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APPLICATION OF OUTCOME BASED CURRICULUM DESIGN STRATEGY AS AN EFFECTIVE MECHANISM FOR SECONDARY SCHOOLS

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Abstract:

Purpose: Outcome based curriculum one of the fastest implementing curriculum approach in the field of curriculum development process all over the world today. The purpose of this study is to examine the factors affect the intention to use SOLO taxonomy in the development of outcome based curriculum model in the secondary level school education. Method: This study applied SOLO Taxonomy model and inputprocess-outcome model to develop the conceptual framework for the study. Data is collected through questionnaires filled Accounting teachers in secondary schools, Accounting lecturers, academic staff of Ministry of Education and senior lecturers worked in curriculum development workshops in National Institute in Education (NIE) in Sri Lanka. Findings: It is found that there is a positive, strong and significant relationship between curriculum development inputs and outcome based curriculum development decision making process. Furthermore, there is a moderating effect of age, teaching experience and experience in curriculum development process on the relationship between curriculum development inputs and outcome based curriculum development decision making process. Value: The study addresses the need for curriculum decision making process. The study contributes to the curriculum policy

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making process. Findings of the study provide necessary guidance for curriculum policy makers and the policy makers in the general education field. Moreover, findings of this study contribute to the area of curriculum development that was beneficial to arrive at the proper decision making in constructing our own curriculum. Finally, the guidelines of this study will fulfill the requirement of the secondary school curriculum development program.

Keywords: curriculum development process, outcome based curriculum, solo taxonomy

1. Introduction

This study examines the factors affect the intention to use SOLO taxonomy in the development of outcome based curriculum model in the secondary level school education by using the curriculum policy makers perceptions. There are two objectives of the study. The first one is to examine the relationship between curriculum development inputs and the development of the SOLO based curriculum model in the secondary level school education. The second one is to examine the moderating effect on the relationship between curriculum development inputs and the development inputs and the development of the SOLO based curriculum for the secondary level school education.

This study describes, first, factors affect to the outcome based curriculum development and second, the relationship among the those factors and curriculum policy makers decision making power, and third, the moderating effect on relationship among the individual factors named age, gender, teaching experience, and curriculum development experience and the curriculum policy makers decision making power.

Accordingly, World Bank (2016) Sri Lanka has been identified as a developing country. The education system is Sri Lanka was badly affected from the 30 year war. It can be resolved on proper developed education system in Sri Lanka (Ministry of Education-MOE, 2107). Furthermore, the economist, Kelegama (2014) argued that effective education system is one of factors which could reduce the poverty.

Therefore, Sri Lanka needs quick changes in education system. World Bank (2016) reported that junior secondary education curriculum of Sri Lanka, has to be organized more on activity based learning and practical projects. Moreover, World Bank indicated that senior secondary education curriculum has to be focused on subject depth, broad general knowledge, problem solving skills, strong reasoning abilities and accurate comprehension. Therefore, the government of Sri Lankan has planned to uplift the school education quality level (MOE, 2017).

Structure of Observed Learning Outcomes (SOLO) Taxonomy can be used in curriculum designing in terms of learning outcomes which is helpful in implementing constructive alignment and to enhance the quality level of education in the country (Biggs and Collis, 1982, 2009; Australian Curriculum Framework, 2017).

The government of Hong Kong (2016) indentifies outcome based curriculum is solution to many of the problems of school education. Frederico (2014) find that efficient education system should be decentralised to give more power to schools to make decisions based on local circumstances. These included perceptions that centralized curricula were too slow to keep pace with changing social and educational environments.

This study prescribed that factors affect the outcome based curriculum development and second, the relationship among the those factors and curriculum policy makers decision making power, and third, the relationship among the individual factors named age, gender, teaching experience, and curriculum development experience and the curriculum policy makers decision making power.

2. Literature Review

The varieties of interpretation which might lead to confusion is partly due to inconsistency and multiple or broad meanings given to the definition of curriculum in the literature of curriculum by different curriculum experts in different contexts. According to <u>Ornstein and Hunkins</u> (2014), there are over 1,100 definitions of curriculum, each with different meaning and each explaining the term from different approaches.

Ornstein and Hunkins (2014) stated that a curriculum has several definitions.

