Assessing Air Force Officers' Satisfaction on the Use of SOC Virtual Classroom: Input to Professional Military Education e-Learning Design and Implementation

Christopher Chua[1] and Joseph Archog[2]
[1]Batangas State University, Batangas City, Philippines
[2]Air Force Officer School, Fernando Air Base, Lipa City, Philippines
ccchua@batstate-u.edu.ph
ikholot.ak@gmail.com

Abstract: As the power of Learning Management System (LMS) in supporting classroom instruction has been observed in Higher Education Institutions (HEIs), only few has been documented in military environment using this kind of learning technology. This paper is the first attempt to investigate the satisfaction of air force officers on the use of Squadron Officer Course Virtual Classroom (SOCVC) in the Philippines. The popular Modular Object-Oriented Dynamic Learning Environment (MOODLE) was used to implement the SOCVC. A total of 47 Philippine Air Force (PAF) officers enrolled in the SOC participated in this study. Satisfaction in terms of learner interface, learning community, content and usefulness on the use of SOCVC was obtained using a questionnaire. The respondents are seen comfortable and satisfied with the use of the virtual classroom. Profile variables used in the study when taken separately do not show significant difference as to the respondents' satisfaction on the use of the virtual classroom. The findings oppose what are already established pertaining to the variables that affect the use of Virtual Learning Environment (VLE) in civilian setting.

Keywords: Virtual classroom, Squadron Officer Course, VLE, MOODLE, Air force

1. Introduction

The use of a Learning Management System (LMS) is now being seen as the trend in course delivery in Higher Education Institutions (HEIs) in the Philippines. An LMS once established, may be called a Virtual Learning Environment (VLE) or a Virtual Classroom (VC). This is because all terms (LMS, VLE and VC) share the same purpose in simulating a physical learning environment that allows students to learn by viewing lessons in the form of presentation or video tutorial and to communicate and interact with one another using forum, chat, blog or web conferencing. Mostly, a VLE is used by an HEI to revolutionize the conventional face-to-face classroom encounter between students and teachers. Santy and Smith (2007) emphasized that e-learning strategies can be integrated in a VLE to make learners perform better. For example, a teacher can post course materials (lectures, presentations, etc.) in the VLE to be downloaded by the students. On the other hand, students may upload course requirements or take assessment test in the VLE. In addition, teachers and students can interact remotely using a built-in chat system. These are only few of the numerous features of a VLE.

HEIs aim to provide needed competencies to prepare students in their future work. On the other hand, Professional Military Education (PME) focuses on training military officers in communication, teamwork, leadership and management which are needed when they assume of higher responsibilities and functions in the future. According to Tung, et al. (2009, p.652), "The fundamental differences between civilian and military education are their goals, motivations and targeted applications". However, military schools have similar generic function to HEIs, that is, to provide quality education and training to learners.

Computers and videos have long been used as training tools of the military (Herrington, Reeves and Oliver, 2007). While HEIs have been adopting VLE in their school agenda, studies of Armon (2006), Gruszecki (2011), Artino (2009) and Starr-Glass (2013) proved that foreign military schools are also implementing this kind of technology. Thus, military schools believe that by instituting a VLE in their training courses, learning experiences of their students will be enriched.

The Air Force Officer School (AFOS) as one of the major units of the Air Education and Training Command (AETC) in the Philippines is mandated to conduct PME and allied courses. This is to give air force officers advanced knowledge and skills on leadership, management, accountability and responsibility necessary to

prepare them for higher ranks and positions. Its vision is to become the leading center for leadership excellence and PME of the Armed Forces of the Philippines (AFP) in the year 2028 (The Red Book, p.3). The AFOS endeavors to create an ideal learning environment through adoption of contemporary teaching methodologies and instructional strategies and techniques.

One of the courses conducted in the AFOS is the Squadron Officer Course (SOC). The target participants of this course are all senior company grade air force officers. Officers of equivalent rank from foreign military organization may also be accepted in the SOC. The objective is to train the officers for middle-level command and staff duties. Moreover, it aims to provide professional development for higher responsibilities in the PAF by enabling them to think critically and to become efficient team players and excellent communicators.

The SOC has a duration of 640 hours distributed in six areas namely: Communication Studies, 101 hours; Military Strategy and Air Power Studies, 295 hours; Leadership and Management, 79 hours; Profession of Arms, 71 hours; Field Leadership and Physical Development, 48 hours; and Administration, 56 hours. The said course is usually taken within a 4-month period and is being offered by the AFOS twice a year. Teaching methodologies adopted include lectures, interactive sharing, practicum, group dynamics and tours.

It should be noted that AFOS, since its foundation has been successful in accomplishing its mission to train PAF officers without a VC. Hence, this kind of technology is not a priority of the organization. Since the concept has not been used before, there was really no opportunity to develop the system and the required human resources. However, the authors believe that the use of SOCVC has its advantages. Officers who may not be able to leave the critical positions they hold due to exigency of service, a VC can help these officers to do their SOC. As working students, using this technology they need not leave their stations or offices. This is also applicable to reserve officers who hold their respective occupations outside the military field. With this pilot study, it is hoped that the institutionalization of using VCs in the conduct of the SOC and other courses offered by the AFOS will be in reality.

