READINESS OF ACADEMIC STAFF FOR THE SMART CLASS ROOM IMPLEMENTATION; AN EMPIRICAL STUDY WITH SPECIAL REFERENCE TO FACULTY OF APPLIED SCIENCES, UVA WELLASSA UNIVERSITY SRI LANKA

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ABSTRACT

Advanced technological applications are a common feature in every corner of the world regardless of the sector that operated in. Higher education sector also experiencing and adopting more advanced technologies as teaching methods. Uva Wellassa University is one of the Sri Lankan universities which is planning to implement smart classrooms (SCR) in order to improve the quality and teaching and learning process while enhancing the reliability of the information. Hence, this study was focused to identify the readiness of the academic staff towards the SCR implementation and could identify three independent variables through literature, which can impact on the readiness levels of the academic staff. The independent variables are, quality of change communication, participation and cohesion. Based on the census statistic method, all the academic staff of the Faculty of Applied Sciences, Uva Wellassa University has taken for the study. Standard and validated self-administered questionnaire was used for the purpose of data collection and the response rate was 73%. The study provided a supportive explanation of academic staff readiness on SCR implementation and hypotheses were tested using the multiple regression analysis. Cohesion has the most impact on change readiness of academic staff for this implementation and the quality of change communication has the second-highest impact. However, participation does not have a significant impact on the change readiness of academic staff. Further, readiness for the implementation is directly affected by the level of experience, level of education, age and gender. Level of education and the level of experience has an enormous dissimilarity on readiness while age and gender haven't considerable variation.

Keyword: - *Smart classroom implementation, readiness for change, academic staff*

1. INTRODUCTION

Globalization and internationalization alone with the development of information and communication technologies (ICT) are advancing the way of living, working and learning of the modern society. Different computer devices such as smartphones, tablet computers and general computers including the internet, and electronic delivery systems such as radios, television and projectors are widely used in almost every different fields [1]. In this modern world,

regardless of the organizational size or type, each and every organization has to work with computer based environment in order to capitalize on opportunities available; it is unavoidable for the education sector too [2].

It is believed that ICT/IT is the reason behind in the cusp of the fourth industrial revolution (also known as Industry 4.0) due to many advanced technological features such as Cyber systems, Internet of Things, Artificial Intelligent and Cloud Computing etc. Thus, the adaptation of the new ICT tools and technology became a crucial factor of measuring the productivity of an organization/Institute.

Among all these organizations and institutes, educational institutes are the most vital places in a country where the new knowledge is being produced and introduced which is majorly affecting the growth in the economy of the country. Thus, as a developing country Sri Lanka is in need of empowering the new era of knowledge based economy. According to Sri Lankan community, higher educational institutes have a great influence in driving the country towards the knowledge based economy through knowledgeable and skilled workforce [3,4].

One of the primary goals of these academics is to share the newly generated knowledge among many people, including students, researchers, and other organizations not only nationally but also internationally. Thus, the academia tends to use different methods with the help of computer aids in order to improve the satisfaction level of the people during the knowledge sharing process. Classroom is the building blocks of an educational institute which is the place use for knowledge sharing process. In order to make the classroom more interactive, effective, and efficient, the concept of smart classroom is being started to introduce all over the world from past few years. "The smart classroom is a concept related to utilizing information and communication technologies to produce superior teaching and learning environment **[5]**. Therefore, the traditional black board delivery method and the projection system will be most outdated techniques to use in the near future. This primary change will lead to build smart university.

Many higher educational institutes in Sri Lanka started adapting this new concept concerning the great advantages it has for everyone; especially for the academic staff. As the newly established state university under University Grant Commision, Uva Wellassa University of Sri Lanka is also planning to adapt the smart classroom for a quality learning process in the near future. Further, having smart classrooms will enable; (i). teachers to instruct local and remote students simultaneously, (ii). access to the global knowledge while in the classroom, (iii). teachers and researchers to instruct students by multimedia equipment and control the presentation of lecture materials, and (iv). teachers and researchers to evaluate the teaching and learning performance with the data collected from the facilities deployed in the smart classroom.

However, the acclimating for smart classroom may differ from person to person depending on their experience, behavior pattern and their aim of usage. Thus, it may be lead to not achieving the expected outcome of implementing smart classroom.

