



TEACHERS PERCEPTIONS OF CLASSROOM PRACTICES BASED ON SOLO TAXONOMY IN SECONDARY SCHOOL SYSTEM

P. H. Kusumawathie¹ⁱ,
Norhisham Mohamad²,
Ferdous Azam³

¹PhD Candidate,
Graduate School of Management (GSM),
Management and Science University, Malaysia

²Professor Dr., Dean, School of Education and Social Sciences (SESS),
Management and Science University, Malaysia

³Dr., SM., Graduate School of Management (GSM),
Management and Science University, Malaysia

Abstract:

Purpose: The purpose of this study is to explore the conceptual awareness of accounting teachers in their teaching learning process based on SOLO Taxonomy curriculum approach in secondary level schools. Further, the study explored the relationship between the curriculum development inputs and the SOLO based curriculum development process. The curriculum development inputs are teacher effectiveness, school community, school environment and technology availability.

Method: Data was collected through questionnaires survey administration of accounting teachers in secondary level school in Sri Lanka. The respondent was selected on the basis of their subject and their experience. The data obtained from the teachers was input into the program Statistical Package for Social Sciences software package. Multiple Regression Analysis was applied to examine the relationship between Dependent variable and Independent variable to interpret the among curriculum development inputs and SOLO based curriculum development process. On the other hand, the study was analyzed moderating effect of individual factors between the relationship curriculum development inputs and SOLO based curriculum development process. **Findings:** The result indicates that the teacher's attitudes and availability of SOLO based curriculum materials will exert the most influence upon the teaching leaning process in the secondary level schools. The results further incited that the

ⁱ Correspondence: email kusumnie72@gmail.com

moderating effect of age, teaching experience and experience in curriculum development process to the relationship between curriculum development inputs to the SOLO based curriculum development process. According to the analysis the gender does not moderate the relationship curriculum development inputs and the SOLO based curriculum development process. **Value:** The study will be applicable for curriculum development process to accounting curriculum and improve the performance of student competency level not only students who learnt accountancy but also throughout all other students in secondary level schools. The study assists curriculum policy makers in the field of curriculum development process in general education system to understand the issues related to outcome based curriculum development process in current era. Hence, findings of this study could be used to guide them in enhancing curriculum reforms and implementing new curriculum approach to enhance and overcome the current issues. The findings of this study will inform curriculum policy makers and educationists who wish to apply new curriculum approach on how they can develop SOLO based curriculum for the current education system. Thus, the 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. The guidelines of this study will fulfill the requirement of the secondary school curriculum development program.

Keywords: curriculum development inputs, teaching learning process, SOLO taxonomy

1. Introduction

During last two decades, criticism of traditional teaching practices and examination oriented education has been voiced by policymakers, educators, parents, and the Sri Lankan media. There has been growing concern that heavily examination-centred education is not only harmful to student's well-being, leading to undue psychological burdens and alienation from schooling, but is also ineffective in cultivating the skills and dispositions that are necessary for competition in the global information society (Ministry of Education, 2017). Educational experts argue that qualities such as creativity, innovation, cooperation, self-expression, and high levels of engagement cannot be effectively cultivated in a traditionally teacher-centred and exam oriented classroom (Ginige, 2010). Instead, policymakers have called upon teachers to practice loving, praising, and encouraging students while creating a classroom environment that is more relaxed and open, fostering discussion and inquiry (Ministry of Education,

2017). Table 1 presents the school information, which is related with the functions of the school.

Table 1: School type, no of schools and functions of school

School Type	No of Schools	Functions
1AB	1,016	Schools having Advanced Level Science stream classes (GCE.AL-Science stream)
1C	1,805	1C - Schools having Advanced Level Arts and/or Commerce streams but no Science stream (GCE AL- Commerce stream)
Type 2	3,408	Type 2 - Schools having classes only up to grade 11
Type 3	3,933	Type 3 - Schools having classes only up to grade 8
Total	10,162	

Source: Annual School Census, 2016

According to the Table 1, there are 10162, government schools in Sri Lanka. From all schools in the country, about 1805 schools have GCE.(A/L) Commerce stream classes. Almost 18% of total schools have GCE. (A/L) Commerce stream classes. Table 2 provides the administrative system of education in Sri Lanka.

Table 2: Province, No of districts, No of Education Zones, and No of Education divisions

Province	No of District	No. of Education zones	No. of Education divisions
Western	3	38	11
Central	3	15	40
Southern	3	11	39
Northern	5	12	35
Eastern	3	17	48
North Western North	2	8	31
Central	2	8	30
Uva	2	9	23
Sabaragamuwa	2	7	27
Sri Lanka	25	98	311

Source: Annual School Census, 2016

There are 25 administrative districts in Sri Lanka. No of educational zones are 98 and each educational zones controlled by the zonal educational director. Under each educational zone, there are no of educational divisions. The Table 3 shows the no of schools, no of teachers and the no of students of government schools in Sri Lanka.

