LEARNING STYLES OF MILITARY LEARNERS

AABDP Abewardhana[1], GWA Seneviratne[2] and PPNV Kumara[3]

[1&2]Defence Services Command and Staff College, Sri Lanka
[3]General Sir John Kotelawala Defence University, Sri Lanka
[1]dimuthua@gmail.com

Abstract- Learning styles influence the way students learn and how they approach learning situations. Learning styles among students are varied and there are number of factors that may account for such differences in how students learn. Military education system is different from a civil education system. There is lesser evidence on learning styles of military learners and most importantly no evidence from Sri Lankan setting. Therefore, understanding learning styles of military students is an important mission in order to improve the effectiveness of student learning in a military setting. This study aimed to examine whether there is any transformation of military learners' learning styles over a period of time. A modified version of the standard Kolb's learning questionnaire by Honey and Mumford was distributed among military students at two levels; that is students of Defence Services Command and Staff College (DSCSC) Course Number 12 which consists of 140 masters level students including 14 foreign officers and newly joined officer cadet at General Sir John Kotelawala Defence University (KDU) numbering 208. According to the study 78% of Masters level students show the Activist learning style while 9% of them are Pragmatists, 7% are Reflectors and 6% of them are Theorists. Findings on Cadets indicated 27% 'Activist' learning style while 25% of them are Pragmatists, 24% are Reflectors and 24% of them are Theorists. The implications of these findings are discussed in terms of military teaching and learning in ways that will accommodate different learning styles of military students to improve their learning in a military setting.

Keywords- Learning styles, Military, E-Learning

I. INTRODUCTION

Learning style is unique to each and every individual learner due to various reasons which are inherent to his or her life style and pedagogical effects. It is observed that the various types of learning styles have been introduced by researchers such as Felder & Silverman (1988), Grasha-Reichermann, Honey & Mumford (2000), Kolbs, Myers-Briggs, and many other styles, Helmy et al (2016). Military education is entirely different from civil setting. It includes classroom based learning, field work and strenuous physical training activities. Further, Armies are undergoing major transformations in their training today. Rhyan (2016) stated that army should continue to develop its professional and military education from Corporal to General of the Army.

Military learners can be defined as the students of active service in the military. Basically all the military learners are considered as adult learners. According to Starr-Glass, (2011), military learners possess the similar characteristics of adult learners and in the same time they also represent a special group with some unique strengths and weaknesses which are inherent to them. Pierson (2017) argued that there is no proper approach to the military learning. Nevertheless, when compared military learning to the other disciplines, there are lesser studies published in military related learning styles.

A study carried out in Colombo University revealed that there is no difference in learning styles of the undergraduate students from first year to final year in the field of medicine. Similar results reported from a research done in Saudi Arabia among undergraduate students of first year to final year medical students (2015). In contrast, another study conducted among nurses found that there are differences in learning styles when compared to undergraduate and graduate nurses Suliman (2010). The 'Diverger' learning style has become wellknown among graduate female nursing students (45.8%) whereas the undergraduate nurses study on other learning styles. However, it is clear that certain disciplines may cause changes to one's learning style over time perhaps with training and accommodating the learning environment within each and every discipline. Therefore, it is interesting to learn whether the military students transform their learning styles over time with their military education.

II. AIM AND OBJECTIVES

Aim of this study is to study the learning styles of graduate and undergraduate levels to understand the nature of learning styles. Findings of this study will lay a basement for a future master studies on the learnings of military learners.

III. METHODOLOGY

Sri Lankan military education is based on mainly General Sir John Kotelawala Defence University where all other institutions are accredited to confer the degrees from basic level to PhD. Therefore all most all basic degrees and 80% of postgraduate are offered from KDU. Defence Services Command and Staff College (DSCSC) also confers their master's degree through KDU. Therefore 80% of postgraduates and total population of undergraduates comes through KDU. Hence the required sample of masters and first years of undergraduates were selected from DSCSC and KDU respectively. All available first year cadets were selected from KDU while 140 students from Army, Navy and Air Force were included from DSCSC. 20% of them from are Masters Students of KDU. This is a descriptive cross sectional survey to determine the learning styles of the postgraduate and undergraduate military student's at DSCSC and KDU. DSCSC participants were all master degree candidates who had over 10 years of experience in a military setting and KDU participants were the first years who just joined the military after their advanced level examination.

