

Chapter 4

Result Analysis

The research of evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level, the researcher presented the results in three parts:

Part 1 Result of analyzing factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

1.1 Result of analyzing factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level applying exploratory factor analysis (EFA).

1.2 Result of verifying the quality of factors and indicators and relationship model analysis.

1.2.1 Result of verifying the validity of the model of relationship between factors and indicators of teachers' roles to promote Lifelong Learning skills of students.

1.2.2 Result of analyzing the model of relationship of teachers' roles to promote Lifelong Learning skills of students.

Part 2 Result of developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students.

2.1 Result of developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students.

2.2 Result of verifying the quality of evaluation model for teacher's roles to promote Lifelong Learning skills of students by the experts.

Part 3 Result of the tryout to examine quality of evaluation model for teacher's roles to promote Lifelong Learning skills of students.

3.1 Results of evaluating teacher's roles to promote Lifelong Learning skills of students.

3.2 Result of verifying the quality of the evaluation model for teacher's roles to promote Lifelong Learning skills of students by the testers.

3.3 Result of verifying the Concurrent Validity, Rater Agreement Index: RAI and Reliability of the evaluation results applying Generalizability Theory

3.4 Results of developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students after the tryout.

Part 1 Result of analyzing factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level

From studying relevant documents, journals, concepts, and researches on teachers' roles to promote Lifelong Learning skills of students at the basic educational level, the researcher synthesized the indicators applying content analysis technique and content validity from the experts and obtained 40 variable indicators of teachers' roles to promote Lifelong Learning skills and 13 variable indicators of Lifelong Learning skills. Then, the researcher created the questionnaire on the opinion on the indicators of teachers' roles to promote Lifelong Learning skills of students to analyze the factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

1.1 Result of analyzing factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level

The analysis of factors and indicators of teachers' roles to promote the Lifelong Learning skills of students at the basic educational level employed the Exploratory Factor Analysis: EFA to examine the grouping of indicators. The researcher collected data from 550 samples and analyzed the collected data applying computer program: Principal Component Analysis: PC and orthogonal rotation with varimax rotation because it gave importance to the individual factors aiming to the difference or the alteration by distinguishing each factor to separate the variables from the main factors. The criteria was that the factors should have Eigen value more than 1.00 and each factors indicators must have factor loading more than 0.30 (Kanlaya Wanitbancha, 2008, p.270). Anyway, from EFA of 40 indicators of teachers' roles to promote Lifelong Learning skills, there were 5 factors and from 13 indicators of Lifelong Learning skills, there was one factor. The analysis result shown in Table 4.1-4.4

Table 4.1 The relationship of teachers' roles to promote Lifelong Learning skills of students

Testing	Testing Results
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	.963
Barlett's Test of Sphericity	
Approx. Chi-Square	13840.570
df	780
p	.00

From Table 4.1, KMO value, which measure the variable appropriation for component analysis, was .963, which was closed to 1. This meant the variable was appropriate for analyzing factors. Barlett's Test of Sphericity value, which was the statistic testing whether correlation matrix was identity matrix, had Approx. Chi-Square at 13840.570, p value was .00. It demonstrated that the correlation matrix between sample variables was different from identity matrix with statistical significance at .01, which meant the variables were related. Therefore, the variables were appropriate for factors analysis.

The results of the study were presented in the factor analysis order: 1) Factor Extraction 2) Orthogonal Rotation 3) Factors Identifying

Factor Extraction by Principal Component Analysis: PC - In factor extraction, the factors and Eigen value were the variation of all variables in each factor. In factor analysis, common factor gained from the first factor would be the factor distinguished the variation of the variables from other factors so there were many co-variables. Percentage of Variance and Cumulative Percentage of Variance was showed in Table 4.2.

Table 4.2 Factors analysis results of teachers' role to promote Lifelong Learning skills of students

Factors	Indicators	Eigen Value	Percentage of Variance	Cumulative Percentage of Variance
1. Study Plan	11	6.522	16.306	16.306
2. Learning support and setting atmosphere for learning	11	5.521	13.802	30.107
3. Class Management	4	5.008	12.519	42.627
4. Observing, Monitoring, and Assessment	5	3.453	8.634	51.260
5. Teachers' Attributes	9	2.846	7.116	58.376

From Table 4.2, there were 5 factors which had Eigen value, the quadratic sum of co-variables coefficient, more than 1 in each factor. They explained the 58.376% of variance of variables of teachers' roles to promote Lifelong Learning skills of students.

Orthogonal Rotation by Varimax rotation to relate the indicators to the factors clearer, each indicator of the factors must have the factor loading more than 0.30 as shown in Table 4.3.

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

Table 4.3 Factor loading of teachers' roles to promote Lifelong Learning skills of students

Indicators	Factors				
	1	2	3	4	5
Instru1	.735	.014	.154	.253	.201
Instru2	.657	.117	.201	.062	.197
Instru3	.629	.297	.257	.057	.101
Instru4	.608	.333	.241	.204	.037
Instru5	.596	.339	.178	.114	.184
Instru6	.628	.215	.222	.346	.136
Instru7	.519	.128	.101	.282	.232
Instru8	.618	.320	.034	.197	.152
Instru9	.626	.347	.266	.238	-.004
Instru10	.478	.471	.250	.056	.085
Instru11	.566	.465	.188	.252	.010
Support1	.406	.420	.095	.217	.241
Support2	.430	.448	.265	.246	.241
Support3	.207	.560	.206	.183	.175
Support4	.227	.628	.175	.265	.209
Support5	.367	.410	.256	.204	.319
Support6	.307	.531	.287	.252	.183
Atmos1	.307	.578	.162	.156	.310
Atmos2	.466	.512	.198	.194	.202
Atmos3	.326	.567	.166	.273	.162
Atmos4	.288	.476	.437	.244	.108
Atmos5	.189	.366	.347	.062	.419
Manage1	.290	.451	.198	.047	.520
Manage2	.412	.322	.153	.201	.496
Manage3	.173	.245	.264	.109	.727
Manage4	.103	.129	.267	.243	.638
Assess1	.340	.048	.207	.589	.335
Assess2	.303	.384	.136	.523	.175
Assess3	.265	.260	.268	.673	.192
Assess4	.181	.271	.240	.699	.085
Assess5	.325	.329	.317	.590	.041

Table 4.3 (continued)

Indicators	Factors				
	1	2	3	4	5
Teacher1	.335	.385	.397	.258	.141
Teacher2	.384	.327	.498	.283	.104
Teacher3	.304	.007	.685	.319	.160
Teacher4	.238	-.009	.699	.247	.177
Teacher5	.073	.497	.525	.027	.216
Teacher6	.123	.381	.651	.124	.165
Teacher7	.155	.215	.746	.042	.183
Teacher8	.163	.217	.563	.194	.311
Teacher9	.206	.365	.651	.249	.107

From Table 4.3, orthogonal rotation by varimax rotation gained 5 factors and 40 indicators which had the factor loading more than .30. From the rotation principle and caused the orthogonal or independent factors, the indicator should only appear in one or another factor. If it appeared in more than one factor, the one with the highest factor loading would be considered and each factor would be identified from the indicator's character in themselves as follow.

Factor 1 – Setting study plan, had 11 indicators which were promoting self-learning (Instru1), promoting peer learning (Instru2), integrating various contents and skills (Instru3), based on research methodology to set study plan (Instru4), setting content and activities to be consistent with the interest and individual differences (Instru5), organizing activities for the learners to practice thinking process skill (Instru6), organizing the practical activities (Instru7), organizing activities to learn from the variety of sources (Instru8), giving the importance to the learning process by reflecting what the learners had learnt rather than what they had been instructed (Instru9), update learning content (Instru10), and organizing the activities for the learners to study (Instru11).

Factor 2 - Learning support and setting atmosphere for learning, had 11 indicators: promoting the learners to pursuit knowledge (Support1), organizing or simulating the situation to motivate learning participation (Support2), advising learning

sources both inside and outside classroom (Support3), providing the guideline of pursuit the sources of knowledge to the learners (Support4), organizing activities to promote thinking, practicing, and learning processes (Support5), providing learning media for the learners (Support6), setting classroom atmosphere to support the learners based on their potentialities, interests, and requirements (Atmos1), supporting learning cooperation and experiences exchange among the learners (Atmos2), providing the chance to explain or present the works in classroom (Atmos3), providing the chance to ask questions and show opinion (Atmos4), and being friendly and took care of the learners (Atmos5).