Table 3: No of teachers and schools information about the educational provinces of the country

Provinces	No of Schools	No of Students	No of Teachers	No Accounting Teachers
1-Central	1521	526157	31635	295
2-Eastern	1106	386001	20761	175
3-Northern	971	248720	14828	220
4-North Central	805	265859	15133	175
5-North Western	1259	478894	28012	395
6-Sabaragamuwa	1131	370942	22067	210
7-Southern	1114	510814	29310	470
8-Uva	895	278359	19058	176
9-Western	1360	938340	42529	495
Total	10162	4143330	233555	2341

Source: School census preliminary report, The Ministry of Education of Sri Lanka, 2016

Table 3 indicates that only 1% of government teachers in Sri Lanka are teaching accounting subject and about 21.14% them are in the Western province. Western province has the highest teacher's amount while Eastern, North central and Uva provinces are fortunate to have the lowest teacher's amount.

The trends of education in Sri Lanka have changed through major education reforms. The major education reforms provide the rationale for understanding the current educational reforms in Sri Lanka. The Sri Lanka gained independence from British colonial rule in 1948 ending 450 years of colonisation period from 1505 - 1948. The British were ruled from 1796 - 1948. The Portuguese were ruled from 1505 - 1656 and Dutch ruled from 1656 - 1796. Education system was highly affected from the colonisation rules. An education review committee was established in 1970 to restructure the education system in Sri Lanka. Major education reforms in Sri Lanka are presented in Table 4.

Table 4: Major Education Reforms in Sri Lanka

Year	Theme of the Reform	Government
1972	Handessa White paper of Jayasooriya committee	The government of Mrs SD Bandaranayaka
1981	White paper for Continues School Based Assessment	The government of Mr Ranil Wickramasingha
1998	Competency Based Curriculum in primary education of Jayathilake committee report	The government of Mrs CBK Bandaranayake
2007	Competency Based Curriculum in secondary education	The government of Mr. M Rajapaksha
2017	Improve Quality of Education	The government of Mr. M. Sirisena

Source: Report of Educational reforms in Sri Lanka, Department of Business Studies in National Institute of Education.

New Curriculum reform based on SOLO Taxonomy has called for a shift from the overemphasis on book knowledge and teacher-centred learning to a student-centred model of learning characterized by active learners, creatively solving problems, challenging existing knowledge and participating in lively discussion. This has required a new emphasis on methods and process in the classroom with the goal of increasing student participation and engagement, such as the use of open-ended questions, and questions with multiple possible solutions and the increased practice of student praise and encouragement. New Curriculum also aims to foster student engagement by establishing a closer connection between the topics studied at school and the needs of the locality and contemporary society. As captured in the excerpt opinion, the new policy promotes a more relevant school curriculum; calling for schooling materials and teaching practices to take into consideration students' interests, experiences, and developmental needs.

Student motivation to learning is a multi-facet construct that encompasses students' behavioural, cognitive, and emotional investment in learning (Amarasingha, 2011). Several researchers have linked measures of student engagement to student retention and achievement (NIE, 2016). Engaged students, who are more connected to school and more willing to study, are more likely to stay in school (World Bank, 2016) and to earn higher grades (World Bank, 2016). Eventual school dropout is associated with lower levels of measures of academic engagement when in school such as less homework completion, less effort in class, and lower participation in classroom activities (Amarasingha, 2011). Some research suggests that students who enjoy school and engage in supportive relationships with their teachers can cope better with academic stress (NIE, 2016). Just as importantly, engaged students are less likely to participate in behaviours that might adversely affect academic progress. In this way, a student's degree of engagement with schooling is an important influence on academic persistence and achievement, and ultimately, future life chances. As such, the concept of engagement has attracted the attention of educational policymakers and practitioners alike as a potential means for increasing learning and reducing drop-out.

This paper has several sections. The paper consists of 6 sections. The first section of the paper presents the introduction of the study, which was related to the background of the study. Then second part presents as 2. Literature review, which was related with the study and 3. The Conceptual Framework and Hypotheses Development, 4. Data and method, 5. Result and Discussion, and, finally, 6. Conclusion.

2. Literature Review

There are four major important points for learning. Making learning active, challenging, and enjoyable is the most important task for learning. Subject content is not be too fragment or over crowded as well as curriculum should be ensured that existing assessment strategies support learning (Amarasingha, 2010). Further, researchers revealed that technology is influenced teaching and teachers thinking on constructivist teaching learning approach. [Zhuo, and Xiao](#) (2015) constructed nineteen teacher effectiveness dimensions. The teacher effectiveness dimensions are instructional delivery, instructional differentiation, focus on learning, clarity, complexity, expectation on student learning, use of technology, questioning, student assessment for understanding and feedback, learning environment, classroom management, classroom organisation, behavioural expectation, personal qualities, caring, positive relationship with students, fairness and respect, encouragement, responsibilities, enthusiasm. Further, this research found that all dimensions influenced teacher's quality level. Ronald. (2009) found that teacher's effectiveness influenced student's achievement. Further, the researcher argued that teacher effectiveness effected to increase the school effectiveness and decision making on learning making process. [Zhuo, and Xiao](#) (2015) stated that teacher role in educational attainment is very crucial and teacher is ultimately responsible for translation policy in to practice. Further, they mentioned that teacher effectiveness becomes the most important factor on the curriculum decision making process.