At present, e-learning in the Air Force Officer School is in its early stage of implementation. A previous study conducted by Rayton (2013) reported that the Dropbox as an internet academic portal of SOC Class 2013-A was ineffective in improving the learning experiences of the students. It was only used for submitting assignments to replace regular email. He suggested the use of EDU 2.0, a cloud-based LMS to enrich the learning practice of the students. On the other hand, Nitura and Jimenez (2014) proposed the use of Webex to be able to design a working web-based mode of instruction. However, at the time of this writing, no LMS is yet to be established for the Squadron Officer Course.

Dwelling on the beauty of e-learning, the authors have come up with an idea of establishing a VLE, designed to sustain the face-to-face instruction in the AFOS. Specifically, this VLE is called Squadron Officer Course Virtual Classroom (SOCVC). This is established by utilizing the e-learning platform called Modular Object-Oriented Dynamic Learning Environment (MOODLE). This software platform provides interface modules for quizzes, assignments, blogs, forums and other useful guides for both students and teachers. Burgess (2008) and Sumak et al. (2011) are one in declaring MOODLE as a useful e-learning platform with numerous features that are available to make teaching and learning a meaningful experience.

The authors find the necessity to undertake initial steps in designing and establishing a working SOCVC for the AFOS. This paper aims to assess the level of satisfaction of the users of the said technology as well as to examine the profile variables of military students that influence satisfaction on the use of a VC. This study is expected to contribute to the existing knowledge in the field of military education. It is also hoped that the study will provide significant insights on ways to improve the delivery of the SOC pertaining to the use of the virtual classroom.

1.1 Research Questions

The study sought to find answers to the following questions:
1. What is the profile of the respondents in terms of age, sex, Information Communication Technology (ICT) skills and prior VC experience?
2. How do the respondents assess the SOC virtual classroom with respect to the dimensions learner interface, learning community, content and usefulness?

3. Is there a significant difference on the respondents' assessment on the use of the SOC virtual classroom when grouped according to their profile variables?

2. Literature Review

2.1 E-learning in Military Organizations

Several military organizations have seen adopting e-learning in the training of its soldiers. A military program called eArmyU was contracted by the US Army to provide educational opportunities to soldiers in an online environment (Armon, 2006). Another initiative in developing the military human resources in the US includes the online training system called the Advanced Distanced Learning (ADL) system designed by the Department of Defense (Greiner, Beaulieu and Webb, 2007). Meanwhile, Kei et al. (2008) proposed an architecture of Advanced Military Education – Distance Learning (AME-DL) prototype which is a combination of advanced e-learning tools, simulation and web technology. This is to make military learning and training courses easily accessible anytime and anywhere through the use of Internet. The US navy was seen delivering self-paced online courses through its Navy e-learning system (Artino, 2009). The Command and General Staff College in the US has an 18-month web-based non-resident course which included several attributes like threaded discussions, Flash files of video instruction, chat rooms and online library access (Gruszecki, 2011). Starr-Glass (2013) reported the online learning experiences of students who were also US soldiers in the course Management and Organizational Design. His findings indicated that majority of the military learners felt their online distance education was constructive and enjoyable learning experiences. However, military learners were repeatedly seen struggling in their participation on online discussions.

Correspondingly, Newton and Ellis (2005) identified the factors namely drivers for change, training culture and learners' needs as significant to the effective e-learning implementation in the Australian Army. They proposed that "relevant e-learning requires the responsive alignment of e-learning with the characteristics of the organizational culture" (p.394). Meanwhile, Gvaramadze (2012, p.4) argued "that an online virtual learning curriculum design differs from a traditional face-to-face classroom environment in terms of learning content, learning activities and nature of learning support". On the other hand, Bonk and Wisher (2000) stressed the factors namely (1) cognitive and metacognitive, (2) motivational and affective, (3) developmental and social, and (4) individual differences, as important in transforming a classroom-centric to a soldier-centric model of instruction in an online learning environment.

2.2 Assessment of Virtual Classroom

The goal of assessing any Virtual Classroom (VC) was to attain a more effective teaching and learning environment. Since a VC is a web system, the Technology Acceptance Model (TAM) proposed by Davis (1989) is a suitable model in assessing the VC. Under this model, factors namely usefulness and ease of use, play vital roles on whether a user will continue to use a web system. In similar view, Cox and Dale (2001) and Riel et al. (2001) validated usefulness, ease of use and satisfaction as main drivers of continuous patronization among users of a system.

Chen (2003) defined satisfaction as a measure of pleasure and contentment. Correspondingly, Roca et al. (2006) believed that satisfaction is a significant predictor in the success and use of an information system. Moreover, Hills (2010) underscored the value of conducting student satisfaction survey upon completion of program modules to steadily improve the quality and performance of their online programs.

In 2009, Malik noted that "the student and instructor attitude towards technology, their computer efficacy, and instructor response, friendly interface of the online learning environment and proper facilitation of technical matters are the factors that influence student satisfaction towards online education" (p.1). Meanwhile, Chua and Montalbo (2014) compared graduate students' satisfaction on the use of Management Control and Information System VLE as per learner interface, learning community, content and usefulness. They found out that "positive attitude is exhibited on the use of VLE regardless of gender while young and experienced users of e-learning platforms tend to be difficult to satisfy with regard on the use of VLE" (p.104).

