners have grown up with access to computer and Internet technology, and they “all have the skills to use those technologies” (Palfrey & Gasser, 2008: p. 1). Therefore, they are widely considered to be technologically savvy and computer literate. “Today’s average college grads have spent less than 5,000 hours of their lives reading, but over 10,000 hours playing video games, over 200,000 emails and instant messages sent and received; over 10,000 hours talking on digital cell phones; over 20,000 hours watching TV (a high percentage fast speed MTV), over 500,000 commercials seen—all before the kids leave college” (Prensky, 2001b, p.1; Prensky, 2001c, p.1). All of their entire lives have been surrounded by computers, video games, digital music players, video cameras, mobile phones / smart phones, and all the other toys and tools of the digital epoch. Inevitably, computer games, the Internet, email, instant messaging, search engines, and YouTube are integral parts of their lives. Younger learners are deemed technologically savvy and computer literate. As an illustration, the findings showed that when the students came across words that they did not understand while playing an online game, most of them guessed the meaning from the context clue(s). Later, they looked it up in an online dictionary. This can prove that the students are Net Gen learners and surrounded with digital technology, even in the classroom. Therefore, it is important that classroom should acknowledge the place of digital literacy in the students’ lives and provide them some instructional tools that are relevant to their learning both inside and outside the classroom. An educational game or academically-oriented game as a new form for education and training is a case in point. It has emerged due to the pervasiveness of gaming, the widespread use of the Internet, and the need to create more engaging educational practices (de Freitas & Liarokapis, 2011).

### **8.2 The students’ dispositions toward the use of online games for learning English**

In this part, the discussion will be presented in two aspects: students’ attitudes toward using the online games as a medium of English instructions and toward the features of the online games.

#### **8.2.1 Students’ attitudes toward using the online games as a medium of English instructions**

From the findings, most students showed positive attitudes on playing online games, even if they accept that using English as a medium of instruction within an online game can discourage them. However, most of them accord that online games can be a good medium for teaching and learning English and can help them improve their English skills. Moreover, for the interviews, most students agree that online-games are fun and challenging. Also, they confirm that online games can help them improve English skills, and all of them accept that if there is an online game for the English for Veterinary Profession I, they will play it. They also think that the online game can be a good choice for this course. “Successful learners are highly motivated and have a sustained level of attention, stay on task, and want to achieve”



(Hutchings, 2010: p.24). Christensen (2001) put forth the claim that motivation and attention play a crucial role for effective learning, and they must actively attend to the information for learning. Therefore, one way to create a highly motivated learning environment is to create fun and enjoyable lessons that contain clearly goals and build up learners' existing knowledge and experience; an activity that can demonstrate the student's high level of motivation and maintain their levels of attention is playing computer/video games (Hutchings, 2010). The teacher will be more than a little surprised at some students' learning ability when implementing games in their learning (Kerans, 2005). In addition, games can support other important skills for learning such as strategic thinking, planning, communication, negotiating, and group decision-making (Kirriemuir & McFarlane, 2004). Therefore, it is not a surprise that the trend of using e-learning games or online games will significantly increase in academic fields, including EFL/ESL.

### **8.2.2 Features of the online games**

From a constructivist's perspective, learning is the result of a learner's active engagement with the context; knowledge is built by the learner, not merely transmitted by the teacher (Elliott et al., 2000). To build the students' knowledge, learning best occurs when the students engage in activities that required them to exercise their full potential to accomplish tasks (Veenstra, van Geert, & van der Meulen, 2011). Moreover, in the view of social interaction (Vygotsky, 1978), social contexts serve as an important role for learning: social learning context offers adaptive, learning-oriented interaction and feedback for learners. Also, social interaction promotes learner's engagement, especially when it occurs in a setting with playful learning characteristics, which therefore foster powerful learning in that they activate academic exploration and dynamically engage learners (Veenstra et al., 2011).

In addition, the design of the game is a significant key to its success. There are three critical areas when creating an effective learning game: flow, motivation, and fun (Murphy, Chertoff, Guerrero, & Moffitt, 2011). Apart from being fun and motivating (Prensky, 2001b; Dickey, 2011), an educational game must be challenging and contain active nature of game experience, which can likely increase quality to the learning experience, thus, inevitably maximizes instructional time more effectively (Grimley, Green, Nilsen, & Thompson, 2012)).