- Firstly, it is a systematic group of courses or sequences of subjects required for graduation and certification in a major field of study.
- Secondly, it is a general overview of all planning of a curriculum on contents of materials and instructions that a school should offer to students by way of qualifying them through graduation and certification before entering into a professional or a vocational school.
- Thirdly, it is a list of a group of courses and planned experiences which students have to undergo under the guidance of the school entity,

Once curriculum is defined as what the persons experience in setting, its' boundary widens and virtually any happenings can be arguably considered to be within the curriculum domain (National Board of Education in Finland, 2016). The experiences could be in terms of acquisition of knowledge, mastery of skills inculcation of values, establishment of interpersonal interactions, forming learning styles, using of text books, handling of equipment, planning projects, working with others, building up of confidence and many others. This experience could be attained within the confines of the classroom or outside the classroom. It could be something planned or not planned. Observing this, Putri (2016) concluded that curriculum has been understood by the many curriculum experts and practitioners since the beginning of last century along a definitional continuum with one extreme end as 'curriculum as the sum of planned content' and the other extreme end as curriculum as all the planned or unplanned experiences under the school's direction that lead to learning'. The unplanned curriculum had been known by various names such as phantom curriculum, hidden curriculum, tacit curriculum, latent curriculum, societal curriculum etc. Each of these terms carries a slightly different meaning.

To date, however, there is a need for more concrete and stable definition of curriculum and a better defined scope of curriculum. Curriculum is the pillar of the entire educational process (Marc, 2015; Raselimo, and Mahao, 2015; Sullivan 2014; Herrmann, 2014; Wilson, 2011). Naturally, curricular change to reflect shifting trends in education, training and the industry need. Curriculum policy makers have to rethink about the existing curriculum approach and the strategies to overcome the issues through appropriate curriculum approach to the education system in the country. Many countries regularly review and update curricular in the light of changes in the industry needs and skill needs. In Sri Lanka, for an example, general curricular is reviewed every eight years. This leads to rethink in curriculum policy making process.

Decentralized curriculum approach is employed in outcome based curriculum has established in both developing and developed countries (Jardani, 2012; Chinyani, 2013; <u>Tshai</u>, 2014). Outcome based curriculum development process, gain a broad international place since the 1970 (National Board of Education in Finland, 2016; Saville, 2015; Meng, 2007; Johansson, 2006). Currently, outcome based curriculum approach is drastically applied in a lot of Asian countries, in China, Singapore, Korea. etc. (Chaman, 2014; Ye, 2011; Campbell, and Otrel, 2011; Salum, 2014; Botagariyeva, *et al* 2016). Outcome based curriculum approach is a process that involves school stakeholders in making decisions about programmes of learning for their students, incorporates collaborative decision making processes, and represents an alternative to top down or centralized curriculum decision making (Hopwood, 2014; Ye, 2011; Burgess, 2012; Bolstad, 2004).

A clear understanding of knowledge, skills and competencies as key constructs of learning outcomes, and the interconnections between them is central to the definition of learning outcomes (Hejazi, 2015; Getenet, 2015; Lu, 2014). Based on the European

Qualification Framework (EPC, 2008), while knowledge is defined as the outcome of the assimilation of information through learning and represents the body of facts, principles, theories and practices that is related to a field of work or study skills has been recognized as the ability to apply knowledge and use of know how to complete tasks and solve problems; and competence is being defined as the proven ability to use knowledge, skills and personal, social and or methodological abilities, in work or study situations and in professional and personal development (Savic and Kashef, 2013; Sopantini, 2014).

The concept of outcomes is not new to education and training (<u>Tshai</u>, 2014; European Union, 2012; Karim, and Idris, 2008). They said that outcome based curriculum is increasingly seen by stakeholders as a dynamic framework guiding teaching and learning process and as a steering mechanism for quality. Findings of empirical research widely recognize that curriculum relevance is a condition sine qua none, not only for improving the human capital potential of education and training but also for retaining learners in education and training system. The endemic irrelevance of curriculum may be one of the greatest issue to marching education and training provision successfully to learner and labour market. Adopting a learning outcome approach when developing curricular, valuing what a learner knows, understand and is able to do on completion of learning process, irrespective of how, when, and where this learning takes place is seen many researches as an effective way to avoid such potential active learning and inclusive teaching (European Union, 2012).

Outcomes approach is that diversity in educational process and curriculum design can be preserved in the field of general education (Nzilano, 2015; Dundee, 2011). The researcher further elaborated that curriculum expert, communicator, collaborator, manager, scholar and professional has been widely adopted this approach. Swing (2007) and Sriram, (2016) recognized that one of the reasons that the outcome approach has influenced general education in Scotland, USA, Pakistan and Singapore is that it provides a common language and a framework for thinking about general education. According to Dundee (2011) and Wright (2014) more than at any other time, teachers are now concerned and closely involved with curriculum development, including what should be taught, how they should teach it, how they will know if it has been learned and how the process should be managed and OBE is a unifying concept that holds together everything that education is about.