SOLO Taxonomy combines all these tasks. Teachers can use SOLO taxonomy in planning to recognize, and describe of learning teaching process to achieve the high quality of learning (Mahmood, 2014 and Soobard, 2015). Further the researcher said that a teacher who has materials and knowledge based on SOLO taxonomy, certainly, she can develop a level of understanding among the students through her dynamic teaching. Teacher can use teaching learning materials based on SOLO taxonomy to design the learning experiences to promote the students strengths and capacity (Well, 2015). According to Well (2015), SOLO taxonomy is a valuable tool in many ways especially with respect to its measurability, flexibility, and potential to increase quality of learning and motivation towards deeper learning. Further said that it can also be valuable towards preparing for and performing in assessment.

3. The Conceptual Framework and Hypotheses Development

Structure of Observed Learning Outcome (SOLO) Taxonomy model (Biggs, 1989) was applied to develop the conceptual frame work of the study. 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 based school curriculum model in secondary schools. The conceptual framework as follows:

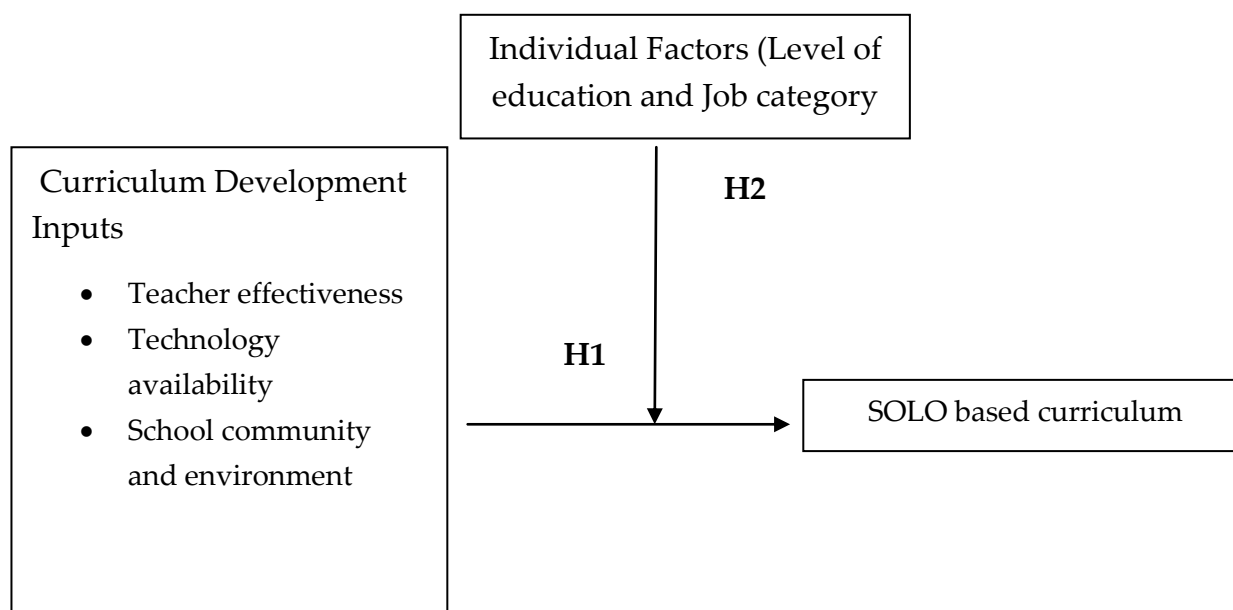


Figure 1: Conceptual Framework of the Study

3.1 Hypothesis

H1: There is a positive relationship between Curriculum development inputs and development of SOLO based curriculum model.

H2: There is a moderating effect on the relationship between Curriculum development inputs and development of SOLO based curriculum model.

4. Data and Method

The aim of this study is to explore the teacher's perceptions towards SOLO based curriculum development process. In addition to this study attempts to investigate the relationship between curriculum development inputs and the SOLO based curriculum development process. To achieve these objectives, the researcher design of this study has been conducted under descriptive research framework. As such, this study is a descriptive survey study which is one of quantitative research designs. To explore the

teacher's perception on SOLO based teaching learning process, the study applied questionnaire survey method and data are collected through a self-administered questionnaire.

Study attempts to identify the teacher's perception on learners needs in terms of SOLO Based Curriculum in secondary schools. The current study gets the accounting teachers perception regarding existing situation new curriculum approach. Therefore, the primary data is administered in this study. Primary data is purely based on the questionnaire. All questions are closed ended.

The data obtained from the accounting teachers was input into the program Statistical Package for Social Sciences software package. Multiple Regression Analysis was applied to examine the relationship between Dependent variable and Independent variable to interpret the among curriculum development inputs and SOLO based curriculum development process. On the other hand, the study was analyzed moderating effect of individual factors between the relationship curriculum development inputs and SOLO based curriculum development process.