To be an effective serious game, Veenstra et al. (2011: 53) concluded that "high engagement (or flow) should be attained. Interaction or instruction should evoke self-sustaining curiosity and interest in understanding new concepts or tasks. Playful learning environments can therefore function as an appropriate environment for young children to optimally learn new skills and concepts. In order to achieve powerful learning, social interaction or instruction should be provided within the Zone of Proximal Development (ZPD) (Vygotsky, 1978)."

### **8.3 The strategies they deal with the language challenges during playing an online game in English**

From the findings, most students accept that they do not read instruction carefully before starting to play an online game. They prefer using trial and error to referring to the rules. However, they prefer the game to have clear command and user-friendly navigator. This obviously shows that they tend to be field independent learners; they tend to "articulate figures as discrete from their backgrounds and to easily differentiate objects from embedding context" (Messick, 1976, p. 5). Also, field independent students tend to work more

comfortably with teaching methods that provide them autonomy (Jonassen & Grabowski, 1993; Summerville, 1999). Likewise, when they come across an English word that they do not understand when playing an online game, most of them guess the meaning of that word from the context clues, and they look it up in an online dictionary (or use an online translating service or a search engine). This confirms that they are field independent learners. This also shows that digital literacy still plays an important role in the students' lives academically and recreationally. Therefore, an e-learning game can be a computer assisted teaching aid that lends a degree of autonomy to field independent learners and that covers the organizational needs of field dependent learners (Tinajero et al., 2011, p. 503).

### **9. Recommendations for further Research**

Based on the results and findings from the study, the following are a number of areas that could be further investigated:

First of all, future studies may be conducted with larger groups of participants who could also assist in confirming the students' attitude and disposition toward the use of online games for learning English.

Second, this study should be replicated with the students from various disciplines to gain different perspectives for using online games for learning English.

Lastly, the findings from the study can shed lights and be implemented when designing an appropriate game-based e-learning program for an English (or ESP/EAP) course for Veterinary students, and then its effectiveness will be evaluated.

### **10. Conclusion**

As most Net Gen learners have been exposed to computer technology since they were born, their minds and thoughts have been differently shaped from those of their preceding generations; this younger generation has a distinctly different learning style from their forerunner (Tapscott, 2008; Brown, 2005; Prensky, 2001b). Therefore, they are "no longer the people our system was designed to teach" (Prensky, 2001b, p. 1). As Net Gen learners are usually only engaged when they are learning by means of interaction, through experience, and in exploratory ways (Oblinger & Oblinger, 2005; Prensky, 2001b), the development of an educational computer game can offer teachers the flexibility to engage students in a meaningful, interactive environment of learning. (Klopfer, Osterweil, Groff, & Haas, 2009). Also, digital game-based learning is inevitably about fun and engagement. It also brings learning and interactive entertainment into a newly emerging and highly exciting medium—Digital Learning games (Prensky, 2001a).

From the findings, the students showed the interest in the use of e-learning/online educational games and the belief that those games can help them improve their English skills. Based on the student's dispositions and comments, a game-based e-learning ESP course would seem to be an optimal edutainment alternative for increasing students' learning ability, promote active learning, increase learner autonomy and motivation, and enhance the learning experience, which can be employed to "supplement face-to-face teaching" (Hong et al., 2001: 224) and augment traditional formal education for the Net Gen learners.

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## Appendix 1

### The Questionnaire for Exploring Veterinary Science Students' Existing Levels of Digital Literacy and Their Disposition toward the Use of Online Games for Learning English