One of the most well-known and used general models for assessing the complexity in learning outcomes is the Structure of Observed Learning Outcomes taxonomy that was introduced by Biggs and Collis (1989). This model provides the important implications for the constructions of outcome based learning environment (Breaudg, 2015; Getenet, 2015; Burgess, 2014; Hermann, 2014; Charles, *et al*, 2010; Gray, 2010; Brabrand, 2009). The SOLO Taxonomy model opens up possibilities for outcome based curriculum development process (Erdogan, 2015; Donald, 2014; Hopewood, 2014; Jardani, 2012; European Union, 2010 & 2012; María, 2010; Shea, 2010; Mladenovic, 2009; Johansson, 2006).

3. The Conceptual Framework and Hypotheses Development

The conceptual framework combines the main characteristics of two models that have been highly influential in the field of curriculum development process the Input-Process-Outcome model (Purves, 1987), and the Structure of Observed Learning Outcome (SOLO) Taxonomy model (Biggs, 1989, 2009). In these models, input, process and outcome factors operate at the different levels of an education system, Input factors mainly refer to structural conditions, for example, economic wealth or community infrastructure (system level) school type (public, private) school location (rural, urban), and school resources (school level availability of technology, support of the school community) class-size and teaching resources and curriculum (classroom level) as well as individual (gender, age, grade) and family factors, such as socioeconomic status and parental education (student level). Process factors mainly concern policies and strategies, and range from national curriculum and teacher education (system level) through management and leadership (school level) quality of instruction (classroom level) to the actual learning process (student level). In the educational outcomes, approach can become inputs for further development. According to the literature review, the current study, curriculum inputs was selected as independent variable and developed the following hypothesis to analyse the relationship between curriculum inputs effect to intention to use SOLO Taxonomy in the development of outcome based school curriculum model in secondary schools. The conceptual framework as follows:



Figure 1: Conceptual Framework of the Study

4. Data and Method

This uses inferential statistics. Inferential statistical tests are used to analyze data collected from the sample. The study uses parametric statistical methods such as Factor Analysis, multiple regression analysis and correlation analysis to solve the research problem on school based curriculum development process.

This study is administered hypotheses testing to get the information on the research problem. As Chinna (2016) and Piaw (2013), inferential statistics is largely performed by statistical hypothesis inference testing. Therefore, inferential statistics is more appropriate for the current study. In order to achieve the research target, data analysis process is discussed and it included data collection procedure and data analysis process in the study.

The data obtained from the curriculum experts was input into the program Statistical Package for the Social Sciences software. The data collected from questionnaire was analyzed quantitatively. SPSS statistical analysis software was used to analyze the data. The dependent variable is curriculum development, the independent variables are curriculum inputs and the moderating variable is the policy makers individual factors named age, gender, teaching experience and curriculum development experience.

5. Result and Discussion

5.1 Data analysis for Hypotheses

5.1.1 Learning Outcomes of the curriculum

There are five items in this construct. Each item measured on a Likert scale of 1 to 5, where a value of 1 indicates disagreement, while a value of 5 indicates agreement to the statement. The descriptive statistics are presented in Table 1.

Item	Mean	SD
Learning Outcome-1	3.93	.636
Learning Outcome-2	4.05	2.29
Learning Outcome-3	3.89	.703
Learning Outcome-4	3.85	.798
Learning Outcome-5	3.66	1.10

Table 1: Descriptive statistics for items in Learning Outcomes

Based on Table 1, based on the result, the mean values for all items are towards 4. Therefore, there is moderate level of association between the four items. The Correlation values are presented in Table 2.

Table 2: The Correlation values for items in Learning Outcomes					
Item	LO1	LO2	LO3	LO4	LO5
Learning Outcome-1	1.000				
Learning Outcome-2	.256	1.000			
Learning Outcome-3	.797	.322	1.000		
Learning Outcome-4	.759	.235	.720	1.000	
Learning Outcome-5	.698	.170	.770	649	1.000

Table 2: The Correlation values for items in Learning Outcomes

Based on Table 2, the highest correlation for each item with at least one other item in the construct is between 0.3 and 0.9. In factor analysis, the Kaiser-Meyer-Olkin (KMO) value was 0.789, which is very close to 0.8. A single factor was extracted that explained 66% of the total variation in the five items. The mean for the five items was computed and saved as Incentive to be used in further analysis.

5.1.2 Subject Content of the curriculum

There are 5 items in this construct. Each item measured on a Likert scale of 1 to 5, where a value of 1 indicates disagreement, while a value of 5 indicates agreement to the statement. The descriptive statistics and inter-item correlation values are presented in Table 3.