Factor 3 – Teachers Attributes, had 9 indicators which were having knowledge of setting atmosphere to support Lifelong Learning(Teacher1), having teaching knowledge to promote self-learning (Teacher2), being aware of the importance of ongoing learning (Teacher3), having positive attitude and value the learning (Teacher4), applying technology to develop themselves and the learners (Teacher5), knowing the learning centers and advise to the learners (Teacher6), being the role model in learning and pursuing knowledge (Teacher7), facilitating the learning (Teacher8), and studying the information to apply to the leaning constantly (Teacher9).

Factor 4 – Observing, Monitoring, and Assessment, had 5 indicators which were teacher evaluated the learners based on the actual situation (Assess1), having many types of assessment such as learners evaluated themselves, evaluated by teachers or peers (Assess2), reporting evaluation result for the learners’ development (Assess3), identifying the evaluation as a part of the learning (Assess4), evaluating the learning both during and after learning in order to set the development plan for the next academic year (Assess5).

Factor 5 – Class Management, had 4 indicators which were setting up classroom to support learning activities (Manage1), giving importance to learners’ differences and constraints (Manage2), governing the classroom with the regulations (Manage3), having punishment system based on the regulation and promoting learners’ discipline (Manage4).

Result of analyzing factors and indicators of Lifelong Learning skills of students at the basic educational level as shown in Table 4.4

Table 4.4 The relationship of Lifelong Learning skills of students

Testing	Testing Results
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	.959
s Test of Sphericity	
Approx. Chi-Square	7702.595
df	78
p	.00

From Table 4.4, KMO value which was the measurement of the suitability of the variable applying factors analysis technique, was .959 which approached to 1. It could be assumed that the variable was suitable for analyzing the factors. Barlett's Test of Sphericity value, the statistical value to test whether the correlation matrix was the identity matrix or not, had Approx. Chi-Square value at 7702.595 and p value was .00 which meant correlation matrix between the sample variables had different from the identity matrix at the statistical significance .01, which showed the relationship between the variables. Therefore, the variables were suitable for analyzing the factors. Analysis result of the factors of Lifelong Learning skills of students disclosed that there were one factor and 13 indicators. The detail of the indicators in each factor were pursuing knowledge(Life1), love reading, writing, and listening for questioning (Life2), being self-learning (Life3), being able to learn continuously (Life4), being able to communicate with language, transfer knowledge, understanding, and attitude via speaking and writing (Life5), being able to analyze (Life6), being able to synthesize (Life7), being creative (Life8), be critical thinking (Life9), being able to predict (Life10), being able to set purpose and make decision (Life11), being able to work in group (Life12), being able to apply technology for learning (Life13).

1.2 Result of verifying the quality of factors and indicators and analysis of model of relationship between factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

1.2.1 Result of verifying the validity of the model of relationship between factors and indicators of teachers' roles to promote Lifelong Learning skills of students

From the study on analysis of EFA, the researcher received the group of factors which consisted of the related factor indicators. Then, applied the factors and indicators received to verify the validity of relationship between factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level model with the empirical data collected from 550 samples and analyzed by Lisrel 8.72. Verifying the validity of the factors and indicators applying the statistical hypothesis testing Barlett's Test of Sphericity Chi-square tested whether the indicators were related to each other or not. The testing hypothesis was:

H₀: Correlation matrix was Identity matrix (matrix value in diagonal was 1, value out of diagonal was 0) or indicators were not related.

H₁: Correlation matrix was not Identity or the indicators were related.

If Barlett's Test of Sphericity Chi-square value had significance, the indicators were related and applicable for factor analysis.

Then, tested index of Kaiser-Mayer-Olkin (KMO) which had value between 0 to 1. The value would be 1 if the indicator was be able to predicted by other indicators without the error. KMO value should be closed to 1. If it was less than 1, there was a few relationship between the indicators and was not suitable for factor analyzing (Supamas Angsuchot et al., 2009, p.97-98).

Anyhow, results of verifying the validity of the six models of relationship between factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level was that all models was in accordance with empirical data.

1.2.1.1 Result of verifying the validity of the study plan model

Study plan model had 11 indicators which were setting study plan to promote self-learning (Instru1), setting study plan to promote peer learning (Instru2), setting study plan to integrate various contents and skills (Instru3), applying research methodology to set study plan (Instru4), setting content and activities to be consistent with the interest and individual differences (Instru5), organizing activities for learners to practice thinking process skill (Instru6), organizing the practical activities (Instru7), organizing activities to learn from variety of sources (Instru8), giving the importance to learning process by reflecting what the learners had learnt rather than what they had been instructed (Instru9), updating the learning content to be up-to-date (Instru10), and organizing the activities for the learners to study (Instru11). The analysis result shown in Table 4.5 and Figure 4.1.

Table 4.5 Average, standard error, and correlation coefficient of the observable indicators in study plan model

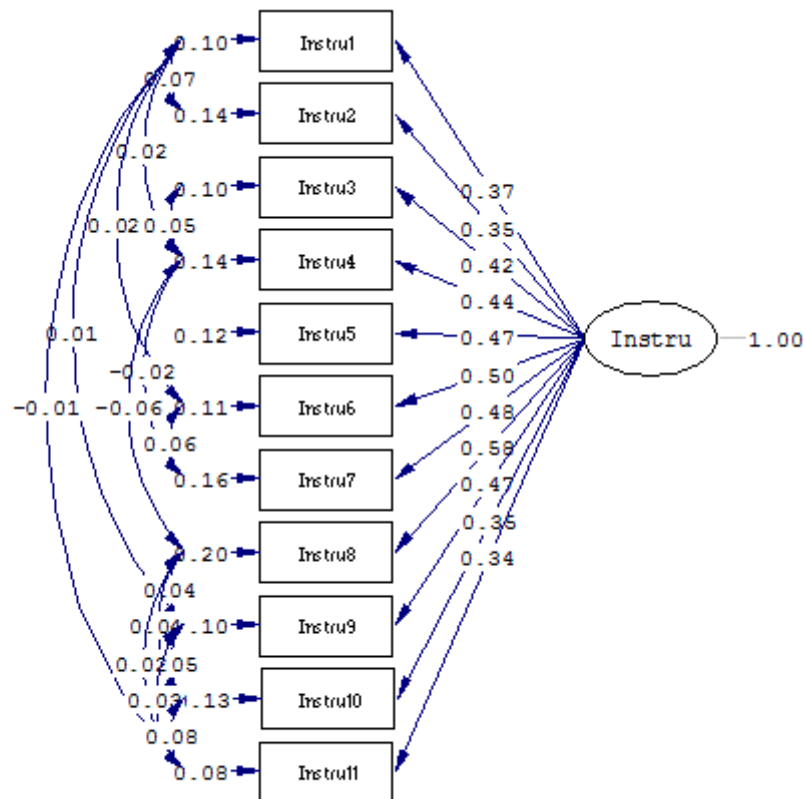
Indicators	Instru1	Instru2	Instru3	Instru4	Instru5	Instru6	Instru7	Instru8	Instru9	Instru10	Instru11
Instru1	1.00										
Instru2	0.56**	1.00									
Instru3	0.40**	0.36**	1.00								
Instru4	0.49**	0.41**	0.55**	1.00							
Instru5	0.44**	0.40**	0.45**	0.48**	1.00						
Instru6	0.48**	0.39**	0.48**	0.46**	0.46**	1.00					
Instru7	0.36**	0.31**	0.41**	0.33**	0.39**	0.58**	1.00				
Instru8	0.39**	0.35**	0.46**	0.32**	0.44**	0.47**	0.43**	1.00			
Instru9	0.48**	0.42**	0.45**	0.44**	0.49**	0.50**	0.42**	0.60**	1.00		
Instru10	0.34**	0.30**	0.36**	0.35**	0.40**	0.42**	0.36**	0.48**	0.57**	1.00	
Instru11	0.35**	0.34**	0.40**	0.39**	0.43**	0.44**	0.38**	0.48**	0.56**	0.77**	1.00
Average	4.69	4.53	4.71	4.51	4.62	4.73	4.82	4.69	4.66	4.75	4.74
standard error	0.47	0.53	0.47	0.56	0.53	0.47	0.40	0.52	0.50	0.44	0.44

KMO = 0.900 , Barlett's Test of Sphericity Chi-square = 2,739.802 , df = 55 , p = 0.000

**p < .01

From Table 4.5, the verifying of correlation coefficient of the 11 indicators showed that the correlation coefficient was different from zero with statistical significance .01.