An English version of Honey and Mumford learning style questionnaire was used to collect data. This is a modified version of the standard questionnaire based on the Kolb learning inventory. This questionnaire consisted of 80 items with two choices to select one. The original questionnaire is consist of general questions that has not focused any particular field. Every question had only two options it means the respondent can have a choice to agree or disagree to a statement or he can mark a tick if it is vice versa. Finally all the ticks were taken in to the consideration while determining the learning styles of students according to the standards has set by Honey and Mumford (2000). The Honey and Mumford learning inventory describes four types of learners which are Activist, Pragmatist, Reflectors and Theorists. Key characteristics of each learners were questioned within the questionnaire. Figure 1 describes the Honey and Mumford learning model.
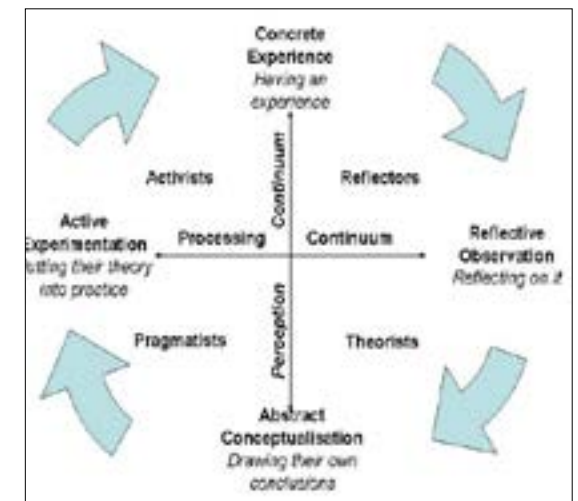

Figure 1. Honey and Mumford learning model

Printed questionnaires were delivered among 140 postgraduate students at DSCSC and 208 first year officer cadets at KDU. Data collection was carried out over a period of six weeks. Instructions to fill the questionnaire were given to all the participants on by the researcher himself and another officer who supported in collecting data. Participants were given adequate time to read and tick the answers on a separate sheet.

IV. RESULTS

The completed and returned questionnaires of 125 undergraduate officer cadets and 181 postgraduate level military students were selected for the analysis. Incomplete questionnaires were discarded as they gave a syntax error during the analysis.

The respondent rate of DSCSC participants is higher (89.2%) when compared to KDU participants (87.0 %).

Among the DSCSC participants there were 64 officers from Sri Lanka Army, 28 from Sri Lanka Navy, 25 from Sri Lanka Air Force and 8 foreign officers from Bangladesh, China, India, Nepal, Pakistan, Philippines, Rwanda and United States of America.

KDU participants represented the five faculties which are Defence and Strategic Studies, Engineering, Law, Medicine and Management. Leaning style of each participant was evaluated manually using the criteria given by Honey and Mumford (2000). Figure 2 shows the representation of different learning styles preference among Masters level students at DSCSC.
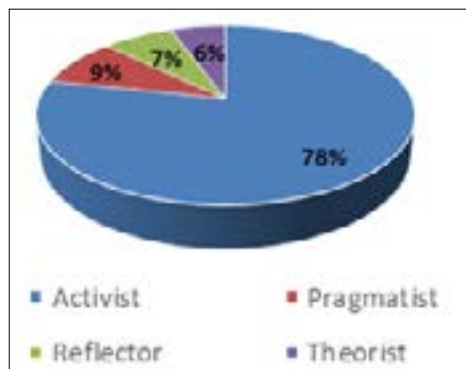

Figure 2. Distribution of Learning Styles among Tertiary Level Military Learners at DSCSC

There was no definite learning style that was used by the first year KDU cadets. Figure 3 shows the representation of learning styles which are practised among the KDU participants.
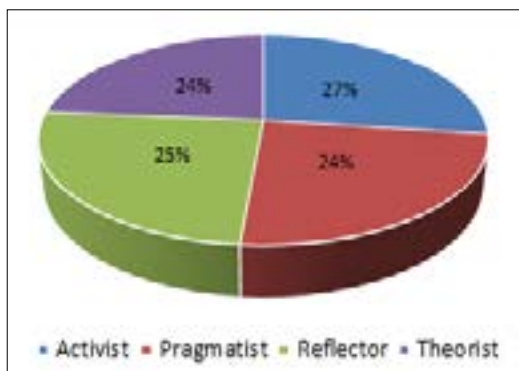

Figure 3. Distribution of learning styles among fresh military learners at KDU

Further, the analysis was conducted by using statistical package for Social Sciences (SPSS). Chi-Square goodness of fit test was done for both the categories of postgraduate and undergraduate participants using the following hypothesis.