Table 3: Descriptive statistics for items in Subject content of the curriculum			
Item	Mean	SD	
Content -1	3.97	.642	
Content -2	3.91	.607	
Content -3	3.91	.602	
Content -4	3.90	.601	
Content -5	3.90	.617	

Based on Table 3, based on the result, the mean values for all items are towards 4. Therefore, there is moderate level of association between the four items. The Correlation values are presented in table 4.

Item	C1	C2	C3	C4	C5
Content -1	1.000				
Content -2	.787	1.000			
Content -3	.689	.782	1.000		
Content -4	.652	.795	.689	1.000	
Content -5	.635	.619	.695	.695	1.000

Based on Table 4, the highest correlation for each item with at least one other item in the construct is between 0.3 and 0.9. The KMO value was 0.82, which is considered to be very good. A single factor was extracted that explained 78% of the total variation in the 4 remaining items. The mean for the 4 items was computed and saved as Environment to be used in further analysis.

5.1.3 Learning Teaching Methodology

There are 5 items in this construct. Each item measured on a Likert scale of 1 to 5, where a value of 1 indicates disagreement, while a value of 5 indicates agreement to the statement. The descriptive statistics values are presented in Table 5.

Item	Mean	SD
Methodology -1	3.89	.703
Methodology -2	3.85	.798
Methodology -3	3.66	1.10
Methodology -4	3.97	.642
Methodology -5	3.91	.607

Table 5: Descriptive for items in methodology of the curriculum

Based on Table 5, based on the result, the mean values for all items are towards 4. Therefore, there is moderate level of association between the four items. Inter-item correlation values are presented in Table 6.

Item	ML1	ML2	ML3	ML4	ML5
Methodology -1	1.000				
Methodology -2	.920	1.000			
Methodology -3	.770	.849	1.000		
Methodology -4	.544	.545	.574	1.000	
Methodology -5	.616	.607	.623	.787	1.000

Based on Table 6, the highest correlation for each item with at least one other item in the construct is between 0.3 and 0.9 The KMO value was 0.78, which is considered to be very good. A single factor was extracted that explained 69% of the total variation in the 4 remaining items. The mean for the 4 items was computed and saved as Environment to be used in further analysis.

5.1.4 Assessment strategies

There are 5 items in this construct. Each item measured on a Likert scale of 1 to 5, where a value of 1 indicates disagreement, while a value of 5 indicates agreement to the statement. The descriptive statistics values are presented in Table 7.

1		
Item	Mean	SD
Assessment -1	3.93	.636
Assessment -2	4.05	2.29
Assessment -3	3.89	.703
Assessment -4	3.85	.798
Assessment -5	3.66	1.10

Table 7: Descriptive statistics for items in assessment of the curriculum

Based on Table 7, based on the result, the mean values for all items are towards 4. Therefore, there is moderate level of association between the four constructs. Inter-item correlation for items in assessment of the curriculum is presented in table 8.

Table 8: Inter-	item correlation for it	ems in asses	ssment of the	e curriculum	
Item	A1	A2	A3	A4	A5
Assessment -1	1.000				
Assessment -2	.256	1.000			
Assessment -3	.797	.322	1.000		
Assessment -4	.759	.235	.920	1.000	
Assessment -5	.698	.170	.770	.749	1.000

Based on Table 8, the highest correlation for each item with at least one other item in the construct is between 0.3 and 0.9. The KMO value was 0.79, which is considered to be very good. A single factor was extracted that explained 66% of the total variation in the 4 remaining items. The mean for the 4 items was computed and saved as Environment to be used in further analysis.

Result from the correlation analysis was presented in Table 9. The summary for the correlation values in the four constructs is provided in Table 9.

Table 9: Analyses of correlation among the six curriculum inputs					
Items	LO	Content	Methodology	Assessment	
LO	1.000				
Content	.692	1.000			
Methodology	.734	.677	1.000		
Assessment	.692	.702	677	1.000	

Table 9: Analyses of correlation among the six curriculum inputs

Based on the result, the mean values for all items are towards 4. Therefore, there is moderate level of association between the four constructs. The highest correlation for each constructs with at least one other item in the construct is between 0.3 and 0.9. Hence, the curriculum inputs variables correlate adequately. Thus, there is a positive association between curriculum inputs and intention to use SOLO Taxonomy in the development of school curriculum in secondary education.

5.1.5 Regression Analysis of overall curriculum development on the basis of SOLO upon Curriculum Input dimensions

The result from the regression analysis was presented in Table 10.