Correlation coefficient was 0.30-0.77, which meant there was the high level of relationship. Index of Kaiser-Mayer-Olkin (KMO) = 0.0900, Barlett's Test of Sphericity Chi-square value = 2, 739, 802, df = 55, p = 0.000 which was different from zero with statistical significance .01. This meant correlation matrix of the observable indicators was not identity matrix and the relationship between indicators was sufficient for analyzing.



Chi-Square=40.74, df=29, P-value=0.07259, RMSEA=0.027

Figure 4.1 Study Plan Model

From Table 4.5 and Figure 4.1, result of verifying the structural validity of study plan model found that Chi-square = 40.74, df = 29, p = 0.073, GFI = 0.99, AGFI = 0.97, RMSEA = 0.027. This meant the model was in consistent with empirical data.

1.2.1.2 Result of verifying the validity of learning support and setting atmosphere for learning model

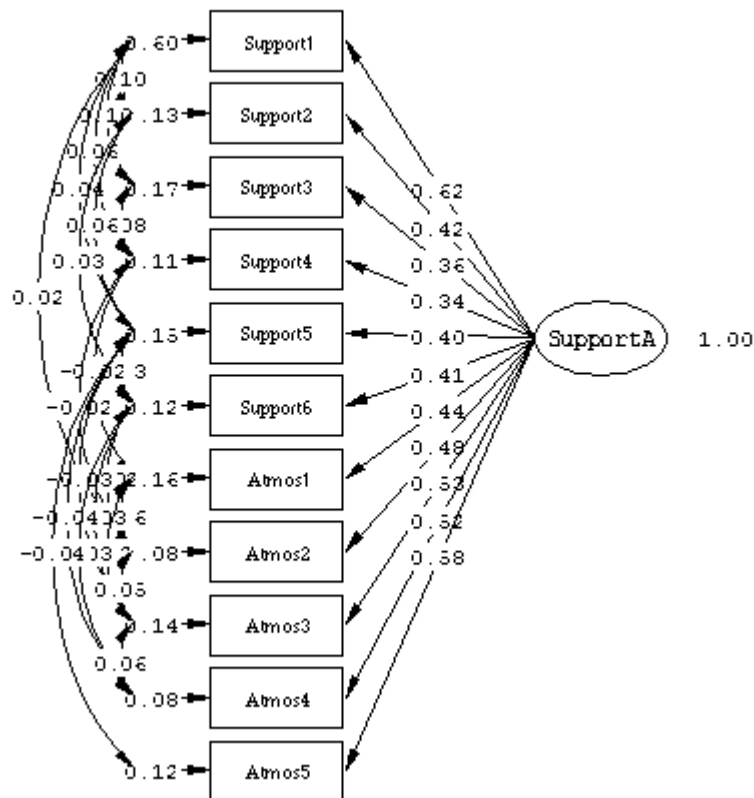
Learning support and setting atmosphere for learning There were 11 indicators: promoting the learners to pursuit knowledge (Support1), organizing or simulating the situation to motivate learning participation (Support2), advising learning sources both inside and outside classroom (Support3), providing the guideline of pursuit the sources of knowledge to the learners (Support4), organizing activities to promote thinking, practicing, and learning processes (Support5), providing learning media for the learners (Support6), setting classroom atmosphere to support the learners based on their potentialities, interests, and requirements (Atmos1), supporting learning cooperation and experiences exchange among the learners (Atmos2), providing the chance to explain or present the works in classroom (Atmos3), providing the chance to ask questions and show opinion (Atmos4), and being friendly and took care of the learners (Atmos5). From the correlation verifying of all 11 indicators, the analysis results showed in Table 4.6 and Figure 4.2.

Table 4.6 Average, standard error, and correlation coefficient of the observable indicators in learning support and setting atmosphere for learning model

Indicators	Support1	Support2	Support3	Support4	Support5	Support6	Atmos1	Atmos2	Atmos3	Atmos4	Atmos5
Support1	1.00										
Support2	0.45**	1.00									
Support3	0.41**	0.35**	1.00								
Support4	0.38**	0.39**	0.60**	1.00							
Support5	0.36**	0.53**	0.36**	0.39**	1.00						
Support6	0.30**	0.47**	0.34**	0.36**	0.46**	1.00					
Atmos1	0.29**	0.37**	0.33**	0.31**	0.34**	0.42**	1.00				
Atmos2	0.37**	0.46**	0.40**	0.38**	0.41**	0.42**	0.62**	1.00			
Atmos3	0.33**	0.47**	0.36**	0.40**	0.35**	0.38**	0.46**	0.64**	1.00		
Atmos4	0.35**	0.46**	0.37**	0.43**	0.33**	0.37**	0.42**	0.52**	0.67**	1.00	
Atmos5	0.27**	0.37**	0.31**	0.35**	0.27**	0.37**	0.41**	0.46**	0.45**	0.53**	1.00
Average	4.75	4.69	4.69	4.71	4.67	4.65	4.71	4.71	4.69	4.80	4.88
standard error	0.44	0.48	0.48	0.46	0.50	0.50	0.48	0.47	0.50	0.42	0.33
KMO = 0.895 , Barlett's Test of Sphericity Chi-square = 2,434.749 , df = 55 , p = 0.000											

**p < .01

From Table 4.6, correlation coefficient was different from zero with statistical significance .01. Correlation coefficient was 0.27 -0.67 which meant there was the low level of relationship. Index of Kaiser-Mayer-Olkin (KMO) = 0.895, Barlett's Test of Sphericity Chi-square value = 2,434.749, df = 55, p = 0.000 which was different from zero with statistical significance .01. This meant correlation matrix of the observable indicators was not identity matrix and the relationship between indicators was sufficient for analyzing.



Chi-Square=46.62, df=23, P-value=0.00250, RMSEA=0.043

Figure 4.2 Learning Support and Atmosphere for Learning Model

From Table 4.6 and Figure 4.2, result of verifying the structural validity of learning support and setting atmosphere for learning model was that Chi-square = 46.62 , df = 23 , p = 0.0025, GFI = 0.98 , AGFI = 0.96 , RMSEA = 0.043, though Chi-square value had the statistical significance P-value less than or at .05 which was affected from the uncertainty of the harmony test model applying Chi-square which likely to deny the hypothesis even though the model was completed because of the size of sample group and the number of variables in the model (Garbing & Anderson, 1993). This was because Chi-square value possibly increased when the sample group was

getting bigger and had more variables to analyze, and other index were acceptable. Therefore, the model was in consistent with empirical data.