Type 1 - Postgraduate students

Type 2 – Undergraduate students

H0: Learning styles & Type are independent

H1: Learning styles & Type are not independent

Chi-Square goodness of fit test is a non-parametric test that is used to find out how the observed value of a given phenomenon differs from the expected value. In Chi-Square goodness of fit test, the term goodness of fit is used to compare the observed sample distribution with the expected probability distribution. There is a significant relationship between learner type and learning style. Table 1 illustrates the Chi-Square results.

Table 1: The Chi-Square Results

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	78.469a	3	.000
Likelihood Ratio	82.633	3	.000
Linear-by-Linear Association	62.581	1	.000
N of Valid Cases	306		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.83.

V. DISCUSSION

This study is intended to determine the preferred learning styles of Masters level military learners and the newly joined undergraduate officer cadets. Results revealed that there is an equal distribution of learning styles among the undergraduate fresh cadets whereas the 'Activist' learning style which has become dominant (78%) among the military learners who has over 10 years of service in the military. 78% of them are Activist type.

Irfan Shukr et al (2013) have founded that the postgraduate level military medical professionals in Army Medical College in Pakistan dominate Reflector learning style. Borraci et al (2008) reported that postgraduate physician students in Spain are generally use convergent learning style. Felder and Silverman (1998) found that the most creative engineers are global learners. Another research conducted among pharmacy student in Brazil revealed that pragmatist learning style is predominant among those students which are relatively high with 77.1% compared to other researches in the world.

In this study, other learning styles were represented at minor levels such as 9% Pragmatists, 7% Reflectors and 6% Theorists. In contrast, Tulsi et al (2014) founded that there is no specific learning styles dominate among master's engineering students in India. Another research conducted among dental students of King Saud University, Saudi Arabia revealed that the students' learning styles did not change throughout the undergraduate study from first year to final year. Similar results showed in a Sri Lankan study where majority of students from the first year to final year shown the multimodal learning styles. Further among postgraduates, it was unimodal. (Samarakoon et al, 2013). Current study shows the equal representation of learning styles among fresh undergraduate cadets. These are in line with the findings of Angleo D'Amore et al (2011) In there study, there were 29.5% of Assimilators, 28.8% Diverges, 23.9% Accommodators and 17.9% Converges among the first year nursing and midwifery undergraduates.

When the findings of current study is comparing with other studies, there is a similar pattern of distribution of learning styles among first year undergraduate cadets and the first year undergraduates of other disciplines. It can be argued that the different disciplines can have their inherent dominant learning style over a period of time.

Activist learning style has become the dominant learning style among postgraduate level military learners after at least ten years of service in the military. The reasons and factors affecting are yet unclear as there is lack of evidence. It is interesting to focus on the activities which are taking place to dominate Activist learning style of these officers over a period of time while serving in the military. This was discussed by Pierson (2017) on his thoughts on adult learning environment in United States Army War College. He emphasized that the army should focus on a learning environment where learning activities can provide

solutions to real life problems which allow them to apply their own experiences. It means the personal experience gained through the military service could change one's learning style. As per Cercone (2008), with the maturity and experience, adult learners tend to learn differently than young learners.

Most of the participants were interested to learn their learning style. Therefore a feedback was given to them after the survey. A limitation of this study was that the researchers had no way to look for the previous learning styles of DSCSC participants. Researchers recommend to do a further research to find the factors that may affect changing their learning style and also a longitudinal study that includes the KDU participants.

V. CONCLUSION

Learning styles of first year undergraduate military learner's show an equal percentage among Activist (27%), Pragmatist (25%). Reflectors and Theorist had 24% each. The postgraduate level military learners dominate Activist learning style with a high rate of 78%. Reason for this kind of a changing behaviour can be occurred as a result of organizational influence, especially due to vocational training in specific field. Some of the professionals have specific military learning style that comes under the category of activist. This can be a result of having robust and well organized educational system within the military itself. Therefore organizational influence to change the individual learning style will change a particular individual's behaviour at large. Finally those changing behaviours needs be considered while focusing on developing a student base e-Learning system.