Therefore, the investigating the readiness for smart classroom should concern more, in order to achieve the success of the implementation. According to the study made by Choi and Behling , among others, indicated that the failure rate in implementing major change initiatives in organizations could be in excess of 75% **[6]**. Hence it is important to understand whether the academic staff is ready for a new change or they prefer existing traditional methods. Moreover, improving the readiness for change is the most suitable way for minimizing their resistance and gaining their support [7].

This study is mainly focusing on improving the readiness of academic staff of Uva Wellassa University for adapting smart classroom.

The research questions of the study have identified as,

- Does quality of change communication impact on change readiness of academic staff for smart classroom implementation?
- Does participation impact on change readiness of academic staff for smart classroom implementation?
- Does cohesion impact on change readiness of academic staff for smart classroom implementation?

Based on these research questions, the objectives of this study are to:

- Find out whether quality of change communication impacts on change readiness of academic staff for smart classroom implementation
- Find out whether participation impacts on change readiness of academic staff for smart classroom implementation
- Find out whether cohesion impacts on change readiness of academic staff for smart classroom implementation

1.1 Significance of the study

The SCR implementation is newly introduced teaching and learning environment for the both lecturers and undergraduates in the FAS of UWU and no any proper study was carried out to measure the lecturers' and undergraduates' readiness for a planned change implementation. However, as an initial step this study is focused to analysis the lecturers' readiness for a planned change implementation. Hence, present study will reveal the fresh knowledge on attitude of the lecturers towards this SCR implementation and simultaneously it will be an added advantage for the team members who are involving in decision making process. Altogether, outcome of this study will be directly enhanced the quality of the implementation.

2. METHODOLOGY

2.1 Research Approach

This study is under the positivistic research paradigm with explanatory nature [8, 9]. Hypothesis testing method has employed for the theory testing and regression analysis was selected as statistical method. Further, results were planned to generalize. Therefore, deduction approach was identified as the research approach for the present study [8]. Following hypothesis were developed to test the impact on change readiness of academic staff for smart classroom implementation in terms of change communication, participation and cohesion impacts.

Hypothesis

- ➢ H1a: Quality of change communication impacts on change readiness of academic staff for smart classroom implementation
- ➢ H1b: Participation impacts on change readiness of academic staff for smart classroom implementation
- ➢ H1c: Cohesion impacts on change readiness of academic staff for smart classroom implementation

2.2 Population

Since, this SCR implementation is highly affected for the academic staff of the Faculty of Applied Sciences, Uva Wellassa University, they have been selected as the targeted population of the research. Hence, total number of 62 individuals have been subjected for the data collection. Further, the population is manageable, census statistics can be used.

2.3 Response rate

Considering, the total number of academic staff members of Faculty of Applied Sciences, Uva Wellassa University, 62 questioners have been distributed. 45 responses have received out of 62 and hence the repose rate of the present study is 73%.
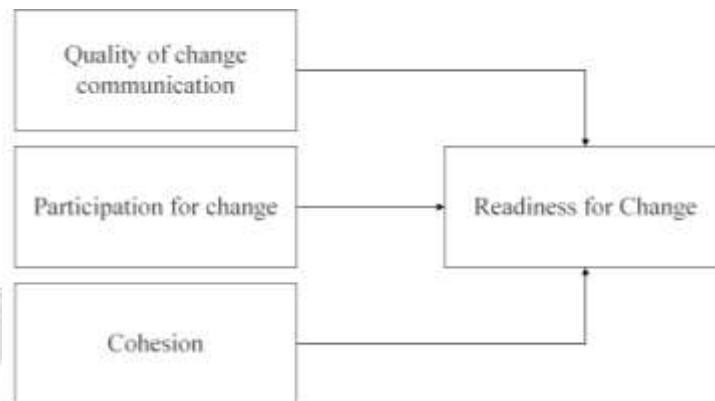
2.4 Research Instrument

The developed self-administered and paper-based questionnaire was used for the purpose of data collection. The questionnaire is in English language and was not translated in to any other language. It has contained two parts, part one is for demographic variables and part two has questions with "7-point Likert scale". Hence it was rated as, 1= Strongly Disagree, 2= Disagree, 3= Slightly Disagree, 4= Neither Agree nor Disagree, 5= Slightly Agree, 6= Agree and 7= Strongly Agree.