2.3 Other Factors Affecting Virtual Learning Environment Implementation

According to Hills (2010), LMSs that begin with a more detailed student profile capturing all of the identified demographic characteristics into a consolidated student database would allow for the development of a much more comprehensive learning management system capable of automating many of the essential monitoring

functions. Yoo, Huang and Kwon (2015) stressed that gender difference must be considered in measuring the efficacy of e-learning among users.

Meanwhile, Prensky (2001) coined the words "digital natives" and "digital immigrants." Digital natives are said to be born in 1980 and/or onwards (Palfrey and Gasser, 2008). They are said to be surrounded and fluent with various digital technologies like computers, cellphones, video cameras, etc. On the other hand, digital immigrants are those born prior to 1980. They did not grow up in a digital culture but they welcome the idea of using technology by studying and adopting it.

The Concordia University in Canada defined three levels of proficiency in using computer systems and programs namely; beginner, intermediate, and advanced. Sahin and Shelley (2008) noted that computer expertise influences e-learning satisfaction both directly and indirectly. Students who have more computer knowledge consider e-learning to be more flexible and useful, and consequently are more satisfied with it.

Artino (2007) surveyed 475 personnel from US Navy to understand students' satisfaction, perceived learning and choice of online military training. He found out that students' motivational beliefs about a learning task and prior experience are related to positive academic outcomes. In addition, students' success in an online course can be explained, in part, by their motivational beliefs and prior experience with online instruction.

The foregoing literature and studies were reviewed by the authors to come up with the needed directions in developing the study. In the Philippines, studies pertaining to the use of e-learning in military setting are lacking. In summary, none of the literature and studies directly addressed the implementation of a VC in the AFOS particularly in the SOC class. In line with this, the authors attempted to conduct a study along this field.

3. Methodology

3.1 Participants

The study was conducted at the Air Force Officer School (AFOS) located in the Fernando Air Base, Lipa City, Philippines. Since the VC was designed and established for the Squadron Officer Course, the authors selected all the 51 air force officers currently enrolled in the Squadron Officer Course Class 2016-B as respondents of the study. They were required to use the established SOCVC for two months (September-October 2016) and complete the satisfaction survey. Of the 51 respondents, 47 completed the survey on time.

3.2 Procedure

Since a VC is not yet introduce in the AFOS, a letter of request addressed to the Vice President for Administration and External Affairs of Batangas State University (BSU) was made to allow the authors establish the SOCVC at the BSU VLE. BSU is a known university in the Philippines, open for research collaboration that would accelerate innovation and transform people's lives.

The study utilized the presented concepts by Cooch (2010) as well as Cole and Foster (2008) in the design and establishment of the SOC VC. Studies related to LMS conducted by Machado and Tao (2007), Bremer and Bryant (2005), Kei et al. (2008), Bonk and Wisher (2000), Burges (2008) and Sumak et al. (2011) contributed significant ideas in the design and establishment of the SOCVC. MOODLE was seen as the leading LMS platform due to its several advantages as cited in the studies of Machado and Tao (2007) and Bremer and Bryant (2005). As mentioned, MOODLE is an open-source software and preferred by teachers, system administrators and students. It is also considered as the most popular e-learning platform (Cooch, 2010) and highly recommended by Fayed (2010), Cole and Foster (2008), Magdin and Burianova (2011) due to its modular interface, effectiveness, transparent administrative interface, security and numerous active community groups.

The SOCVC based on the MOODLE platform was intended to supplement face-to-face teaching in the SOC Class 2016-B. This was available and accessed by the students at http://vle.batstate-u.edu.ph from September to December 2016. Course settings such as the format, number of weeks, start date, gradebook, maximum upload size, allow guest access and group mode were tuned by the authors for better system operation of the SOCVC. All course materials and requirements were requested in advance from the Course Director. Seven modules of the SOC were included in the virtual classroom. These modules were: (1) Briefings for SOC Class 2016-B, (2) Academic Instructor Course Module, (3) Communicative Studies, (4) Military Correspondence and Publications, (5) Research Skills, (6) Leadership and (7) Management. Existing course materials in the AFOS

together with relevant activities pertaining to the said modules were posted in the virtual classroom. These were then uploaded in the virtual classroom based on the approved schedule dates of class meetings. In addition, there were sections in the virtual classroom requiring students to upload course requirements such as assignments, turn-ins and other written activities. Video files which are more than 5MB were not uploaded to save storage space and bandwidth. Table 1 shows the details of the SOCVC course materials and activities.