5. Result and Discussion

First phase was, the demographic factors of respondent profile analyzed. Eleven demographic factors named gender, marital status, age, educational qualification, professional qualification, working place, salary, subject involved, teaching experience, and experience in curriculum development process were applied in the current studies. The statistical analyses revealed significant differences both to gender and age with the result of t test for independent samples revealed statistically significant differences between men and women and the women allocated more importance than did the men to uncertainty (Espa at el ,2007). Further, they stated that the process of decision making is one of the most complex mechanisms of human thinking as various factors and courses of action intervene in it. Janeth (2012) revealed that gender sensitivity about school curriculum offering is gaining global attention and concern because of the growing interest in equalizing access to education for the child irrespective of differences in sex structure.

The important phase was performed the Factor Analysis on all variables including curriculum development inputs, Individual factors, and SOLO based curriculum development. Finally, ascertained the correlation between the variables.

The initial analysis was carried out applying the Factor Analysis to determine the relationship between the 4 curriculum development inputs including teacher effectiveness, school community and environment, technology. Further, the analysis

revealed that the direct relationship between the all curriculum development inputs and development of SOLO based curriculum model. Further the analysis results will define which of the curriculum development inputs contributes most significantly to achieving the development of SOLO based curriculum model.

Result show that the positive relationship between independent variables and dependent variable.

The final stage is to perform analysis to determine the effect on curriculum development inputs, development of SOLO based curriculum model, by the **moderating role** of individual factors named age, gender, teaching experience and curriculum development experience. Based on the result, age, and teaching experience moderates the relationship independent variables and the dependent variable. Gender and curriculum development experience do not have moderating effect on the teachers perceptions on curriculum development inputs and the SOLO based curriculum model.

6. Data analysis for Hypotheses

6.1 Teacher effectiveness

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 5.

Table 5: Descriptive statistics and inter-item correlation for items in
Teacher effectiveness

Items	Descriptive Statistics		Inter -Item			Correlation	
	Mean	SD	TE1	TE2	TE3	TE4	TE5
TE1	3.9741	.64236	1.000				
TE2	3.9193	.60761	.787	1.000			
TE3	3.9193	.60284	.689	.882	1.000		
TE4	3.9078	.60118	.652	.795	.889	1.000	
TE5	3.9049	.61734	.635	.719	.795	.895	1.000

Based on Table 5, there is moderate level of agreement in all 5 items. 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 0.808, which is considered to be very good. A single factor was extracted that explained 77% 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.

6.2 School Community and Environment

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 6.

Table 6: Descriptive statistics and inter-item correlation for items in School Community and Environment of the curriculum (SCE)

Items	Descriptive Statistics		Inter -Item			Correlation	
	Mean	SD	SCE1	SCE2	SCE3	SCE4	SCE5
SCE1	3.9049	.61734	1.000				
SCE2	3.9308	.63687	.865	1.000			
SCE3	4.0548	2.29347	.226	.256	1.000		
SCE4	3.9741	.64236	.635	.582	.240	1.000	
SCE5	3.9193	.60761	.719	.620	.260	.787	1.000

Based on Table 6 there is moderate level of agreement in all 5 items. 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 0.74, which is considered to be very good. A single factor was extracted that explained 58% 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.

6.3 Technology Availability

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 7.

Table 7: Descriptive statistics and inter-item correlation for items in Technology availability

Items	Descriptive Statistics		Inter -Item			Correlation	
	Mean	SD	TA1	TA2	TA3	TA4	TA5
TA1	3.9193	.60284	1.000				
TA2	3.9078	.60118	.889	1.000			
TA3	3.9049	.61734	.795	.895	1.000		
TA4	3.9308	.63687	.686	.776	.865	1.000	
TA5	4.0548	2.29347	.185	.203	.226	.256	1.000

Based on table 7, there is moderate level of agreement in all 5 items. 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 0.80, 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.

6.4 Curriculum development based on SOLO Taxonomy

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 8.

Table 8: Descriptive statistics and inter-item correlation for items in School Based Curriculum development based on SOLO Taxonomy

Items	Descriptive Statistics		Inter -Item			Correlation	
	Mean	SD	SOLO1	SOLO2	SOLO3	SOLO4	SOLO5
SOLO1	3.9308	.63687	1.000				
SOLO2	4.0548	2.29347	.256	1.000			
SOLO3	3.8991	.70397	.797	.322	1.000		
SOLO4	3.8559	.79883	.759	.235	.920	1.000	
SOLO5	3.6686	1.10554	.698	.170	.770	.849	1.000

Based on Table 8, there is moderate level of agreement in all 5 items. 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 0.790, which is considered to be very good. A single factor was extracted that explained 65% 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.

6.5 Analyses of Correlation among the curriculum inputs

The summary for the mean scores in the constructs is provided in table 9.