2.5 Conceptual Framework

Dependent variable of this study is lecturers' readiness for the SCR implementation. Independent variables are Quality of change communication, Participation for change and Cohesion (figure 01).

Cohesion is the perception of togetherness or sharing in the organization and trust in the competence of team members. Participation refers to the sense of ownership or control of the change process. Quality change communication is the effectiveness of the information provided regarding the change implementation [10].

Fig -1: Conceptual Framework of the study

3. RESULTS AND DISCUSSION

Since this study has conducted to find out the impact of three independent variables on the SCR implementation, the hypothesis testing is totally depending on multiple regression analysis. Hence, outliers, normality, multicollinearity, and independence like assumptions were tested prior to the parametric test of regression analysis.

Normality test

Though the present data set that consists of 45 elements, Shapiro-Wilk test has conducted. To have normality, P value should be greater than 0.05 and the statistical output of the study gave the P value as 0.119. Therefore, normality assumption is accepted and parametric test can be performed.

Validity

The study has used an already developed questionnaire which has tested the content validity by the developers [10]. Then it has contained valid and reliable questions. Furthermore, confirmatory factor analysis was conducted to test the construct validity of each variable. Results showed that the Keiser-Meyer–Olkin (KMO) measure of sampling adequacy for all variables were greater than 0.5 and Bartlett's test of Sphericity was significant. Questions that have factor loading greater than 0.5 were selected as valid items for further analysis.

Reliability Analysis of the Questionnaire

Out of the four variables in the present study, two variables have Cronbach's Alpha Values greater than 0.8 and other two variables around 0.6 which slightly less than the cutoff mark [9]. However [11] has explained Cronbach's Alpha of 0.6 is acceptable, hence the questionnaire of the study is reliable.

Multicolinearity

Variance Inflation Factor (VIF) has analyzed to measure the multicolinearity and values of VIF are less than the 10 demonstrate no multicolinearity problem [9]. The resulted VIF value is less than 10 and the tolerance rate is higher than 0.1, indicate that multicolinearity of this study is very low. Moreover, present study model has Durbin-Watson value as 1.574, so the assumption of independence is not violated [12].

Correlation analysis

Pearson's Co-efficient of Correlation Analysis used to find out the relationship between independent and dependent variables. Lecturers' readiness for SCR implementation statistically significant ($P<0.05$) and has moderate positive correlation with quality of change communication, participation and cohesion. The most substantially correlation is with cohesion (Table 01).

Table 01. Summary of correlation output

Independent Variables	Correlation with academic staff readiness for change	Significance
Quality of Change Communication	.376	.007
Participation	.360	.009
Cohesion	.384	.005

Source: (Survey Data, 2019)

Factors affecting on academic staff readiness for SCR implementation

Table 02 summarized the multiple regression analysis for the developed hypothesis. The highest value of β (+ .213) is for cohesion and the next contribution has given by the variable of quality of change communication with β (+.155) and both variables are significant at the level of $P<.05$. Participation is not significant at the level of $P<0.05$.

Table 02. Multiple regression analysis for the developed hypothesis

	Unstandardized Coefficients		Standardized Coefficients		
Model	*B*	*Std. Error*	*Beta*	*T*	*Sig.*
(Constant)	3.888	.561		6.925	.000
Cohesion	.213	.092	.325	2.319	.026
QCC	.155	.069	.314	2.240	.031