Table 1: SOCVC Course Materials and Activities

Area/Module/Topic Title	Course Materials	Activities
1. Briefings (6 ppt files)	Administrative, Academic & Decorum Briefing Briefing for SOC Class Facilities briefing Physical Development and Field Leadership Program Briefing IMS Briefing Financial Briefing	
2. Academic Instructor Course (2 folders, 4 ppt, 6 doc files)	Academic Instructor Course Module (ppt) Lesson Preparation (ppt) Writing a good Objective (ppt) Lesson Topic Guide (ppt) Task verbs (folder with 3 doc files) Lesson topic guide (folder with 2 doc files) Teachback Rating Sheet (doc)	Discussion Forum 1 Submission of Lesson Topic Guide (doc) Submission of Teachback Presentation (ppt)
3. Communicative Skills (8 ppt, 2 doc files)	Principles of Effective Writing (ppt) Effective Writing Tips (ppt) Essay Writing for SOC(ppt) Delivering your Presentation (ppt) My Air Force Story Briefing File (ppt) My Air Force Story Rubric File (doc) Assumption and Relinquishment Lecture (ppt) Assumption/Relinquishment Speech Rating Sheet (doc) Debate (ppt) Asian Parliamentary Debate (ppt)	Submission of My Air Force Story Submission of Presentation for My Air Force Story Submission of Assumption/ Relinquishment speech
4. Military Correspondence and Publications (1 ppt, 1 folder with 11 doc files)	Military Correspondence Lecture (ppt) Samples and Format (folder with 11 doc files)	Military Correspondence Exercise (Online Text)
5. Research Skills (4 ppt, 1 pdf, 1 doc files)	Writing Commandant's Paper (ppt) Plagiarism (ppt) Writing your Commandant's Paper (Final Chapter) (ppt) APA style (pdf) Commandant's Paper Format (ppt) Commandant's Paper Rating Sheet for Chapters 1-3 (doc)	Discussion Forum 2 Submission of Commandant's Paper (Chapters 1-3) Submission of Commandant's Paper Presentation for Initial Defense
6. Leadership (13 ppt files)	Nature and Styles of Leadership Principles of Leadership Situational Leadership Full Range Leadership Model Followership COG's Ladder APTEC Model Team Building Communicative Leadership Theories of Motivation The good, the bad and the ugly Mission People	Discussion Form 3 Mission and People Quiz Situational Leadership Quiz Followership Quiz Team Building Quiz Leadership Quiz
7. Management (19 ppt,2 pdf files)	Introduction to Management (2 ppt) Management (pdf) Planning and Organizing (3 ppt) Controlling (2 ppt) Leading (ppt) Evolution of Management Theories (ppt) Management Tools (ppt) Problem Solving and Decision Making (ppt) Synectics Method (pdf) Organizational Behaviour (ppt) Defense System of Management (7ppt)	Defense System of Management Quiz Management Quiz

Respondents were given their own account in the VC for them to have access to its contents and features. The authors conducted an orientation session to the students on how to use the VC. Demonstrations on how to download lectures, submit course requirements, participate in discussion forum were done in the orientation session. Figure 1 shows the screenshot of the established VC for the SOC.
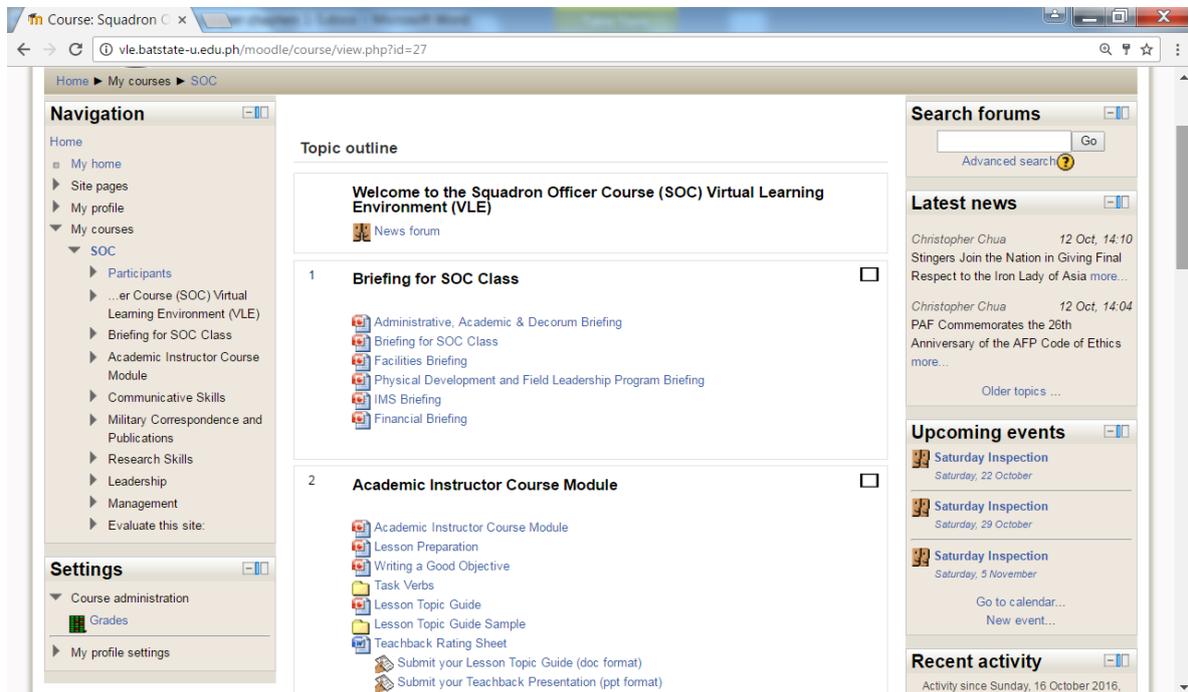
Figure 1: Screenshot of the SOCVC

The VC presented in this study was just a supportive tool in the SOC. Thus, the students were still required to attend physically all the lectures on scheduled date and time at the designated classroom.