1.2.1.3 Result of verifying the validity of teachers' attributes model

Teachers' attributes model had 9 indicators: having knowledge of setting up atmosphere to support Lifelong Learning(Teacher1), having teaching knowledge to promote self-learning (Teacher2), being aware of the importance of ongoing learning (Teacher3), having positive attitude and value the learning (Teacher4), applying technology to develop themselves and the learners (Teacher5), knowing the learning centers and advise to the learners (Teacher6), being the role model in learning and pursuing knowledge (Teacher7), facilitating the learning (Teacher8), and studying the information to apply to the leaning constantly (Teacher9). The analysis results showed in Table 4.7 and Figure 4.3

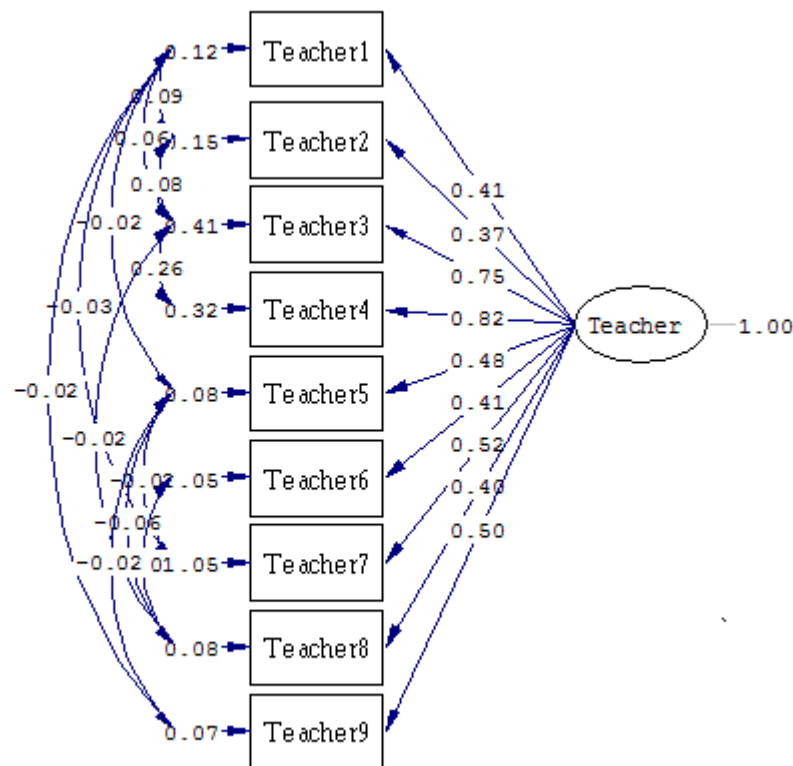
Table 4.7 Average, standard error, and correlation coefficient of the observable indicators in teachers' attributes model

Indicators	Teacher1	Teacher2	Teacher3	Teacher4	Teacher5	Teacher6	Teacher7	Teacher8	Teacher9
Teacher1	1.00								
Teacher2	0.69**	1.00							
Teacher3	0.44**	0.46**	1.00						
Teacher4	0.35**	0.32**	0.58**	1.00					
Teacher5	0.43**	0.42**	0.42**	0.39**	1.00				
Teacher6	0.46**	0.41**	0.39**	0.37**	0.56**	1.00			
Teacher7	0.36**	0.38**	0.43**	0.46**	0.47**	0.50**	1.00		
Teacher8	0.39**	0.35**	0.34**	0.37**	0.31**	0.43**	0.49**	1.00	
Teacher9	0.41**	0.42**	0.42**	0.42**	0.46**	0.51**	0.54**	0.49**	1.00
Average	4.68	4.74	4.85	4.92	4.70	4.72	4.87	4.80	4.82
Standard error	0.49	0.45	0.36	0.27	0.48	0.46	0.34	0.40	0.40

KMO = 0.878 , Barlett's Test of Sphericity Chi-square = 1,980.249 , df = 36 , p = 0.000

**p < .01

From Table 4.7, correlation coefficient was different from zero with statistical significance .01. Correlation coefficient was 0.31 -0.69 which meant there was the low to high level of relationship. Index of Kaiser-Mayer-Olkin (KMO) = 0.878, Barlett's Test of Sphericity Chi-square = 1,980.249, df = 36, p = 0.000 which was different from zero with statistical significance .01. This meant correlation matrix of the observable indicators was not identity matrix and the relationship between indicators was sufficient for analyzing.



Chi-Square=17.64, df=15, P-value=0.28198, RMSEA=0.018

Figure 4.3 Teachers' Attributes Model

From Table 4.7 and Figure 4.3, result of verifying the structural validity of teachers' attributes model was that Chi= 17.64 , df = 15 , p = 0.27 , GFI = 0.99 , AGFI = 0.98 , RMSEA = 0.018. Therefore, the model was in consistent with empirical data.

1.2.1.4 Result of verifying the validity of observing, monitoring, and assessment model

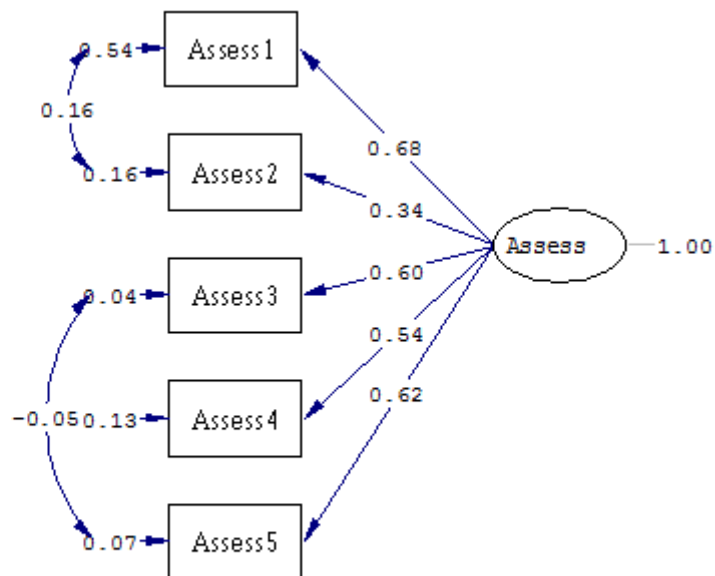
Observing, monitoring, and assessment model had 5 indicators: teacher evaluated the learners based on the actual situation (Assess1), having many types of assessment such as learners evaluated themselves, evaluated by teachers or peers (Assess2), reporting evaluation result for the learners' development (Assess3), identifying the evaluation as a part of the learning (Assess4), evaluating the learning both during and after learning in order to set the development plan for the next academic year (Assess5). The analysis results showed in Table 4.8 and Figure 4.4

Table 4.8 Average, standard error, and correlation coefficient of the observable indicators in Observing, Monitoring, and Assessment model

Indicators	Assess1	Assess2	Assess3	Assess4	Assess5
Assess1	1.00				
Assess2	0.52**	1.00			
Assess3	0.43**	0.44**	1.00		
Assess4	0.37**	0.38**	0.60**	1.00	
Assess5	0.40**	0.40**	0.54**	0.58**	1.00
Average	4.79	4.61	4.73	4.67	4.76
Standard error	0.41	0.51	0.47	0.51	0.46
KMO = 0.809 , Barlett's Test of Sphericity Chi-square = 895.508 , df = 10 , p = 0.000					

**p < .01

From Table 4.8, correlation coefficient was different from zero with statistical significance .01. Correlation coefficient was 0.37 -0.60 which meant there was the low to average level of relationship. Index of Kaiser-Mayer-Olkin (KMO) = 0.809, Barlett's Test of Sphericity Chi-square = 895.508, df = 10, p = 0.000 which was different from zero with statistical significance .01. This meant correlation matrix of the observable indicators was not identity matrix and the relationship between indicators was sufficient for analyzing.



Chi-Square=0.70, df=3, P-value=0.87246, RMSEA=0.000

Figure 4.4 Observing, Monitoring, and Assessment Model

From Table 4.8 and Figure 4.4, result of verifying the structural validity of observing, monitoring, and assessment model was that Chi= 0.70 , $df = 3$, $p = 0.87$, $GFI = 1.00$, $AGFI = 1.00$, $RMSEA = 0.000$. Therefore, the model was in consistent with empirical data very well.