Table 9: Analyses of correlation among the curriculum inputs

Items	TE	SCE	Technology
TE	1.000		
SCE	.754	1.000	
Technology	.762	.881	1.000

Based on Table.9, the mean values for all items are towards 4. Therefore, there is moderate level of association between the 3 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.

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

Table 10: The result of Regression Coefficient for
SOLO Based Curriculum Development upon Curriculum Inputs

Items	Unstandardized Coefficient		Standardized Coefficient			
	B	SD	Beta	T	p-v	VIF
Constant	.071	.171	.036	.416	.678	2.76
TE	.178	.116	.149	1.531	.027	2.022
SCE	.198	.108	.170	1.831	.028	2.032
Technology	.370	.074	.327	4.982	.000	1.032

Dependent variable: SOLO

In Table: 10, the p-values for Te, SCE and Technology are less than 0.05. Hence overall curriculum development based on SOLO depends on Teacher effectiveness, School Community and School Environment 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 Teacher effectiveness, School Community and School Environment 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 equation can be developed as:

SOLO curriculum model = 0.071 + .178 (TE) + 0.198 (SCE) + .370 (Technology availability)

6.7 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 curriculum inputs and the intention to use SOLO Taxonomy in the development of SOLO 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 regressions analysis has been advocated as more appropriate method for determining whether a quantitative variable has a moderating effect on the relationship between two other quantitative variables (Sekaran, 2014). Regression

analysis was performed based on different level of moderating factors (age, gender, and experience) as a preliminary analysis, which was suggested by Sekaran (2014).

6.8 Teacher Effectiveness upon Age

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, age as moderating variable and Teacher Effectiveness 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 Teacher Effectiveness upon age

IV	Unstandardized Coefficient		Standardized Coefficient		
	B	SD	Beta	T	Sig.
(Constant)	-1.804	1.088		-1.658	.098
TE	1.439	.286	1.194	5.034	.000
LE	.712	.309	.538	2.301	.022
LE_TE	-.175	.081	-.759	-2.163	.031

1 Teacher Effectiveness →SOLO: $\beta = 1.19, p < .05$

2 Age*Teacher Effectiveness →SOLO: $\beta = -.76, p > .05$ Age

Age moderates the relationship between Teacher Effectiveness →SOLO from a significant, positive and large effect to insignificant relationship. There is difference of relationship between Teacher Effectiveness →SOLO Based Curriculum Development and age * Teacher Effectiveness →SOLO Based Curriculum Development. Hence, moderating effect occur.

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

6.9 School Community and Environment upon Age

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, age as moderating variable and School Community and Environment 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 SCE upon age

Model	Unstandardized Coefficients			Standardized Coefficients		
	B	SD	Beta	T	Sig.	
(Constant)	.900	1.279		.704	.482	
SCE	.653	.334	.637	1.959	.051	
Age	.488	.361	.369	1.353	.177	
Age_SCE	-.094	.094	-.441	-1.005	.316	

a. Dependent Variable: SOLO

- 1 SCE →SOLO: $\beta = 0.64, p < .05$
 2 Age*SCE →SOLO: $\beta = -.44, p > .05$ Age

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

According to the result of Table 12, Age moderates the relationship between School Community and School Environment and SOLO Based Curriculum Development process from a significant, positive and large effect to insignificant relationship.

6.10 Technology Availability upon Age

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, age as moderating variable and Technology availability as the independent variable were discussed. The result from the linear regression analysis is presented in Table 13.

Table 13: The result of Regression Coefficient for Technology availability upon age

Model	Unstandardized Coefficients			Standardized Coefficients		
	B	SD	Beta	T	SIG.	
(Constant)	.756	1.663		.455	.650	
Technology	.662	.424	.541	1.564	.119	
Age	.564	.468	.426	1.205	.229	
Age_Technology	-.107	.119	-.461	-.904	.367	

a. Dependent Variable: SOLO

- 1 Technology availability →SOLO: $\beta = 0.54, p < .05$
 2 Age* Technology availability →SOLO: $\beta = -.46, p > .05$

Age moderates the relationship between Technology availability →SOLO from a significant, positive and large effect to in significant relationship. There is difference of relationship between Technology availability →SOLO Based Curriculum Development and age* Technology availability →SOLO Based Curriculum Development. Hence, moderating effect occur.

According to the result of Table 13, Age moderates the relationship between Technology availability and SOLO Based Curriculum Development process from a significant, positive and large effect to insignificant relationship.

6.11 Teacher Effectiveness upon Gender

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, gender as moderating variable and Teacher Effectiveness as the independent variable were discussed. The result from the linear regression analysis is presented in Table 14.

Table 14: The result of Regression Coefficient for TE upon Gender

Model	Unstandardized Coefficients			Standardized Coefficients		
	B	SD	Beta	T	Sig.	
(Constant)	3.204	.773		4.144	.000	
TE	.205	.203	.170	1.008	.314	
Gender	-1.459	.426	-.943	-3.428	.001	
Gender_TE	.358	.111	1.071	3.216	.001	

Dependent Variable: SOLO

1 Teacher Effectiveness →SOLO: $\beta = 0.17, p > .05$

2 Gender*Teacher Effectiveness →SOLO: $\beta = 1.07, p < .05$

Gender does not moderate the relationship between Teacher Effectiveness →SOLO. There is no difference of relationship between Teacher Effectiveness →SOLO Based Curriculum Development and Gender * Teacher Effectiveness →SOLO Based Curriculum Development. Hence, moderating effect is not occurring. According to the result of Table 14, Gender does not moderate the relationship between Technology availability and SOLO Based Curriculum Development process.