3.3 Instrument

Important studies related to assessment of a VC were authored by Chen (2003), Roca et al. (2006), Chua and Montalbo (2014), Riel et al. (2001), Artino (2007), Newton and Ellis (2005), Al-Khalifa (2008), Zafra et al. (2011), Bell and Farrier (2008) and Bunting (2003). These studies provided practical insights in the method of assessing students' satisfaction on the use of VC. Furthermore, concepts of Technology Acceptance Model, Theory of Planned Behavior and the mentioned studies concerning user satisfaction on the use of VC were all considered in the development of the data gathering instrument.

The instrument used in the study of Chua and Montalbo (2014) was slightly modified by the authors to fit with the characteristics of the respondents of the study. Specifically, the items regarding the profile of the respondents and a non-mandatory portion for comments and suggestions regarding the VC were added in the questionnaire.

Preliminary items in the questionnaire determined the age, sex, ICT skills and previous VC experience of users. These profile variables came from ideas given by Palfrey and Gasser (2008), Sahin and Shelley (2008), Prensky (2001) and MacKenzie (2012). Main items on user's satisfaction on the use of the VC were grouped in terms of learner interface, learning community, content and usefulness. The last part of the questionnaire aimed for comments and suggestions from the respondents.

Research experts from BSU were requested to examine the first draft of questionnaire in terms of its relevance and clarity. As a try-out, the second draft of questionnaire was fielded to 20 faculty members to determine its reliability. Data collected were analyzed using Cronbach's Alpha run in the Statistical Package for Social Sciences (SPSS). All measurement items were found to be valid and reliable with an overall Cronbach's Alpha value of 0.891. The finalized questionnaire was encoded using QuestionPro, a known online survey and analytics tool. Finally, the link of the online questionnaire was posted in the VC.

Feedbacks using a 4-point scale on each statement in the questionnaire were solicited from the respondents. Retrieval of the questionnaire was done on the last week of October 2016. Data gathered were analyzed and subjected to statistical analysis using SPSS.

4. Results and Discussions

4.1 Profile of the Respondents

Profile of the respondents is described in terms of age, sex, ICT skills and VC prior experience.

Table 2: Demographics of Respondents (N=47)

Variables	Frequency	Percentage
Age		
36 years old and below	32	68.09
37 years old and above	15	31.91
Sex		
Male	33	70.21
Female	14	29.79
ICT Skills		
Beginner	7	14.89
Intermediate	40	85.11
Prior VC Experience		
With Experience	9	19.15
Without Experience	38	80.85

As seen in Table 2, majority of the respondents are 36 years old and below (68.09%). With reference to the year 2016, majority of the respondents were born in 1980 onwards. This implies that most of the respondents are digital natives. Palfrey and Gasser (2008) described digital natives as people who are exposed in digital technologies. They are believed to be accustomed to the use of technology such as computers, cellphones and the likes. Thus, they are expected to enjoy and use the SOC VC with ease.

As per sex of the respondents, male respondents (70.21%) overshadow female respondents (29.79%). Even in a small course like this, the finding supports the idea of MacKenzie (2012) in which he cited that military is known to be a male-dominated organization. On the other hand, the finding also proves that PAF caters not only men but also women though in minority, in their organization. Even in other countries like US and Israel, the number of women in military is lesser but increasing (MacKenzie, 2012; Finestone et al., 2014).

Moving on, ICT skills are also considered in this study. If ICT literacy is not recognized and dealt with, the lack of ICT skills may undermine the efforts to use e-learning (Pretorius and Biljon, 2010). As per ICT skills, majority of the respondents claimed that they have intermediate skills in ICT (85.11%). This finding is parallel to the study of Martin (2013) who indicated that high percentage of AETC personnel is familiar with the use of internet. Intermediate skills in computer are characterized by ability to customize toolbars, import and insert graphs, embed spreadsheet data, and elaborate reports, understands the concepts of databases and able to work with charts and to use the list management capabilities of a spreadsheet, familiar with data validation and indexing techniques, customize templates and presentation software environment, and to make a presentation interactive by using hyperlinks and action buttons (Concordia University, 2011). Similarly, internet intermediate skills are demonstrated with the ability to append signature to email, recognize spam/security threats, understand internet structure, basic website creation and recognize file format (University of New South Wales, 2015). The finding appears that most of the PAF respondents are ready to use the virtual classroom. They are expected to maximize the usage of all the features of the VC with less effort and accuracy.

In addition, a big percentage (80.85%) of the respondents has no prior VC experience. This means that a LMS is not yet available during their college/university days. To initially acquaint the respondents to the VC, the authors have conducted an orientation regarding the features and steps on how to use the said technology. This is to make sure that the respondents are given enough information on the use of the VC as a support tool in the SOC.

As a whole, the profile of the respondents in terms of age, sex, ICT skills and prior VC experience are all taken into consideration in this study. These are believed to influence the respondents' satisfaction on the use of the VC.