	EFFECTIVE MEC	CHANISM FOR SECO	NDARY SCHOC	DLS		
	Table 10: F	Result from Regres	sion Analysis			
	Unstandard	ized Coefficient	Standar	dized Coeffi	cient	
Variables	В	SE	Beta	Т	P-V	VIF
Constant	.071	.171	.036	.416	.678	2.76
LO	.024	.061	.391	.391	.006	1.24
Content	.298	.097	3.07	3.07	.002	2.95
Methodology	.043	.110	.388	.388	.008	2.82
Assessment	.178	.116	1.53	1.53	.627	2.02

In Table 10, the p-value for only assessment is more than 0.05. as such, assessment is not significant predictor of overall curriculum development based on SOLO. The p-values for Learning Outcomes, Content, and Methodology, are less than 0.05. Hence overall curriculum development based on SOLO depends on Learning Outcomes, Content, Methodology, SCE and Technology. The R-square value was 0.783, which means 78.3% of the variation in curriculum development based on SOLO is explained by Learning Outcomes, Content, Methodology, SCE and Technology, SCE and Technology. The VIF value is less than 5. Hence, there is no problem of multicollinearity. The assumptions on the residuals were not violated, as assessed by residual plot and Kolmogorov-Smirnov Test of Normality (P>0.05).

The regression equation can be developed as Curriculum Development based on

SOLO = - 0.071 + 0.024 (Content) + 0.043 (Methodology) + 0.178 (Assessment)

In stepwise regression, Learning Outcomes, Content, Methodology, SCE and Technology were the only significant predictors of curriculum development based on SOLO. The R-square value was 0.867.

The stepwise regression equation is:

Curriculum development based on SOLO = 0.081 + 0.024 (LO) + 0.308 (Content) + 0.084 (methodology) + 0.209(SCE) + .380(Technology availability)

5.1.6 The analysis of the moderating role of the individual factors

The analysis of the moderating role of the individual factors named age, gender, teacher experience and curriculum development experience on the relationship between the learning Outcome of the curriculum inputs and the intention to use SOLO Taxonomy and the adoption of SOLO taxonomy in the development of school based curriculum. The moderation effect analysis was carried out using SPSS liner regression analysis. Using Liner regression analysis or correlation or hierarchical multiple

regression analysis can see moderating effect for the variables (Piaw, 2017). Current study used Liner Regression Analysis to find the interaction effect of the moderator and IV on the DV. The result from the regression analysis are presented in Table 1.5

5.1.7 Learning outcomes upon Age

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, Age as moderating variable and Learning Outcome as the independent variable were discussed. The result from the linear regression analysis is presented in Table 11.

Table 11: The result of regression Coefficient for Learning Outcomes upon Age					
	Unstandardized Coefficients		efficients Standardized Coefficients		
Variables	В	Std. Error	Beta	t	P-value
(Constant)	702	1.52		460	.646
LO	1.10	.394	.945	2.80	.005
Age	.907	.442	.686	2.05	.041
Age_LO	214	.113	980	-1.89	.059

a. Dependent Variable: SOLO Based Curriculum Development

1 LO \rightarrow SOLO:	β = 0,95, p < .05
2 Age*LO →SOLO:	β =98, p > .05 Age.

Age moderates the relationship between LO \rightarrow SOLO from a significant, positive and large effect to in significant relationship. There is difference of relationship between Learning Outcomes \rightarrow SOLO Based Curriculum Development and age*Learning Outcomes \rightarrow SOLO Based Curriculum Development. Hence, moderating effect occur.

According to the result of Table 11, Age moderates the relationship between LOs and SOLO Based Curriculum Development process from a significant, positive and large effect to insignificant relationship.

5.1.8 Learning Outcomes upon Experience in Teaching

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, Teaching experience as moderating variable and Learning Outcome as the independent variable were discussed. The result from the linear regression analysis is presented in Table 12.

Table 12: The result of Regression Coefficient for Learning Outcomes upon Gender				
Variables	Unstandardized Coefficients		Standardized Coefficients	t PV
	В	SE	Beta	_
(Constant)	737	1.64		448 .655
LO	1.05	.423	.907	2.50 .013
Experience in Teaching	.720	.371	.677	1.93 .053
Teaching LO	157	.095	893	-1.66 .098

a. Dependent Variable: SOLO

1 Learning Outcomes \rightarrow SOLO: $\beta = 0.91, p < .05$ 2 Gender* Learning Outcomes \rightarrow SOLO: $\beta = -.89, p > .05$

Experience in teaching moderates the relationship between Learning Outcomes \rightarrow SOLO from a significant, positive and large effect to in significant relationship. There is difference of relationship between Learning Outcomes \rightarrow SOLO Based Curriculum Development and gender* Learning Outcomes \rightarrow SOLO Based Curriculum Development. Hence, moderating effect occur.

According to the result of Table 12, teaching experience moderates the relationship between LOs and SOLO Based Curriculum Development process from a significant, positive and large effect to insignificant relationship.