VI. RECOMMENDATIONS

This survey is a basement for an ongoing MSc research project which is doing by the principal author. It is high time for expound further research in order to develop a new learning model for postgraduate level military learners and to improve learnings of students to achieve better results than ever before in the military. Further it will help entire military learning domain to adjust their teaching and learning systems effectively to cater learning styles of learners rather than the teaching methods of teachers. Moreover, researchers suggest that this study should conduct for all the cadets and see whether is there

any progression from first year cadets to final year cadets with related to Activist learning style.

VII. ACKNOWLEDGEMENT

IX .REFERENCES

Cercone K. (2008). Characteristics of adult learners with implications for online learning design, *AACE Journal*, 16(2), 137-159.

Czepula AI, Bottacin WE, Hipólito JE, Baptista DR, Pontarolo, R, Correr CJ. (2016) Predominant learning styles among pharmacy students at the Federal University of Paraná, Brazil. *Pharmacy Practice*;14(1):650. doi: 10.18549/PharmPract.2016.01.650

David Pierson (2017) Reengineering Army Education for Adult Learners; *Journal of Military Learning*

Felder RM, and Silverman LK, (1988). Learning and Teaching Styles in Engineering Education, *Engr. Education*, 78(7), 674-681

Helmy Y, Abdo A, Abdallah R (2016) A Proposed Framework for Learning Style Prediction in Higher Education Environments; *International Journal of Advanced Research in Computer Science and Software Engineering*, 6:(3), ISSN: 2277 128X

Honey P. & Mumford A. (2000). *The learning styles helper's guide. Maidenhead*: Peter Honey Publications Ltd.

Moshabab A. (2016) Asiry Learning styles of dental students; *Saudi Journal of Dental Research*. 7

Ryan (2016), A study of Army's education, training and doctrine needs for the future. Available at: https://www.army.gov.au/sites/g/files/net1846/.../2016_05_dgt_theryanreview_web.pdf

Samarakoon L, Fernando T, Rodrigo C and Rajapakse S (2013) Learning styles and approaches to learning among medical undergraduates and postgraduates *BMC Medical Education*.13:42 Available at: https://doi.org/10.1186/1472-6920-13-42

Suliman, Wafika A (2010) The Relationship Between Learning Styles, Emotional Social Intelligence, and Academic Success of Undergraduate Nursing Students; *Journal of Nursing Research*. 18(2):p 136-143. doi: 10.1097/JNR.0b013e3181dda797

Tulsi PK, Poonia MP and Anupriya, (2016) Learning styles and achievement of engineering students. *IEEE Global Engineering Education Conference (EDUCON)*, Abu Dhabi. pp. 192-196. doi: 10.1109/EDUCON.2016.7474552

BIOGRAPHIES OF AUTHORS

 Major AABDP Abewardhana is presently a student at Defence Services Command and Staff College, Sri Lanka. He obtained his BSc in Mechanical Engineering from General Sir John Kotelawala Defence University, Sri Lanka. He has obtained a Diploma in Wheeled Armoured Vehicle Engineering from Academy of Armoured Forces Engineering in People's Republic of China. He also possess a Master's degree in Business Administration in e-Governance from Kotelawala Defence University. His research interests include e-Learning, Military learning and e-Governance.

 Colonel GWA Seneviratne is an officer from Corps of Engineers in Sri Lanka Army with 29 years of service. He is the present Head of Training Team – Army Wing at Defence Services Command and Staff College. He obtained his first degree, BA (Defence) from General Sir John Kotelawala Defence University. He also poses two masters degrees; MSc in Art and Science of Warfare from University of Baluchistan, Pakistan (Second Class Upper Division), MBS (Masters in Business Studies) - University of Colombo, Sri Lanka (Merit Pass). His research interests are the modification of Motivation and Leadership style of the Army.

 Mr PPNV Kumara is the present Head of the department of Computer Science, General Sir John Kotelawala Defence University, Sri Lanka. He obtained his first degree in Bachelor of Science (Hons) in Computing - University of Portsmouth, UK. He also received his masters in Strategic Business Information Technology from the same university. Presently he is Reading for PhD (Applied and Social Science) at General Sir John Kotelawala Defence University. His research areas are Information Systems Strategies, Data Science, Cloud Computing and Virtualization.