6.12 School Community and Environment upon Gender

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, gender as moderating variable and School Community and

Environment as the independent variable were discussed. The result from the linear regression analysis is presented in Table 15:

Table 15: The result of Regression Coefficient for SCE upon Gender

Model	Unstandardized Coefficients			Standardized Coefficients	
	B	SD	Beta	t	Sig.
(Constant)	3.976	.812		4.898	.000
SCE	-.008	.215	-.008	-.038	.970
JC	-.820	.457	-.530	-1.793	.074
JC_SCE	.199	.120	.630	1.660	.098

a. Dependent Variable: SOLO

1 School Community and Environment →SOLO: $\beta = 0.01, p > .05$

2 Gender* School Community and Environment →SOLO: $\beta = .63, p > .05$

Gender does not moderate the relationship between School Community and school Environment →SOLO. There is no difference of relationship between School Community and school Environment →SOLO Based Curriculum Development and Gender* School Community and school Environment →SOLO Based Curriculum Development. Hence, moderating effect is not occurring. According to the result of Table 15, Gender does not moderate the relationship between School Community and school environment and SOLO Based Curriculum Development process.

6.13 Technology Availability upon Gender

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, gender as moderating variable and Technology Availability as the independent variable were discussed. The result from the linear regression analysis is presented in Table 16.

Table 16: The result of Regression Coefficient for ICT upon Gender

Model	Unstandardized Coefficients			Standardized Coefficients	
	B	SD	Beta	T	Sig.
(Constant)	3.560	1.024		3.477	.001
Technology	.097	.267	.079	.365	.716
Gender	-.509	.575	-.329	-.885	.377
Gender Technology	.117	.148	.357	.788	.431

1 Technology Availability →SOLO: $\beta = 0.79, p > .05$

2 Gender* Technology Availability →SOLO: $\beta = .36, p > .05$

Gender does not moderate the relationship between Technology Availability →SOLO. There is no difference of relationship between School Community and Environment →SOLO Based Curriculum Development and Gender * Technology Availability →SOLO Based Curriculum Development. Hence, moderating effect is not occurring. According to the result of Table 16, Gender does not moderate the relationship between Technology availability and SOLO Based Curriculum Development process.

6.14 Teacher Effectiveness upon Experience in Teaching

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, experience in teaching as moderating variable and effectiveness as the independent variable were discussed. The result from the linear regression analysis is presented in Table 17:

Table 17: The result of Regression Coefficient for Teacher effectiveness up
Experience in Teaching

Model	Unstandardized Coefficients			Standardized Coefficients	
	B	SD	Beta	t	Sig
(Constant)	-2.994	1.224		-2.445	.015
TE	1.683	.322	1.396	5.231	.000
Teaching	.844	.278	.794	3.029	.003
Teaching TE	-.197	.073	-1.042	-2.694	.067

a. Dependent Variable: SOLO

1 Teacher effectiveness →SOLO: $\beta = 1.39, p < .05$

2 Experience in teaching * Teacher effectiveness →SOLO $\beta = -1.04, p > .05$

Experience in teaching moderates the relationship between effectiveness →SOLO. There is a difference of relationship between effectiveness →SOLO Based Curriculum Development and experience in teaching * effectiveness →SOLO Based Curriculum Development. Hence, moderating effect is occurring. According to the result of Table 17, experience in teaching moderates the relationship between Teacher effectiveness and SOLO Based Curriculum Development process from a significant, positive and large effect to insignificant relationship.

6.15 School Community and Environment upon Experience in Teaching

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, experience in teaching as moderating variable and school

community and environment as the independent variable were discussed. The result from the linear regression analysis is presented in Table 18.

Table 18: The result of Regression Coefficient for school community and environment upon Experience in Teaching

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Sd	Beta	t	Sig.
(Constant)	.517	1.330		.389	.698
SCE	.712	.349	.694	2.039	.042
Teaching	.476	.300	.448	1.587	.114
Teaching_ SCE	-.088	.079	-.505	-1.122	.263

a. Dependent Variable: SOLO

- 1 School Community and environment →SOLO: $\beta = .69, p < .05$
 2 Experience in Teaching r* SCE →SOLO: $\beta = -.51, p > .05$

Experience in teaching moderates the relationship between School Community and environment →SOLO from a significant, positive and large effect to in significant relationship. There is difference of relationship between School Community and environment →SOLO Based Curriculum Development and Experience in Teaching * School Community and environment →SOLO Based Curriculum Development. Hence, moderating effect occurs.