1.2.1.5 Result of verifying the validity of class management model

Class management model had 4 indicators: setting up classroom to support learning activities (Manage1), giving importance to learners' differences and constraints (Manage2), governing the classroom with the regulations (Manage3), having punishment system based on the regulation and promoting learners' discipline (Manage4). The analysis results showed in Table 4.9 and Figure 4.5

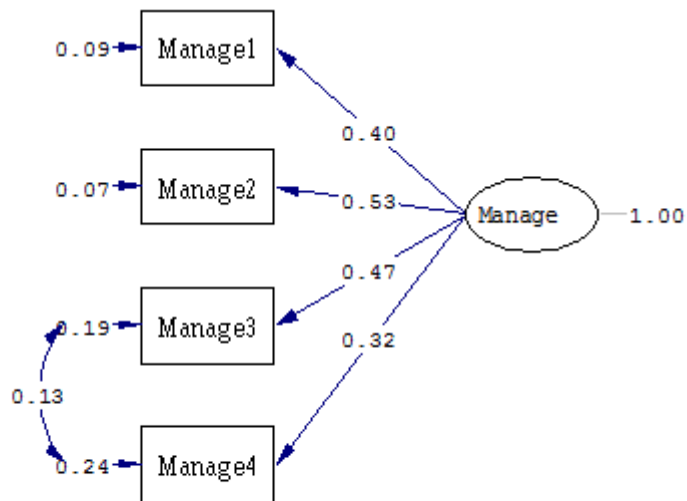
Table 4.9 Average, standard error, and correlation coefficient of the observable indicators in class management model

Indicators	Manage1	Manage2	Manage3	Manage4
Manage1	1.00			
Manage2	0.51**	1.00		
Manage3	0.41**	0.49**	1.00	
Manage4	0.29**	0.36**	0.58**	1.00
Average	4.70	4.64	4.64	4.57
Standard error	0.47	0.52	0.53	0.54

KMO = 0.711, Barlett's Test of Sphericity Chi-square = 571.691, $df = 6$, $p = 0.000$

** $p < .01$

From Table 4.9, correlation coefficient was different from zero with statistical significance .01. Correlation coefficient was 0.29 -0.58 which meant there was the low to average level of relationship. Index of Kaiser-Mayer-Olkin (KMO) = 0.711, Barlett's Test of Sphericity Chi-square = 571.691, $df = 6$, $p = 0.000$ which was different from zero with statistical significance .01. This meant correlation matrix of the observable indicators was not identity matrix and the relationship between indicators was sufficient for analyzing.



Chi-Square=1.73, df=1, P-value=0.18782, RMSEA=0.037

Figure 4.5 Class Management Model

From Table 4.9 and Figure 4.5, result of verifying the structural validity of class management model was that Chi-square = 1.73, df = 1, p = 0.19, GFI = 1.00, AGFI = 0.98, RMSEA = 0.037. Therefore, the model was in consistent with empirical data very well.

1.2.1.6 Result of verifying the validity of Lifelong Learning skills of students model

Lifelong Learning skills of students model had 13 indicators: pursuing knowledge (Life1), love reading, writing, and listening for questioning (Life2), being self-learning (Life3), being able to learn continuously (Life4), being able to communicate with language, transfer knowledge, understanding, and attitude via speaking and writing (Life5), being able to analyze (Life6), being able to synthesize (Life7), being creative (Life8), be critical thinking (Life9), being able to predict (Life10), being able to set purpose and make decision (Life11), being able to work in group (Life12), being able to apply technology for learning (Life13). From the correlation verifying of all 13 indicators, the analysis results showed in Table 4.10 and Figure 4.6

Table 4.10 Average, standard error, and correlation coefficient of the observable indicators in Lifelong Learning skills of students model

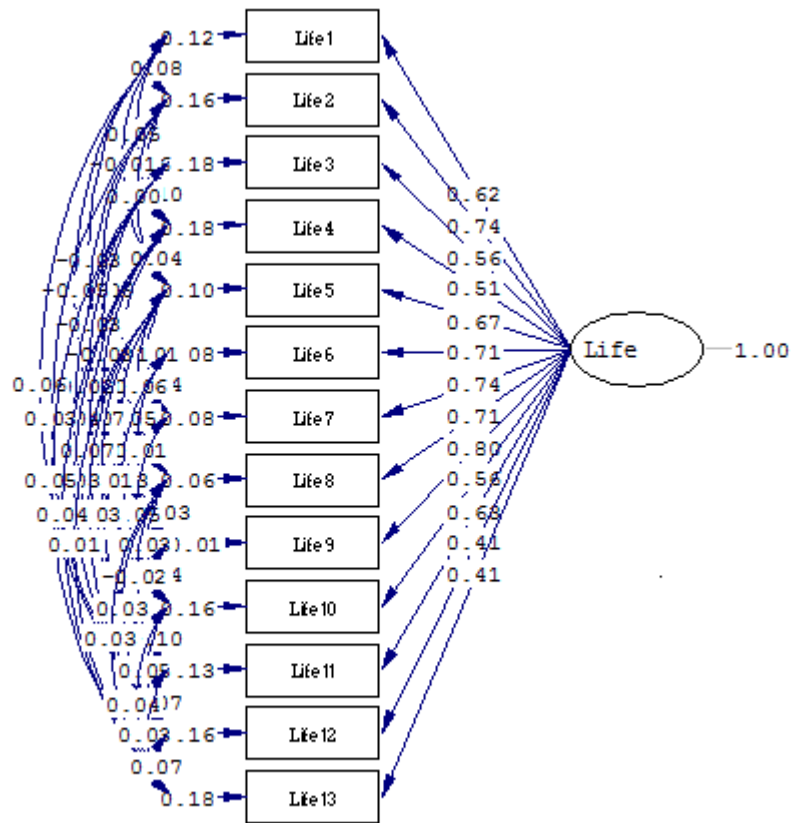
Indicators	Life1	Life2	Life3	Life4	Life5	Life6	Life7	Life8	Life9	Life10	Life11	Life12	Life13
Life1	1.00												
Life2	0.71**	1.00											
Life3	0.52**	0.55**	1.00										
Life4	0.57**	0.58**	0.67**	1.00									
Life5	0.56**	0.62**	0.56**	0.62**	1.00								
Life6	0.60**	0.64**	0.55**	0.55**	0.67**	1.00							
Life7	0.59**	0.64**	0.55**	0.55**	0.66**	0.84**	1.00						
Life8	0.55**	0.55**	0.57**	0.57**	0.59**	0.73**	0.73**	1.00					
Life9	0.57**	0.65**	0.56**	0.59**	0.67**	0.79**	0.81**	0.78**	1.00				
Life10	0.47**	0.50**	0.50**	0.59**	0.58**	0.67**	0.70**	0.65**	0.72**	1.00			
Life11	0.53**	0.56**	0.60**	0.64**	0.60**	0.65**	0.65**	0.62**	0.70**	0.72**	1.00		
Life12	0.54**	0.45**	0.41**	0.44**	0.40**	0.47**	0.46**	0.53**	0.50**	0.47**	0.55**	1.00	
Life13	0.38**	0.38**	0.48**	0.45**	0.45**	0.45**	0.46**	0.54**	0.50**	0.46**	0.50**	0.49**	1.00
Average	4.80	4.70	4.67	4.64	4.66	4.60	4.52	4.62	4.58	4.80	4.70	4.67	4.64
Standard error	0.42	0.53	0.53	0.53	0.54	0.58	0.62	0.56	0.59	0.42	0.53	0.53	0.53

KMO = 0.974 , Barlett's Test of Sphericity Chi-square = 5,520.890 , df = 78 , p = 0.000

**p < .01

From Table 4.10, correlation coefficient was different from zero with statistical significance .01. Correlation coefficient was 0.38 – 0.84 which meant there was the low to average level of relationship. Index of Kaiser-Mayer-Olkin (KMO) = 0.974, Barlett's Test of Sphericity Chi-square = 5,520.890, df = 78, p = 0.000 which was different from zero with statistical significance .01. This meant correlation matrix of the observable indicators was not identity matrix and the relationship between indicators was sufficient for analyzing.

Copyright© by Chiang Mai University
All rights reserved



Chi-Square=46.50, df=21, P-value=0.00110, RMSEA=0.047

Figure 4.6 Lifelong Learning skills of Students Model

From Table 4.10 and Figure 4.6, result of verifying the structural validity of Lifelong Learning skills of students model was that Chi-square = 46.50, df = 21, p = 0.001, GFI = 0.99, AGFI = 0.94, RMSEA = 0.047, though Chi-square value had the statistical significance (P-value less than or at .05) which was affected from the uncertainty of the harmony test model applying Chi-square which likely to deny the hypothesis even though the model was completed because of the size of sample group and the number of variables in the model (Garbing & Anderson, 1993). This was because Chi-square value possibly increased when the sample group was getting bigger and had more variables to analyze and other index were acceptable. Therefore, the model was in consistent with empirical data.