The overall correlation between, Learning Outcomes and Intention to use SOLO taxonomy in the development of SBC curriculum from a significant, positive and large effect to in significant relationship. The correlations based on different levels of two moderators (age, and teaching experience) also showed a modest correlation (from .435 to .612) between these two variables. Hence, the results might be an indication of that there is a moderation effect of personal characteristics on the relationship learning outcomes and Intention to use SOLO taxonomy in the development of SBC curriculum. To verify the above indication, a two-step hierarchical multiple regression analysis was performed among these variables.

6. Conclusion

Objective based curriculum approach is used more that outcome based curriculum approach. However, according to Movell (2016), we are in the 4th industrial revolution and the 4th revolution is cyber physical system. Therefore, human has to work as innovator in the cyber physical system. Moreover, Movell proposed that education approach should be move from objective based to outcome based approach (Movell,

2016). The outcome based education is used at amazing level all over the world (<u>https://elearningindustry.com/outcome-based-education-mind-mapping</u>, 2017).

Furthermore, outcome based education advocates a paradigm shift from traditional practices of education (Tshie 2016). According to Niwan (2016), the traditional teacher centred objective based education is established in Asian countries. However, the result of their research suggests that outcome based education is superior to the traditional teacher centred objective based education. Over the last five years, outcome based curriculum has been adopted by various Asian countries. According to Ranjani (2016) outcome, based education has gained much attention in university education in Sri Lanka.

This study examined the factors affect to intention to use SOLO taxonomy in the development of Outcome based curriculum model for secondary schools. The result shows that the positive relationship between curriculum development inputs and the SOLO taxonomy based curriculum development process. Curriculum development inputs are learning outcomes, subject content, learning teaching methodology and assessment strategies. There is a positive relationship with outcome based curriculum development in the field of curriculum development process.

This study contributes to literature as well as policy level in the field of curriculum development process. Implications in practice are that the curriculum policy makers have a guidance to follow in their decision making in the process of curriculum development in future. Based on the results of the study, the curriculum policy makers should consider the existing curriculum panel of the curriculum development process. Thus, participations of relevant persons that will increase more the quality of the curriculum decision making process. Moreover, curriculum policy makers should ensure that learning teaching process is important to students not for the education system. Because, according to the outcome based approach the prior knowledge of the students plays an important role in actively constructing knowledge and students must apply their current knowledge in new situation in order to build the new knowledge. Therefore, children may need different activities through the existing curriculum. Furthermore, empirical result revels that the curriculum policy makers feels that subject content is very important factor of curriculum decision making process. Moreover, the findings proof that assessment strategy is a significant dimension of curriculum decision making process. According to Nazilano (2015), education reforms are currently in progress in many countries all over the world. The government of Sri Lanka needs to implement a number of such innovations in education system. Findings of this study will support to modify the ways of providing education.

With regard to this study, the limitations could be discussed from three aspects. The first aspect would relate to the models used. The second aspect would concern representation of participants. The third would be the technique used in this study. Two models are incorporated in this study. SOLO Taxonomy model and Inputs-Process-Outcome model were used. The second aspect is concerned with representations of participants chosen for the study and the number of participants. In Sri Lanka, there are 9571 schools in eight provinces. Only 2500 accounting expert teachers were chosen from 8000 secondary school teachers. Selection was based on criteria given their involvement with the process of curriculum development in secondary schools. The other participants are 100 accounting senior lectures involved the curriculum development and experience of the secondary school curriculum development.

There is a need to overcome the lack of National Curriculum Framework. Therefore, future research might be focused on the development of national level outcome based curriculum framework for the general education system.

References

- Ashrif A., Noudin, R., Zainal, N., & Husain, H. (2011), Preliminary Study on the Impact of Industrial Talks and Visits towards the Outcome Based Education of Engineering Students, UKM, Teaching and Learning Congress, available online at <u>www.sciencedirect.com</u>
- Botagariyeva, T. A., Svetlana S. Kubiyeva, S.S., Venera E., Baizakova, Mambetov, N., Yerkin K. Tulegenov, Alpysbay S. Aralbayev and Dulat U. K. (2016), Studying the Effectiveness of Physical Education in the Secondary School (by the Example of Kazakhstan), *International of Journal of Environmental and Science Education*, 2016, VOL. 11, NO. 10, 3575-3594.
- Brabrand, C., & Dahl, B. (2008). Constructive Alignment and the SOLO Taxonomy: A Comparative Study of University Competences in Computer Science vs. Mathematics. Conferences in Research and Practice in Information Technology, 88, 3-17, available at: <u>http://vbn.aau.dk/files/212444193/CRPITV88Brabrand.pdf</u>
- 4. Brabrand, (2009), Using the SOLO Taxonomy to Analyze Competence Progression of University Science Curricula, available at: <u>https://pdfs.semanticscholar.org/4cd7/5044baaf835e849c485e441a6d6e4f8db132.p</u> <u>df</u>