#### PART 1

**Directions: Answer all of the following questions.**

1. Gender

☐ Male

☐ Female

2. Your grade of the course "Experiential English I"

☐ A

☐ B+

☐ B

☐ C+

☐ C

☐ D+

☐ D

☐ F

3. Your grade of the course "Experiential English II"

☐ A

☐ B+

☐ B

☐ C+

☐ C

☐ D+

☐ D

☐ F

4. On average, how many hours a day you spend on the Internet?

☐ None

☐ less than 1 hr

☐ 1-2.59 hrs

☐ 3-4.59 hrs

☐ 5-6.59 hrs

☐ More than 7 hrs

5. On average, how many hours a day do you spend on online games?

☐ None

☐ less than 1 hr

☐ 1-2.59 hrs

☐ 3-4.59 hrs

☐ 5-6.59 hrs

☐ More than 7 hrs

6. What type of online games do you most like to play? (You can choose more than one answer.)

☐ shooting / battle / action

☐ card / gambling

☐ racing / simulation

☐ adventure

☐ puzzle / strategy

☐ role-play

7. You use the Internet for .....

(You can choose more than one answer and please specify the number of hours you spend on each activity you select.)

☐ doing homework

(..... hrs ..... mins)

☐ searching for information

(..... hrs ..... mins)

☐ reading academic articles / books

(..... hrs ..... mins)

☐ downloading for academic purposes

(..... hrs ..... mins)

☐ chatting / online socializing

(..... hrs ..... mins)

(e.g. facebook, MSN)

☐ listening to music

(..... hrs ..... mins)

☐ watching video clips / movies

(..... hrs ..... mins)

☐ playing (online) games

(..... hrs ..... mins)

☐ sending and reading e-mails

(..... hrs ..... mins)



- ☐ downloading for entertainment purposes (..... hrs ..... mins)  
(e.g. games, songs, movies, video clips, applications)  
☐ others (please specify) ..... (..... hrs ..... mins)

8. In a day, how often do you access the Internet?

- ☐ Frequently ☐ Sometimes  
☐ Hardly ☐ Never

9. In a day, how often do you play online games via your phone?

- ☐ Frequently ☐ Sometimes  
☐ Hardly ☐ Never  
☐ I do not have Internet access on my phone.

10. In a day, how often do you play online games via a laptop or a personal computer (PC)?

- ☐ Frequently ☐ Sometimes  
☐ Hardly ☐ Never  
☐ I do not have a laptop or a personal computer.

11. In a day, how often do you play online games via tablets (e.g. iPad)?

- ☐ Frequently ☐ Sometimes  
☐ Hardly ☐ Never  
☐ I do not have a tablet.

## PART 2

**Directions:** Answer all of the following questions based on your opinions by marking X in the box

Statements	Totally disagree	Disagree	Agree	Totally agree
1. I like playing online games.				
2. I get both knowledge and entertainment from online games.				
3. Online games can be a good medium for learning.				
4. Online games can be a good medium for teaching and learning English.				
5. I like playing online games which use English as a medium of instruction.				
6. Using English as a medium of instruction within an online game can discourage me from playing it.				
7. An online game in English can help me improve my overall English skills.				
8. An online in English can help me improve my English speaking skills.				

Statements	Totally disagree	Disagree	Agree	Totally agree
9. An online game in English can help me improve my English listening skills.				
10. An online game in English can help me improve my English reading skills.				
11. An online game in English can help me improve my English writing skills.				
12. An online game in English can help me improve my English grammar skills.				
13. An online game in English can help me improve my English vocabulary skills.				
14. Even though I might not understand certain words in English in the online game, I am still happy to play it.				
15. Before starting to play an online game, I read the instructions carefully.				
16. When playing an online game, I prefer using trial and error to referring to the rules.				
17. Do these features influence me when I choose an online game?				
- Beautiful pictures / Colorful graphics				
- Clear commands				
- Consistent navigation				
- User-friendly navigation				
- Challenging tasks				
- Easy tasks				
- Variety of tasks				
- Immersiveness (Being a part of the game)				
- Easily accessed technical support				
- Few technical difficulties				
- Interactivity (with objects and other players)				
- Popularity of the game among my friends				
- Constantly updated features				
- Others: (please specify)..... .....				
18. While playing an online game, when I come across an English word that I do not understand, I ...				
- ask my friend(s)				
- ask my teacher(s)				



Statements	Totally disagree	Disagree	Agree	Totally agree
- guess the meaning from the context clue(s)				
- ignore it				
- look it up in a paper dictionary				
- look it up in an online dictionary / an online translating service / a search engine (e.g. Google)				
- Others: (please specify)..... .....				