4.2 Assessment of Respondents' Satisfaction on the Use of the SOC Virtual Classroom

Respondents' satisfaction on the use of the VC is described based on the four dimensions namely; Learner Interface, Learning Community, Content and Usefulness. These dimensions also appear in studies conducted by Chua and Montalbo (2014), Chen (2003), Roca et al. (2006), Riel et al. (2001), Artino (2007), Newton and Ellis (2005), Al-Khalifa (2008), Zafra et al. (2011), Bell and Farrier (2008) and Bunting (2003).

4.2.1 Learner Interface

Learner interface deals with the acceptability of the colors, background, layout, buttons, links, fonts and navigation experience of the users. The standard MOODLE theme was used in this study in which the colors, background, etc. were in the default mode.

Table 3 shows the result of the assessment of respondents' satisfaction on the use of the virtual classroom as per Learner Interface. As shown in Table 3, statements under the learner interface dimension obtain weighted means range from 3.19 to 3.34. Four statements are agreed and three statements are strongly agreed by the respondents. The 3.25 overall weighted mean signifies that respondents are satisfied with the overall design of the learner interface of the VC. More specifically, they find the visual design such as color, background, layout, etc. appropriate and appealing. MOODLE's default learner interface theme works for the respondents. As Malik (2009) highlighted that friendly interface of the online learning environment is one of the factors which influence student satisfaction towards online education, the SOCVC is regarded to have a nice and friendly interface as shown with the agreements of the respondents on each statement. The finding shows similarity to the studies conducted by Chua and Montalbo (2014) and Popescu et al. (2010) in which learner interface of their respective VC where rated favorably by users. Overall, it can be said that respondents of this study are satisfied with the VC in terms of its learner interface.

4.2.2 Learning Community

Learning community refers to the ease of collaboration, discussion and sharing of information between students and lecturers. This is illustrated in the SOCVC through the use of the built-in chat system and discussion forums.

As manifested in Table 3, four statements are agreed and one statement is strongly agreed by the respondents. These mean that respondents value the learning community features of the VC. In an online collaborative learning, learners are able to interact and discuss with their peers, teachers or others conveniently in regard to their formal or informal studies (Koo, 2008). It can be deemed from the result that respondents admire the built-in messaging system and blogging features of the VC. These allow them to interact with their classmates, lecturer and the whole learning community. In summary, the overall weighted mean of 3.18 shows that the respondents agreed that learning community dimension of the VC is satisfactory.

4.2.3 Content

Content deals with the appropriateness, timeliness and presentation of the topics and other activities in the VC.

As exhibited in Table 3, three statements are strongly agreed and four statements are agreed by the respondents as per the content of the VC. As Gvaramadze (2012) mentioned that appropriate online content is crucial in online virtual learning environments, the authors have carefully organized and selected the course materials to be included in the VC. These course materials came from the course director given by the lecturers of the SOC. Overall, the finding indicates that respondents are satisfied with the content of the VC.

Table 3: Respondents' Satisfaction on the Use of the SOCVC

Statements	Mean	Standard Deviation	Verbal Interpretation
Learner Interface			
1. I like the look and feel of the VC.	3.19	0.49	Agree
2. Colors, background and layout are appropriate.	3.23	0.51	Agree
3. Buttons and links are well-placed.	3.23	0.55	Agree
4. Fonts (style, color, saturation) are easy to read.	3.28	0.49	Strongly Agree
5. The VC is easy to navigate.	3.30	0.50	Strongly Agree
6. The VC is user-friendly.	3.34	0.52	Strongly Agree
7. I am satisfied with the interface of the VC.	3.19	0.53	Agree
Learning Community			
8. The VC makes it easy for you to discuss questions with other students.	3.11	0.55	Agree
9. The VC makes it easy for you to access the shared content from the learning community	3.28	0.57	Strongly Agree
10. The VC makes it easy for you to discuss questions with your lecturer.	3.11	0.55	Agree
11. The VC system makes it easy for you to share what you learn with the learning community.	3.23	0.63	Agree
Content			
12. The VC provides up-to-date content.	3.32	0.47	Strongly Agree
13. The VC provides content that exactly fits your needs.	3.11	0.59	Agree
14. The VC provides sufficient content.	3.21	0.62	Agree
15. The VC is appropriate and presented in a structured manner.	3.21	0.54	Agree
16. The VC is simple and understandable.	3.32	0.55	Strongly Agree
17. The duration of the VC is just right.	3.19	0.53	Agree
18. I am satisfied with the content of VC.	3.30	0.54	Strongly Agree
Usefulness			
19. The VC can improve students' performance.	3.26	0.56	Strongly Agree
20. The VC can enable students' to accomplish tasks more quickly.	3.34	0.59	Strongly Agree
21. The VC can improve teaching.	3.15	0.65	Agree
22. The VC can make assignments/tasks easily done.	3.36	0.56	Strongly Agree
23. The VC is useful in my course.	3.38	0.60	Strongly Agree

(Mean Verbal Interpretation Range: 1.00-1.75 Strongly Disagree/Very Not Satisfied, 1.76-2.50 Disagree/Not Satisfied, 2.51-3.25 Agree/Satisfied, 3.26-4.00 Strongly Agree/Very Satisfied)

4.2.4   Usefulness

Usefulness pertains to the overall belief of the practical worth of the VC in acquiring the needed knowledge and skills of the course.