Source: (Survey Data, 2019)
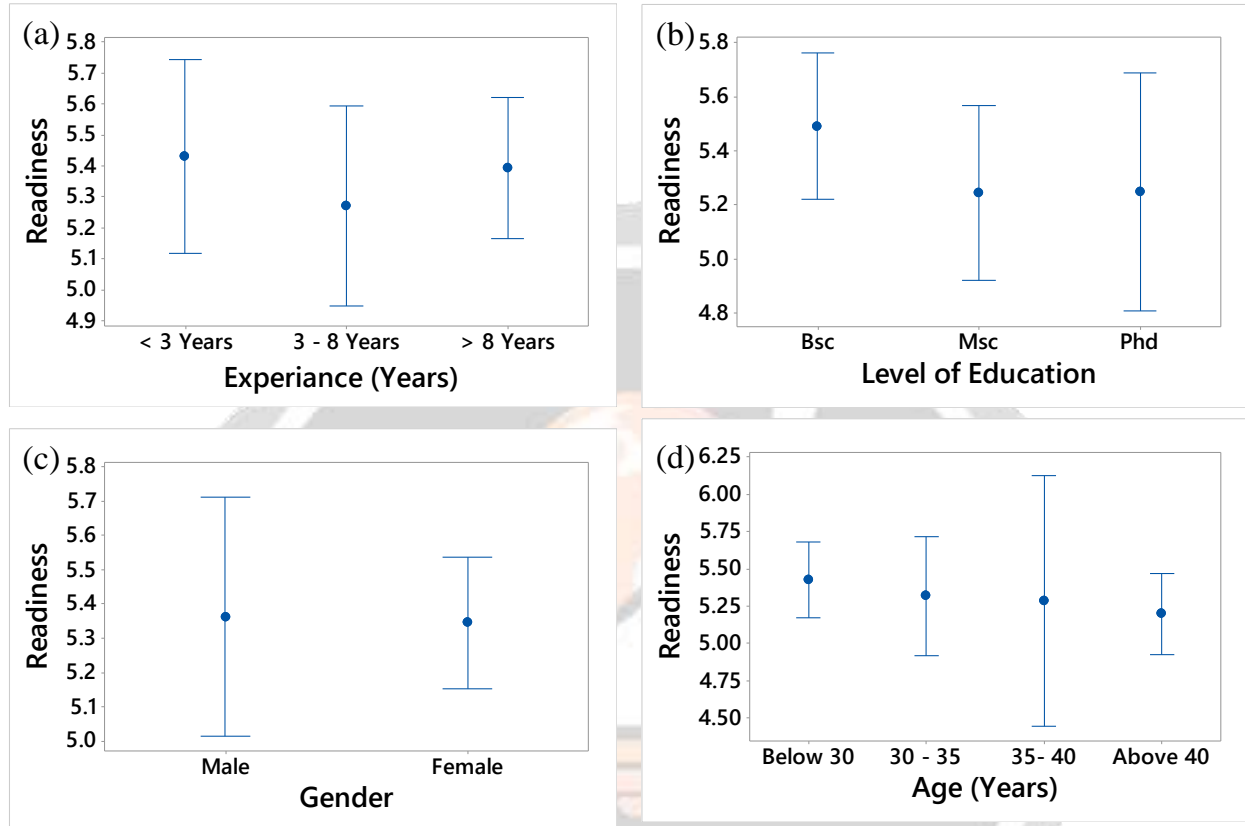
Finally, the equation for the regression analysis can be depicted as follows.

Academic staff readiness for SCR implementation = 3.888 + 0.213C + 0.155QCC + e
Where, C = Cohesion, QCC = Quality of change communication and e = Error term

Cohesion has the most impact on change readiness of academic staff for SCR implementation and the Quality of change communication has the second highest impact. However, participation does not have significant impact on change readiness of academic staff in SCR implementation.

Fig -2: Interval Plot of experience (a), level of education (b), gender (c) and age (d) Vs readiness to the SCR implementation

Figure 02 illustrates the distribution patterns of the population with demographic variables and their readiness to SCR implementation. The variation of the level of experience (Figure 2a) shows that the people who have the working experience less than 3 years have the highest readiness while 3-8 years experienced people has the lowest readiness towards the implementation. BSc level has the highest readiness and MSc and PhD obtained staff members have similar mean value of readiness distribution when considering the education level. Nevertheless, staff members with PhD qualifications have the highest level of standard deviation which emphasize that they reluctant to the 'smart classroom' concept and their readiness has large variation (Figure 2b). Gender also directly affected to the decision making of adaptation to the new concept (Figure 2c). Although the mean value of readiness is same in Male and Female groups the variation got the highest values in the Male group. Age of the staff members also significantly affected to the readiness (Figure 2d). People who are below 30 years have the highest readiness to the change and rest of the age groups behave in a similar behavior. In the age group of 35 to 40 has the highest variation of adapting to the new concept while the other groups do not show much variation.

4. CONCLUSIONS

The most import thing is creating staff members readiness for the change before implementing SCR concept. Present study reveals that the SCR implementation team can pay more attention on developing cohesion among academic staff, it will be highly beneficial for the success of the change implementation. Similarly, attention should be paid on improving the quality of change communication. There may be several other reasons for the less readiness for the change implementation and those are not covered by this study. Future studies can be conducted on several phases of change implementation and regarding the attitude changes.

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