1.2.2 Result of analyzing the model of relationship of teachers' roles to promote Lifelong Learning skills of students.

Result of analyzing the model of relationship of teachers' roles to promote Lifelong Learning skills of students at basic educational level had the factors of teachers' roles in study plan (Instru) , learning support and setting atmosphere for learning (Support A), class management (Manage) , observing, monitoring, and assessment (Assess) , and teachers' attributes (Teacher) were the exogenous latent variables and factors of Lifelong Learning skills (Life) was the endogenous latent variable. There were 53 observable variables in this analysis which were: promoting self-learning (Instru1), promoting peer learning (Instru2), integrating various contents and skills (Instru3), based on research methodology to set study plan (Instru4), setting content and activities to be consistent with the interest and individual differences (Instru5), organizing activities for the learners to practice thinking process skill (Instru6), organizing the practical activities (Instru7), organizing activities to learn from the variety of sources (Instru8), giving the importance to the learning process by reflecting what the learners had learnt rather than what they had been instructed (Instru9), update learning content (Instru10), and organizing the activities for the learners to study (Instru11), promoting the learners to pursuit knowledge (Support1), organizing or simulating the situation to motivate learning participation (Support2), advising learning sources both inside and outside classroom (Support3), providing the guideline of pursuit the sources of knowledge to the learners (Support4), organizing activates to promote thinking, practicing, and learning processes (Support5), providing learning media for the learners (Support6), setting classroom atmosphere to support the learners based on their potentialities, interests, and requirements (Atmos1), supporting learning cooperation and experiences exchange among the learners (Atmos2), providing the chance to explain or present the works in classroom (Atmos3), providing the chance to ask questions and show opinion (Atmos4), being friendly and took care of the learners (Atmos5), setting up classroom to support learning activities (Manage1), giving importance to learners' differences and constraints (Manage2), governing the classroom with the regulations (Manage3), having punishment system based on the regulation and promoting learners' discipline (Manage4), teacher evaluated the learners based on the

actual situation (Assess1), having many types of assessment such as learners evaluated themselves, evaluated by teachers or peers (Assess2), reporting evaluation result for the learners' development (Assess3), identifying the evaluation as a part of the learning (Assess4), evaluating the learning both during and after learning in order to set the development plan for the next academic year (Assess5), having knowledge of setting up atmosphere to support Lifelong Learning(Teacher1), having teaching knowledge to promote self-learning (Teacher2), being aware of the importance of ongoing learning (Teacher3), having positive attitude and value the learning (Teacher4), applying technology to develop themselves and the learners (Teacher5), knowing the learning centers and advise to the learners (Teacher6), being the role model in learning and pursuing knowledge (Teacher7), facilitating the learning (Teacher8), studying the information to apply to the leaning constantly (Teacher9), pursuing knowledge(Life1), love reading, writing, and listening for questioning (Life2), being self-learning (Life3), being able to learn continuously (Life4), being able to communicate with language, transfer knowledge, understanding, and attitude via speaking and writing (Life5), being able to analyze (Life6), being able to synthesize (Life7), being creative (Life8), be critical thinking (Life9), being able to predict (Life10), being able to set purpose and make decision (Life11), being able to work in group (Life12), being able to apply technology for learning (Life13). The analysis results showed in Table 4.11-4.13 and Figure 4.7

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

Table 4.11 Average, standard error, and correlation coefficient of the observable indicators in teachers' roles to promote Lifelong Learning skills of students at the basic educational level model

Indicators	Instru1	Instru2	Instru3	Instru4	Instru5	Instru6	Instru7	Instru8	Instru9	Instru10	Instru11	Support1	Support2	Support3	Support4	Support5	Support6
Instru1	1.00																
Instru2	0.559**	1.00															
Instru3	0.404**	0.363**	1.00														
Instru4	0.493**	0.412**	0.548**	1.00													
Instru5	0.436**	0.398**	0.454**	0.478**	1.00												
Instru6	0.482**	0.387**	0.480**	0.457**	0.464**	1.00											
Instru7	0.355**	0.306**	0.405**	0.326**	0.391**	0.581**	1.00										
Instru8	0.394**	0.348**	0.460**	0.320**	0.437**	0.465**	0.429**	1.00									
Instru9	0.484**	0.420**	0.455**	0.444**	0.493**	0.500**	0.423**	0.596**	1.00								
Instru10	0.344**	0.300**	0.357**	0.353**	0.396**	0.418**	0.361**	0.484**	0.573**	1.00							
Instru11	0.345**	0.336**	0.403**	0.387**	0.435**	0.438**	0.377**	0.478**	0.558**	0.772**	1.00						
Support1	0.347**	0.317**	0.387**	0.370**	0.288**	0.369**	0.229**	0.289**	0.346**	0.298**	0.329**	1.00					
Support2	0.374**	0.309**	0.414**	0.370**	0.343**	0.418**	0.359**	0.402**	0.469**	0.381**	0.408**	0.454**	1.00				
Support3	0.310**	0.337**	0.358**	0.343**	0.292**	0.313**	0.312**	0.307**	0.363**	0.364**	0.383**	0.411**	0.353**	1.00			
Support4	0.301**	0.260**	0.374**	0.356**	0.252**	0.327**	0.289**	0.285**	0.367**	0.396**	0.380**	0.382**	0.395**	0.599**	1.00		
Support5	0.403**	0.325**	0.350**	0.407**	0.318**	0.434**	0.368**	0.320**	0.444**	0.353**	0.370**	0.356**	0.534**	0.359**	0.386**	1.00	
Support6	0.319**	0.261**	0.413**	0.415**	0.383**	0.382**	0.324**	0.271**	0.377**	0.325**	0.399**	0.302**	0.473**	0.344**	0.364**	0.462**	1.00
MEAN	4.69	4.53	4.71	4.51	4.62	4.73	4.82	4.69	4.66	4.75	4.74	4.75	4.69	4.69	4.71	4.67	4.65
SD	0.47	0.53	0.47	0.56	0.53	0.47	0.40	0.52	0.50	0.44	0.44	0.44	0.48	0.48	0.46	0.50	0.50

Table 4.11 (continued)