According to the result of Table 18, experience in teaching moderates the relationship between School community and school environment and SOLO Based Curriculum Development process from a significant, positive and large effect to insignificant relationship.

6.16 Technology Availability upon Experience in Teaching

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, Experience in teaching as moderating variable and Technology availability as the independent variable were discussed. The result from the linear regression analysis is presented in Table 19.

Table 19: The result of Regression Coefficient Technology availability upon
Experience in Teaching

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	SD	Beta	T	Sig
(Constant)	-.013	1.718		-.008	.994
ICT	.818	.441	.668	1.854	.065
TE	.618	.385	.581	1.604	.110
Teaching_ ICT	-.119	.099	-.618	-1.206	.229

1 Technology availability →SOLO:

$$\beta = .67, p > .05$$

2 Experience in teaching * Technology availability →SOLO: $\beta = -.62, p > .05$

Experience in teaching moderates the relationship between Technology availability →SOLO from a significant, positive and large effect to in significant relationship. There is difference of relationship between Technology availability →SOLO Based Curriculum Development and Experience in Teaching * Technology availability →SOLO Based Curriculum Development. Hence, moderating effect occurs.

According to the result of Table 19, experience in teaching moderates the relationship between technology availability and SOLO Based Curriculum Development process from a significant, positive and large effect to insignificant relationship.

6.17 Teacher Effectiveness upon Experience in Curriculum Development

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, experience in curriculum development as moderating variable and teacher effectiveness as the independent variable were discussed. The result from the linear regression analysis is presented in Table 20.

Table 20: The result of Regression Coefficient Teacher effectiveness upon
Experience in Curriculum development

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	SD	Beta	t	Sig.
(Constant)	-1.797	1.218		-1.475	.141
TE	1.379	.317	1.144	4.347	.000
ECD	.577	.281	.549	2.053	.041
Curriculum _TE	-.129	.073	-.690	-1.765	.078

a. Dependent Variable: SOLO

- 1 Teacher effectiveness →SOLO: $\beta = 1.14, p <.05$
 2 Experience in Curriculum development * Teacher effectiveness → SOLO: $\beta = -.69, p >.05$

Experience in curriculum development moderates the relationship between Teacher effectiveness →SOLO from a significant, positive and large effect to in significant relationship. There is difference of relationship between teacher effectiveness →SOLO Based Curriculum Development and Experience in Curriculum development * Teacher effectiveness →SOLO Based Curriculum Development. Hence, moderating effect occur.

According to the result of Table 20, experience in curriculum development moderates the relationship between teacher effectiveness and SOLO Based Curriculum Development process from a significant, positive and large effect to insignificant relationship.

6.18 SCE upon Experience in Curriculum Development

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, Experience in curriculum development as moderating variable and School community and environment as the independent variable were discussed. The result from the linear regression analysis is presented in Table 21.

Table 21: The result of Regression Coefficient School community and environment upon Experience in Curriculum development

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	SD	Beta	t	Sig
(Constant)	.148	1.297		.114	.909
SCE	.815	.337	.795	2.420	.016
ECD	.569	.297	.542	1.916	.056
Curriculum_SCE	-.114	.077	-.656	-1.479	.140

a. Dependent Variable: SOLO

- 1 School community and environment →SOLO: $\beta = .79, p <.05$
 2 Experience in Curriculum development * School community and environment →SOLO: $\beta = -.65, p >.05$

Experience in curriculum development moderates the relationship between School community and environment →SOLO from a significant, positive and large effect to in significant relationship. There is difference of relationship between School

community and environment →SOLO Based Curriculum Development and Experience in Curriculum development * School community and environment →SOLO Based Curriculum Development. Hence, moderating effect occurs.

According to the result of Table 21, experience in curriculum development moderates the relationship between school community and school environment and SOLO Based Curriculum Development process from a significant, positive and large effect to insignificant relationship.

6.19 Technology Availability upon Experience in Curriculum Development

The linear regression analysis with SOLO Based Curriculum Development as the dependent variable, experience in curriculum development as moderating variable and technology availability as the independent variable were discussed. The result from the linear regression analysis is presented in Table 22.

Table 22: The result of Regression Coefficient School Technology availability upon Experience in Curriculum development

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.327	1.653		-.198	.843
ICT	.906	.421	.741	2.154	.032
Experience in Curriculum Development	.702	.376	.668	1.867	.063
Curriculum_ICT	-.142	.096	-.747	-1.487	.138

a. Dependent Variable: SOLO

1 Technology availability →SOLO: $\beta = .74, p < .05$

2 Experience in Curriculum development * Technology availability →SOLO: $\beta = -.75, p > .05$

Experience in curriculum development moderates the relationship between Technology availability →SOLO from a significant, positive and large effect to insignificant relationship. There is difference of relationship between technology availability → SOLO Based Curriculum Development and Experience in Curriculum development * Technology availability →SOLO Based Curriculum Development. Hence, moderating effect occur.

According to the result of Table 22, experience in curriculum development moderates the relationship between technology availability and SOLO Based

Curriculum Development process from a significant, positive and large effect to insignificant relationship.