As can be gleaned in Table 3, the respondents strongly agreed the four statements and agreed one statement regarding the usefulness of the VC. This shows that the respondents believed that the VC is very useful as a support tool in the SOC. The finding differs in the study of Rayton (2013) who revealed that the internet academic portal used by the AFOS was not instrumental in students' learning. As Sanchez et al. (2013) confirmed that WebCT (a proprietary LMS) usage and acceptance is directly influenced by perceived usefulness, it is deemed in this study that the respondents acknowledge and will continue to use the VC throughout the course because they found it useful. Hence, the respondents are convinced that the VC is beneficial to them as SOC students.

Summing up, the obtained means in all statements presented for the dimensions learner interface, learning community, content and usefulness, reveal that respondents are satisfied with the VC. Hence, there is no doubt that designed and established VC can be used as a supportive tool in the delivery of SOC.

2.4.5   Comments/Suggestions of the Respondents

It should be noted that part of the questionnaire is an open-ended space where respondents can voice out their comments and/or suggestions regarding their experience with the SOC VC. Positive remarks made by the respondents with regard to their use of the VC are the following:

> *"This is very helpful to all students of SOC especially when we need the compilation of lectures that is very accessible here in the site."*

> *"It's a good idea to use this method to help the students especially in AFOS to learn."*

"Very useful."

"Nice idea."

"I hope to see this technique in other courses of PAF."

"Helpful to Non-Resident Instruction (NRI) students."

"The VC should be implemented at the AFOS as soon as possible because it is very useful to the students who are taking the SOC."

"Good for additional learning."

Some respondents also voiced their concerns based on their experience using the VC.

"Security is the main factor here. The VC is hosted by Batangas State University. Chances that students from BSU can access the confidential course materials of the SOC."

"How secure is the VC?"

"This is not applicable to active regular students. Applicable only to NRI students."

In terms of security, concerns expressed by the respondents are similar to the study of Wang et al. (2012) who cited that students did not feel safe and comfortable in the use of Facebook as LMS. In this study, though the VC is hosted in Batangas State University, one may need an account and enrolled manually by the lecturer before a student can access the VC. The enrollment setting is set manually to avoid unwanted course registration from guests of the website. Hence, only the students enrolled manually by the lecturer can access the course materials and activities of the SOC VC.

On the issue of applicability of the VC, the authors disagree with the respondent's view that this technology is not applicable to regular students of the SOC. Perhaps, the respondent perceived that regular students need not attend the regular classes and will rely solely to the VC to acquire the knowledge and skills. It is a clear fact in the beginning that the VC is just a supportive tool for the SOC. As a support tool, students are required to attend their face-to-face lecture with the lecturer and utilize the VC to download lectures, submit assignments and accomplish activities and quizzes.

Several respondents made recommendations on how to improve the VC.

"The quizzes are a bit difficult to answer due to time constraints. I hope it will be set to more than 5 minutes."

"It is better if we can upload a file more than 5MB at least, a 25MB capacity."

"Since all students do not have good vision as an effect from their ages (I mean some of our classmates are more than 40 years old), it would be better if the size of the font is increased."

The SOC VC quizzes include time settings to make the test more challenging and minimize the tendency of the students to open and read their notes. Uploading of files is limited to 5MB to save storage space since the VC is only at testing stage. Standard font sizes are used in the design of the VC. For students who do not have perfect vision, they may adjust the font size by pressing keys Ctrl + in the keyboard.

Overall, it can be seen that the respondents welcome and appreciate the designed and established VC for the SOC Class 2016-B.

4.3 Test of significant difference on the assessment of respondents' satisfaction on the use of VC when grouped according to their profile variables

As per profile variable age, the computed p-values (0.469, 0.647, 0.635, 0.540) as shown in Table 4 are all greater than 0.05 level of confidence in the four dimensions of respondents' satisfaction. Based on the p-values obtained, the study failed to reject the null hypothesis. Hence, there is no significant difference on the respondents' level of satisfaction on the use of VC when they are grouped according to their age.

Table 4: Comparing Age

Dimensions	36 & below (n=32)		37 & above (n=15)		T	Sig. (2-tailed)
	M	SD	M	SD		
Learner Interface	3.28	0.37	3.19	0.46	0.731	0.469
Learning Community	3.20	0.47	3.13	0.51	0.461	0.647
Content	3.26	0.46	3.19	0.48	0.477	0.635
Usefulness	3.33	0.51	3.23	0.60	0.618	0.540

degrees of freedom: 45
level of confidence: 95%

Similarly, in terms of profile variable sex, the p-values (0.244, 0.335, 0.292, 0.471) as seen in Table 5 are all greater than 0.05 level of confidence in the four dimensions of respondents' satisfaction. With reference to the p-values obtained, the study failed to reject the null hypothesis. Thus, there is no significant difference between male and female respondents' level of satisfaction on the use of VC.