Indicators	Instru1	Instru2	Instru3	Instru4	Instru5	Instru6	Instru7	Instru8	Instru9	Instru10	Instru11	Support1	Support2	Support3	Support4	Support5	Support6
Atmos1	0.235**	0.227**	0.258**	0.336**	0.340**	0.292**	0.257**	0.328**	0.326**	0.400**	0.437**	0.290**	0.367**	0.327**	0.309**	0.337**	0.416**
Atmos2	0.342**	0.332**	0.325**	0.341**	0.355**	0.417**	0.339**	0.418**	0.412**	0.378**	0.440**	0.372**	0.465**	0.401**	0.377**	0.415**	0.416**
Atmos3	0.255**	0.249**	0.262**	0.265**	0.282**	0.413**	0.305**	0.333**	0.409**	0.394**	0.437**	0.332**	0.470**	0.364**	0.398**	0.347**	0.384**
Atmos4	0.220**	0.218**	0.334**	0.300**	0.258**	0.402**	0.328**	0.309**	0.367**	0.352**	0.426**	0.346**	0.462**	0.371**	0.430**	0.332**	0.367**
Atmos5	0.226**	0.196**	0.327**	0.218**	0.255**	0.331**	0.268**	0.262**	0.332**	0.320**	0.341**	0.273**	0.371**	0.313**	0.348**	0.272**	0.370**
Manage1	0.316**	0.303**	0.356**	0.333**	0.358**	0.286**	0.265**	0.321**	0.409**	0.343**	0.363**	0.320**	0.400**	0.303**	0.318**	0.327**	0.398**
Manage2	0.359**	0.336**	0.316**	0.379**	0.426**	0.362**	0.258**	0.321**	0.467**	0.331**	0.363**	0.318**	0.449**	0.309**	0.320**	0.331**	0.335**
Manage3	0.272**	0.310**	0.273**	0.304**	0.247**	0.267**	0.183**	0.255**	0.347**	0.278**	0.286**	0.319**	0.389**	0.239**	0.292**	0.338**	0.321**
Manage4	0.240**	0.236**	0.259**	0.293**	0.245**	0.336**	0.197**	0.301**	0.346**	0.282**	0.265**	0.260**	0.313**	0.167**	0.234**	0.312**	0.285**
Assess1	0.349**	0.278**	0.295**	0.311**	0.305**	0.394**	0.329**	0.248**	0.303**	0.322**	0.347**	0.264**	0.334**	0.334**	0.305**	0.339**	0.303**
Assess2	0.287**	0.292**	0.343**	0.380**	0.362**	0.368**	0.346**	0.323**	0.369**	0.332**	0.436**	0.302**	0.386**	0.305**	0.325**	0.353**	0.327**
Assess3	0.303**	0.258**	0.259**	0.314**	0.296**	0.415**	0.357**	0.294**	0.308**	0.287**	0.298**	0.316**	0.362**	0.322**	0.352**	0.333**	0.398**
Assess4	0.287**	0.286**	0.249**	0.317**	0.264**	0.338**	0.292**	0.229**	0.284**	0.254**	0.262**	0.280**	0.349**	0.334**	0.329**	0.316**	0.323**
Assess5	0.264**	0.289**	0.277**	0.342**	0.250**	0.377**	0.290**	0.193**	0.317**	0.228**	0.285**	0.339**	0.351**	0.310**	0.347**	0.358**	0.419**
Teacher1	0.322**	0.282**	0.354**	0.377**	0.370**	0.383**	0.325**	0.368**	0.394**	0.286**	0.338**	0.348**	0.395**	0.340**	0.342**	0.360**	0.360**
Teacher2	0.315**	0.246**	0.338**	0.342**	0.335**	0.355**	0.324**	0.284**	0.379**	0.287**	0.308**	0.336**	0.411**	0.369**	0.314**	0.389**	0.312**
Teacher3	0.271**	0.253**	0.314**	0.229**	0.248**	0.354**	0.240**	0.210**	0.298**	0.248**	0.301**	0.274**	0.351**	0.277**	0.301**	0.315**	0.382**
Teacher4	0.192**	0.219**	0.256**	0.218**	0.231**	0.327**	0.237**	0.286**	0.282**	0.301**	0.343**	0.258**	0.301**	0.287**	0.249**	0.234**	0.317**
Teacher5	0.244**	0.285**	0.283**	0.322**	0.272**	0.254**	0.179**	0.240**	0.272**	0.283**	0.310**	0.285**	0.344**	0.312**	0.344**	0.290**	0.429**
MEAN	4.69	4.53	4.71	4.51	4.62	4.73	4.82	4.69	4.66	4.75	4.74	4.75	4.69	4.69	4.71	4.67	4.65
SD	0.47	0.53	0.47	0.56	0.53	0.47	0.40	0.52	0.50	0.44	0.44	0.44	0.48	0.48	0.46	0.50	0.50

Table 4.11 (continued)

Indicators	Instru1	Instru2	Instru3	Instru4	Instru5	Instru6	Instru7	Instru8	Instru9	Instru10	Instru11	Support1	Support2	Support3	Support4	Support5	Support6
Teacher6	0.255**	0.290**	0.295**	0.302**	0.295**	0.339**	0.218**	0.282**	0.309**	0.327**	0.329**	0.294**	0.341**	0.333**	0.408**	0.391**	0.322**
Teacher7	0.196**	0.248**	0.250**	0.189**	0.211**	0.312**	0.177**	0.222**	0.180**	0.206**	0.213**	0.220**	0.259**	0.204**	0.258**	0.240**	0.302**
Teacher8	0.213**	0.207**	0.206**	0.253**	0.212**	0.266**	0.217**	0.246**	0.230**	0.235**	0.260**	0.351**	0.247**	0.257**	0.253**	0.284**	0.231**
Teacher9	0.205**	0.222**	0.284**	0.278**	0.220**	0.286**	0.182**	0.231**	0.254**	0.233**	0.290**	0.308**	0.326**	0.259**	0.344**	0.345**	0.347**
Life1	0.309**	0.197**	0.293**	0.318**	0.307**	0.323**	0.297**	0.248**	0.277**	0.152**	0.244**	0.261**	0.277**	0.206**	0.237**	0.225**	0.338**
Life2	0.233**	0.222**	0.254**	0.337**	0.263**	0.249**	0.212**	0.228**	0.229**	0.137**	0.247**	0.279**	0.351**	0.179**	0.211**	0.239**	0.364**
Life3	0.321**	0.275**	0.292**	0.324**	0.333**	0.319**	0.308**	0.380**	0.371**	0.315**	0.347**	0.318**	0.366**	0.279**	0.288**	0.249**	0.283**
Life4	0.290**	0.229**	0.270**	0.300**	0.257**	0.249**	0.215**	0.317**	0.322**	0.251**	0.313**	0.323**	0.335**	0.243**	0.332**	0.286**	0.310**
Life5	0.223**	0.200**	0.281**	0.291**	0.208**	0.273**	0.228**	0.269**	0.234**	0.169**	0.230**	0.185**	0.283**	0.206**	0.277**	0.272**	0.331**
Life6	0.304**	0.244**	0.321**	0.322**	0.291**	0.338**	0.268**	0.319**	0.271**	0.128**	0.234**	0.243**	0.365**	0.181**	0.223**	0.327**	0.386**
Life7	0.332**	0.255**	0.314**	0.366**	0.316**	0.341**	0.287**	0.311**	0.284**	0.157**	0.266**	0.230**	0.351**	0.254**	0.250**	0.314**	0.381**
Life8	0.273**	0.226**	0.275**	0.298**	0.256**	0.318**	0.291**	0.299**	0.302**	0.166**	0.276**	0.233**	0.329**	0.242**	0.258**	0.268**	0.304**
Life9	0.286**	0.206**	0.270**	0.342**	0.298**	0.346**	0.268**	0.300**	0.289**	0.174**	0.270**	0.258**	0.351**	0.224**	0.241**	0.319**	0.369**
Life10	0.236**	0.234**	0.263**	0.295**	0.260**	0.238**	0.187**	0.221**	0.227**	0.136**	0.233**	0.237**	0.281**	0.238**	0.249**	0.211**	0.300**
Life11	0.304**	0.204**	0.294**	0.356**	0.316**	0.272**	0.214**	0.294**	0.301**	0.203**	0.295**	0.261**	0.319**	0.240**	0.272**	0.287**	0.351**
Life12	0.276**	0.201**	0.208**	0.170**	0.198**	0.267**	0.202**	0.207**	0.220**	0.139**	0.175**	0.256**	0.281**	0.242**	0.196**	0.237**	0.258**
Life13	0.220**	0.195**	0.242**	0.232**	0.189**	0.239**	0.234**	0.136**	0.237**	0.234**	0.274**	0.264**	0.328**	0.234**	0.331**	0.230**	0.343**
MEAN	4.69	4.53	4.71	4.51	4.62	4.73	4.82	4.69	4.66	4.75	4.74	4.75	4.69	4.69	4.71	4.67	4.65
SD	0.47	0.53	0.47	0.56	0.53	0.47	0.40	0.52	0.50	0.44	0.44	0.44	0.48	0.48	0.46	0.50	0.50

Table 4.11 (continued)