- 5. Breaugh, M. (2015), Curriculum Committee Chair. The Teacher, March 2015, Volume 53 Number 5, Page 14.
- 6. Burgess, E.M. (2014), *Leading quality teaching: an exploratory case study of two improving Australian schools, University* of Tasmania.
- 7. Campbell, A. & Otrel, K. (2011), Teaching Evolution in New Zealand's Schools Reviewing Changes in the New Zealand Science Curriculum, available at: <u>https://www.researchgate.net/publication/226878313 Teaching Evolution in New Zealand's SchoolsReviewing Changes in the New Zealand Science Curriculum</u>
- 8. Chaman, M.J. (2014), Factors *influencing mathematics achievement of secondary school students in India*, University of Tasmania.
- 9. <u>Charles C.C., Tsui, M.S., Mandy, Y. C., Chan, Joe, H.H.</u> (2010), *Applying the Structure of the Observed Learning Outcomes (SOLO) Taxonomy on Student's Learning Outcomes:* An empirical study, Published online: 27 May 2010.
- 10. Chinna, K. (2016), Statistical Analysis Using SPSS, Pearson, Malaysia.
- 11. Donald, A.J.M. (2014), An investigation into becoming an artist and, University of Tasmania
- 12. Dundee, (2011), Outcome-Based Education: the future is today, International Virtual Medical School, UK.
- 13. Education Bureau, (2016), School Based Curriculum development in the primary school. The government of Hong Kong.
- 14. Erdogan, Y. (2015), Computer Assisted Project-based Instruction: the Effects on Science Achievement, Computer Achievement and Portfolio Achievement, available at: http://www.e-iji.net/dosyalar/iji,2015.02.14.
- 15. European Union (2010), *Learning outcomes approaches in VET curricula A comparative analysis of nine European countries*, Luxembourg.
- 16. European Union, (2012), Curriculum reform in Europe The impact of learning outcomes. Luxembourg.
- 17. Finnish National Board of Education. (2016), Curriculum reform in Finland.
- 18. Gary K. W. W. (2010), Outcome-Based Teaching and Learning in Computer Science Education at Sub-degree Level, *International Journal of Information and Education Technology*, Vol. 1, No. 1, April 2011 ISSN: 2010-3689
- 19. Getenet, S.T. (2015), Enhancing Mathematics Teacher Educators' Technological Pedagogical Content Knowledge through Collaborative Professional Development, University of Tasmania.
- 20. Herrmann, A. (2014), Engagement, Technology and Tutors: Experiences of Distance Online Students, University of Tasmania Hobart.

- 21. Hopwood, B. (2014), Transition to Secondary School: Student Achievement and Teacher Practice, University of Tasmania.
- 22. Jardani, K. S. S. A (2012), English Language Curriculum Evaluation in Oman, International *Journal of English Linguistics*, Vol. 2, No. 5.
- 23. Johansson, M. (2006), Teaching *Mathematics with Textbooks A Classroom and Curricular Perspective*, University of Technology.
- 24. <u>Tshai</u>, K.Y. (2014), Outcome-based Education, The Assessment of Programme Educational Objectives for an Engineering Undergraduate Degree, *Journal of the Higher Education Academy*, Volume 9, 2014 - <u>Issue 1</u>
- 25. Karim, N.A.H.A., & Idris, K.Y.Y.S. (2008), Outcome-Based Education: An approach for teaching and learning development Education University, Malaysia, *Journal of Research, Policy & Practice of Teachers & Teacher Education* Vol. 3, No. 1, June 2013, 26-35
- 26. Lu, J. (2014), An Investigation of University Students' Views about Teaching and Learning English through Their Own Experiences in High Schools and University of Mainland China, Faculty of Education, University of Tasmania.
- 27. María L. & Lizárraga, S.D.A. (2007), Factors that affect decision making: gender and age differences, *International Journal of Psychology and Psychological Therapy*, 2007, 7, 3, 381-391
- 28. María T., (2010), Assessing the Quality of Essays Using the SOLO Taxonomy: Effects of Field and Classroom-based Experiences by 'A' Level Geography Students <u>Ernest</u> <u>Munowenyu</u>, Published online international research in geographical and environment education
- 29. Meng, C. (2007), Innovation of classroom teaching and learning through lesson study- focusing on mathematical communication, Paper presented at the 3rd APEC-Tsukuba International Conference, Japan.
- 30. Mezieobi, D. (2012). Gender Issues in the Implementation of Social Studies Curriculum in Nigerian Universities University of Nigeria, Nigeria, US-China Education Review, ISSN 1548-6613
- 31. Mladenovic, R. (2009), The identification of variation in students' understandings of disciplinary concepts: the application of the SOLO taxonomy within introductory accounting
- 32. <u>Mohamed</u>, A.H. (2014), Outcome based education performance measurement: a research based longitudinal assessment model to measure information management course LOs, available at: <u>https://www.researchgate.net/publication/228466300</u>