Table 5: Comparing Sex

Dimensions	Male (n=33)		Female (n=14)		T	Sig. (2-tailed)
	M	SD	M	SD		
Learner Interface	3.21	0.37	3.36	0.42	-1.179	0.244
Learning Community	3.14	0.50	3.29	0.44	-0.976	0.335
Content	3.19	0.47	3.35	0.45	-1.066	0.292
Usefulness	3.26	0.58	3.39	0.44	-0.727	0.471

degrees of freedom: 45
level of confidence: 95%

Also, as per profile variable ICT skills, the p-values (0.955, 0.684, 0.651, 0.607) as illustrated in Table 6 are all greater than 0.05 level of confidence in the four dimensions of respondents' satisfaction. Using the p-values as reference, the study failed to reject the null hypothesis. Therefore, there is no significant difference on the respondents' level of satisfaction on the use of VC when they are grouped according to their ICT skills.

Table 6: Comparing ICT Skills

Dimensions	Beginner (n=7)		Intermediate (n=40)		T	Sig. (2-tailed)
	M	SD	M	SD		
Learner Interface	3.24	0.43	3.25	0.40	-0.057	0.955
Learning Community	3.25	0.43	3.17	0.49	0.410	0.684
Content	3.16	0.49	3.25	0.46	-0.455	0.651
Usefulness	3.20	0.38	3.32	0.56	-0.518	0.607

degrees of freedom: 45
level of confidence: 95%

Furthermore, as per profile variable prior VC experience, the p-values (0.425, 0.636, 0.490, 0.110) as shown in Table 7 are all greater than 0.05 level of confidence in the four dimensions of respondents' satisfaction. Considering the p-values obtained, the study failed to reject the null hypothesis. Thus, there is no significant difference between respondents with prior VC experience and respondents with no prior VC experience in their level of satisfaction on the use of VC.

Table 7: Comparing Prior VC Experience

Dimensions	With Experience (n=9)		Without Experience (n=38)		T	Sig. (2-tailed)
	M	SD	M	SD		
Learner Interface	3.35	0.36	3.23	0.41	0.805	0.425
Learning Community	3.25	0.45	3.16	0.49	0.477	0.636
Content	3.33	0.49	3.21	0.46	0.697	0.490
Usefulness	3.56	0.44	3.24	0.54	1.629	0.110

degrees of freedom: 45
level of confidence: 95%

The findings highlight the factors such as age, sex, ICT skills and prior VC experience does not affect the respondents' satisfaction on the use of the VC as per learning interface, learning community, content and usefulness. As per sex, the result is parallel to the studies of Cheng (2011) and Majeed (2010) who disclosed that e-learning satisfaction between male and female respondents did not have significant difference. On the other hand, results pertaining to ICT skills differ in the studies of Armon (2006), Sahin and Shelley (2008) and Gomezelj and Civre (2012) that revealed computer/technological expertise influence e-learning satisfaction. Moreover, the results presented are not parallel to the study of Machado and Tao (2007) who accounted that students felt that their previous experience with learning management systems helped them to acclimate to the new system faster. Furthermore, the findings also differ in the study of Chua and Montalbo (2014) as per age and prior VC experience in which they concluded that young and experienced users of LMS tend to be difficult to satisfy. Nevertheless, the above mentioned studies are conducted in civilian settings. Therefore, it is interesting to note that in military organization like the PAF, the findings yield different results.

5. Conclusion

The study aimed to assess the level of satisfaction of students on the use of the Squadron Officer Course Virtual Classroom. Air force officer-respondents were found to be digital natives, male, having intermediate ICT skills and without prior VC experience. They were satisfied on the use of the VC in the SOC. The dimensions (learner interface, learning community, content and usefulness) of the VC were rated favourably by the respondents. The VC using the MOODLE's default theme, built-in chat system, discussion forums, and other online activities fascinated the respondents. The VC can be used as a supportive tool in the delivery of the SOC. The study provided empirical evidence that demographic profiles such as age, sex, ICT skills and prior VC experience do not influence the level of satisfaction of students on the use of a virtual classroom.

The high appreciation and approval from the respondents regarding the use of the said technology suggested it is time for the AFOS to officially integrate the VC in the SOC as well as in other professional military education courses. This may be done by institutionalizing the use of virtual classroom to promote access to learning. The established VC in this paper may be enhanced by adding more modules, course materials and activities.

The study found some evidences contrary to existing literatures pertaining to the profile variables namely age, sex, ICT skills and prior VC experience and their connection to satisfaction on the use of a VC. This had opened a new argument on adult-learning theory which requires more investigation using both quantitative and qualitative techniques to explore the reason why these results occurred. Researchers may also validate the findings by replicating the study taking other military organizations in foreign countries as subjects.

The study is hoped to be an input for the AFOS in its vision to become the leading center for leadership excellence and PME of the AFP by creating an ideal learning environment through adoption of contemporary teaching technologies, strategies and techniques, particularly the SOCVC.

Similarly in every study, this paper had limitations that can be the basis of further studies. This paper was an initial study to obtain ideas and views on the adaptation of a VC in the SOC. It did not examine the specific level of learning obtained by the participants using the SOCVC. Hence, an experimental research can be proposed in this context. The paper only highlighted the satisfaction levels of the participants grouped in four dimensions namely, learner interface, learning community, content and usefulness. It is recommended that more researches should be conducted focusing on other aspects of VC implementation such as cost effectiveness, impact, teaching and learning styles.

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