7. Conclusion

Curriculum policy makers have a responsibility to develop a new curriculum with experts and subject specialist. Thus this study is very significant in that can help to find the experts starting point and also help them in making their decision in reforming goals selecting and organizing content and experience. The students of secondary schools should be provided with all abilities and skills which are helpful to face current issues. Furthermore, there is significant importance in developing multi skills for future employment in the country. Proper guidelines followed by the National Institute of Education in developing curriculum materials of secondary schools are not being found in Sri Lankan secondary schools at present. Therefore, the researcher found that developing guidelines for secondary school curriculum is really important and it has become my major concern for this study.

The study explored the conceptual awareness of accounting teachers in their teaching learning process based on SOLO Taxonomy curriculum approach in secondary level schools. Further, the study explored the relationship between curriculum development inputs and SOLO based curriculum development process. The curriculum development inputs are teacher effectiveness, school community, school environment and technology availability.

The overall correlation between, curriculum inputs and the development of the SOLO based curriculum was strong. Similarly the correlations based on different levels of all moderators (age, teaching experience, and curriculum experience) also showed a strong correlation between curriculum development inputs and SOLO based curriculum development process.

This study contributes to academic as well as practical aspects in the policy level in the field of curriculum development. 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 reveals 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. 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. SOLO taxonomy model is incorporated in this study. The second aspect is concerned with representations of participants chosen for the study and the number of participants. In Sri Lanka, there are 10162 schools in nine provinces. Only 2341 accounting teachers were chosen from 8000 secondary school teachers. Selection was based on criteria given their involvement of teaching the subject of accounting in secondary schools.

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

1. Amarasingha, S. (2010), *Development of Curriculum Guidelines: Using Delphi Method on-* PhD Thesis, University of Malaya, Malaysia
2. Biggs, J. (1989), "Towards a Model of School-Based Curriculum Development and Assessment Using the SOLO Taxonomy", *Australian Journal of Education*, v33 n2 p151-63 Aug 1989
3. Department of Business Studies in National Institute of Education. (2014), *Report of Educational reforms in Sri Lanka*,
4. Mahmood, A. (2014), "Understanding of Elementary School Teachers of 3rd World Country about Levels of SOLO Taxonomy Mediterranean", *Journal of Social Sciences Publishing*, Rome-Italy, Vol 5 No 23 November 2014.
5. Merlita C. M. And Grace O. M. (2014), "Teaching Effectiveness and Student's Learning Acquisition in Selected Major Courses in the International Tourism and

- Hospitality Management Program. Asia Pacific", *Journal of Multidisciplinary Research*, Vol. 2, No. 1 | February 2014
6. Ministry of Education in Sri Lanka, (2017), *Education minister's message*.
 7. Ministry Of Education Sri Lanka, (2017), *School Census Preliminary Reports*.
 8. National Institute of Education. (2016). Business and accounting studies: Grade 10 teachers' instructional manual. Maharagama: National Institute of Education.
 9. National Institute of Education. (2016). Business and accounting studies: Grade 11 teachers' instructional manual. Maharagama: National Institute of Education.
 10. National Institute of Education. (2016). Accounting: Grade 12 teachers' instructional manual. Maharagama: National Institute of Education.
 11. National Institute of Education. (2016). Accounting: Grade 13 teachers' instructional manual. Maharagama: National Institute of Education.
 12. Ronald, H. (2009) ,"Teacher effectiveness and student achievement: Investigating a multilevel cross-classified model", *Journal of Educational Administration*, Vol. 47 Issue: 2, pp.227-249, doi: 10.1108/09578230910941066
 13. Soobard, R. And Rannikmäe, M. (2015), "Examining Curriculum Related Progress Using a context based Test Instrument – A Comparison of Estonian Grade 10 and 11 Students". *Journal of Science Education International*, Vol. 26, Issue 3, 2015, 263- 283.
 14. Stronge, J. H. Thomas J. Leslie W., Grant, (2011), "What Makes Good Teachers Good? A Cross-Case Analysis of the Connection between Teacher Effectiveness and Student Achievement", Belgium, *Journal of teacher education*. 2011. 9.
 15. Valcke, M.; Braak, J. V.; Tondeu, J. (2010), "Student teachers' thinking processes and ICT integration: Predictors of prospective teaching behaviors with educational technology", *Journal of computers and education*, Vol. 26, Issue 3, 2010, 263-283.
 16. Wells, C. (2015), The structure of observed learning outcomes (SOLO), taxonomy model: How effective is it? College of Education, Health and Human Development, University of Canterbury, New Zealand.
 17. World Bank, (2016), Sri Lanka, Transforming the School Education System as the Foundation of a Knowledge Hub.
 18. [Zhuo, F. and Xiao, H.](#), (2015), Preservice Teachers' Reflective Portfolio: Evaluating Teaching and Learning in Teacher Education in China, in Cheryl J. Craig , Lily Orland-Barak, *International Teacher Education: Promising Pedagogies, Advances in Research on Teaching*, Volume 22C, Emerald Group Publishing Limited

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