- 33. Mohayidin, M.G. (2008), Implementation of Outcome-Based Education in Universiti Putra Malaysia: A Focus on Students' Learning Outcomes, *Journal of International Education Studies*, Vol. 1, No 4, November 2008.
- 34. Morell, L. (2016). Outcomes Based Education Planning & Management What, How, Who Founder & Director Innova HiEd Former IFEES President, ABET Program Evaluator
- 35. Niwan, M. (2016), The Effects of Problem-Based-Learning on the Academic Achievements of Medical Students in One Japanese Medical School, Over a Twenty-Year Period Phillip Evans Medical Education Development Center, Gifu University, Japan
- 36. Nzilano, J. L. (2015), Influences and Outcomes of Social Constructivist Curriculum Implementation on Tutors' Beliefs and Practices in Teacher Education Colleges in Tanzania. Victoria University of Wellington, New Zealand
- 37. <u>Ornstein</u>, A. C. & <u>Hunkins</u>, F.P. (2014). *Curriculum: Foundations, Principles, and Issues*, 7th Edition, Pearson Educational Leadership.
- 38. Piaw, C. Y. (2014), Mastering Research Statics, Hill Education, Malaysia.
- Putri, A. (2014). Teachers' Perceptions toward the Implementation of School-Based Curriculum (SBC) in Indonesia. ISSN 2408-1809 Rangsit, *Journal of Educational Studies*, Vol. 3, No.1, pp.41-47,
- 40. Ranjani, R.P.C. (2014), Outcome-Based Education (OBE) using Student Centered Learning (SCL): The Case of Faculty of Commerce and Management Studies, University of Kelaniya, Sri Lanka.
- Raselimo, M. & Mahao, M. (2015), The Lesotho curriculum and assessment policy: Opportunities and threats, *South African Journal of Education*, Volume 35, Number 1, February 2015 1, 1041, 12 pages, available at: <u>http://www.sajournalofeducation.co.za</u>
- 42. Salum, K. P. (2014), Curriculum development in Tanzania: an investigation of the formulation, management and implementation of the 2005 curriculum reform in selected disadvantaged districts, University of Glasgow.
- 43. Saville, M. (2015), A Study of Pre-Service Primary School Teachers' Education with Interactive Whiteboards, University of Tasmania at Launceston.
- 44. Scalese, R.J., Gaghie, W.C., Issenbergs, S.B., & Petrusa, E.R. (2012). Effect of practice on standardised learning outcomes in simulation-based medical education, available at:
- 45. Shea, P. (2010), The Community of Inquiry Framework Meets the SOLO Taxonomy: A Process-Product Model of Online Learning. University at Albany, State University of New York, available at:

http://www.tandfonline.com/doi/abs/10.1080/09523987.2011.576514?journalCode =remi20

- 46. Sopantini, (2014), *Reforming teaching practice in Indonesia A case study of the implementation of active learning in primary schools in North Maluku*, University of Tasmania.
- 47. Sriram, S. (2016), *Outcome-Based Education: Building Student Success Models With Outcome-Based* <u>https://elearningindustry.com/outcome-based-education-mind-mapping</u> available at:
- 48. Sriram, S. (2016), Outcome-Based Education: How Automated Mind Mapping Builds Student Success Using automated tools to support outcome-based education, teaching, and assessments will improve learning outcomes and accelerate, available at: https://www.creatrixcampus.com/blog/10-steps-improve-education-quality-andstudent-achievement-outcome-based-education
- 49. Sullivan, R. (2014), A review of New Zealand's EOTC policy and curriculum: Changing meanings about safety, available at: http://www.nzcer.org.nz/system/files/CM2014_10_073_0.pdf
- 50. Wilson, M.L. (2011), Students' learning style preferences and teachers instructional strategies: correlation between matched style and academic achievement, Liberty University
- 51. World Bank, (2016), Sri Lanka, Transforming the School Education System as the Foundation of a Knowledge Hub.
- 52. Wright, F. (2014), Enhancing an understanding of the pedagogical needs of culturally and linguistically diverse adult TAFE students, University of Tasmania.

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