Indicators	Atmos1	Atmos2	Atmos3	Atmos4	Atmos5	Manage1	Manage2	Manage3	Manage4	Assess1	Assess2	Assess3	Assess4	Assess5	Teacher1	Teacher2	Teacher3	Teacher4
Atmos1	1.00																	
Atmos2	0.616**	1.00																
Atmos3	0.463**	0.641**	1.00															
Atmos4	0.423**	0.520**	0.668**	1.00														
Atmos5	0.412**	0.455**	0.452**	0.526**	1.00													
Manage1	0.455**	0.392**	0.317**	0.357**	0.394**	1.00												
Manage2	0.320**	0.417**	0.341**	0.342**	0.316**	0.511**	1.00											
Manage3	0.321**	0.357**	0.327**	0.335**	0.383**	0.413**	0.487**	1.00										
Manage4	0.237**	0.306**	0.328**	0.313**	0.298**	0.286**	0.360**	0.581**	0.00									
Assess1	0.303**	0.307**	0.326**	0.296**	0.359**	0.338**	0.375**	0.393**	0.383**	1.00								
Assess2	0.317**	0.392**	0.309**	0.306**	0.271**	0.411**	0.366**	0.291**	0.274**	0.521**	1.00							
Assess3	0.341**	0.441**	0.420**	0.494**	0.354**	0.319**	0.392**	0.340**	0.344**	0.431**	0.437**	1.00						
Assess4	0.230**	0.366**	0.323**	0.320**	0.280**	0.273**	0.303**	0.297**	0.306**	0.371**	0.380**	0.602**	1.00					
Assess5	0.327**	0.372**	0.310**	0.353**	0.342**	0.297**	0.292**	0.384**	0.285**	0.403**	0.402**	0.544**	0.581**	1.00				
Teacher1	0.332**	0.381**	0.382**	0.382**	0.278**	0.307**	0.382**	0.353**	0.296**	0.382**	0.414**	0.406**	0.395**	0.457**	1.00			
Teacher2	0.270**	0.324**	0.342**	0.364**	0.294**	0.289**	0.404**	0.304**	0.275**	0.355**	0.350**	0.397**	0.409**	0.389**	0.690**	1.00		
Teacher3	0.224**	0.305**	0.233**	0.327**	0.369**	0.331**	0.338**	0.341**	0.297**	0.391**	0.352**	0.332**	0.342**	0.384**	0.441**	0.459**	1.00	
Teacher4	0.260**	0.314**	0.247**	0.307**	0.361**	0.311**	0.312**	0.268**	0.211**	0.310**	0.288**	0.297**	0.310**	0.313**	0.346**	0.319**	0.583**	1.00
MEAN	4.71	4.71	4.69	4.80	4.88	4.70	4.64	4.64	4.57	4.79	4.61	4.73	4.67	4.76	4.68	4.74	4.85	4.92
SD	0.48	0.47	0.50	0.42	0.33	0.47	0.52	0.53	0.54	0.41	0.51	0.47	0.51	0.46	0.49	0.45	0.36	0.27

Table 4.11 (continued)

Indicators	Atmos1	Atmos2	Atmos3	Atmos4	Atmos5	Manage1	Manage2	Manage3	Manage4	Assess1	Assess2	Assess3	Assess4	Assess5	Teacher1	Teacher2	Teacher3	Teacher4
Teacher5	0.373**	0.335**	0.303**	0.365**	0.369**	0.391**	0.340**	0.340**	0.246**	0.290**	0.367**	0.360**	0.289**	0.348**	0.426**	0.417**	0.415**	0.394**
Teacher6	0.279**	0.340**	0.363**	0.364**	0.309**	0.339**	0.296**	0.290**	0.241**	0.374**	0.378**	0.381**	0.349**	0.332**	0.461**	0.414**	0.388**	0.373**
Teacher7	0.233**	0.286**	0.246**	0.238**	0.382**	0.292**	0.313**	0.307**	0.270**	0.383**	0.215**	0.312**	0.238**	0.360**	0.357**	0.383**	0.433**	0.459**
Teacher8	0.214**	0.323**	0.261**	0.298**	0.274**	0.287**	0.263**	0.249**	0.238**	0.332**	0.286**	0.304**	0.264**	0.289**	0.389**	0.350**	0.340**	0.368**
Teacher9	0.204**	0.335**	0.292**	0.380**	0.280**	0.300**	0.315**	0.291**	0.250**	0.281**	0.305**	0.353**	0.278**	0.387**	0.405**	0.422**	0.415**	0.421**
Life1	0.272**	0.268**	0.220**	0.175**	0.187**	0.288**	0.232**	0.154**	0.210**	0.279**	0.313**	0.277**	0.317**	0.393**	0.342**	0.263**	0.233**	0.195**
Life2	0.262**	0.286**	0.223**	0.187**	0.186**	0.255**	0.271**	0.226**	0.226**	0.269**	0.308**	0.293**	0.279**	0.342**	0.319**	0.229**	0.182**	0.176**
Life3	0.338**	0.346**	0.257**	0.268**	0.229**	0.241**	0.292**	0.260**	0.263**	0.274**	0.326**	0.312**	0.284**	0.275**	0.367**	0.350**	0.235**	0.237**
Life4	0.288**	0.331**	0.255**	0.241**	0.255**	0.263**	0.309**	0.252**	0.292**	0.279**	0.274**	0.293**	0.293**	0.260**	0.363**	0.323**	0.271**	0.239**
Life5	0.249**	0.278**	0.220**	0.207**	0.203**	0.275**	0.271**	0.183**	0.179**	0.286**	0.323**	0.302**	0.285**	0.297**	0.347**	0.272**	0.282**	0.259**
Life6	0.238**	0.311**	0.225**	0.225**	0.254**	0.260**	0.246**	0.229**	0.212**	0.291**	0.303**	0.338**	0.302**	0.397**	0.370**	0.322**	0.270**	0.228**
Life7	0.252**	0.312**	0.244**	0.237**	0.229**	0.268**	0.258**	0.198**	0.187**	0.268**	0.305**	0.311**	0.314**	0.375**	0.406**	0.383**	0.255**	0.244**
Life8	0.197**	0.272**	0.253**	0.233**	0.263**	0.241**	0.245**	0.173**	0.198**	0.285**	0.324**	0.278**	0.307**	0.312**	0.395**	0.343**	0.292**	0.280**
Life9	0.268**	0.326**	0.265**	0.268**	0.225**	0.282**	0.262**	0.193**	0.184**	0.295**	0.369**	0.321**	0.289**	0.360**	0.412**	0.360**	0.298**	0.279**
Life10	0.209**	0.274**	0.269**	0.263**	0.198**	0.253**	0.222**	0.240**	0.194**	0.279**	0.258**	0.302**	0.342**	0.308**	0.316**	0.292**	0.282**	0.262**
Life11	0.286**	0.312**	0.269**	0.293**	0.262**	0.300**	0.279**	0.249**	0.269**	0.322**	0.353**	0.327**	0.325**	0.332**	0.434**	0.352**	0.301**	0.266**
Life12	0.147**	0.279**	0.276**	0.246**	0.246**	0.243**	0.193**	0.198**	0.221**	0.257**	0.283**	0.248**	0.318**	0.328**	0.304**	0.270**	0.310**	0.310**
Life13	0.233**	0.245**	0.254**	0.243**	0.284**	0.228**	0.199**	0.218**	0.153**	0.292**	0.305**	0.196**	0.286**	0.293**	0.320**	0.273**	0.311**	0.297**
MEAN	4.71	4.71	4.69	4.80	4.88	4.70	4.64	4.64	4.57	4.79	4.61	4.73	4.67	4.76	4.68	4.74	4.85	4.92
SD	0.48	0.47	0.50	0.42	0.33	0.47	0.52	0.53	0.54	0.41	0.51	0.47	0.51	0.46	0.49	0.45	0.36	0.27

Table 4.11 (continued)

Indicators	Teacher5	Teacher6	Teacher7	Teacher8	Teacher9	Life1	Life2	Life3	Life4	Life5	Life6	Life7	Life8	Life9	Life10	Life11	Life12	Life13
Teacher5	1.00																	
Teacher6	0.556**	1.00																
Teacher7	0.470**	0.499**	1.00															
Teacher8	0.306**	0.429**	0.486**	1.00														
Teacher9	0.463**	0.513**	0.538**	0.485**	1.00													
Life1	0.162**	0.190**	0.139**	0.227**	0.251**	1.00												
Life2	0.234**	0.206**	0.211**	0.198**	0.242**	0.706**	1.00											
Life3	0.250**	0.300**	0.149**	0.247**	0.286**	0.519**	0.545**	1.00										
Life4	0.293**	0.286**	0.223**	0.372**	0.322**	0.569**	0.585**	0.671**	1.00									
Life5	0.290**	0.297**	0.224**	0.235**	0.309**	0.564**	0.624**	0.558**	0.622**	1.00								
Life6	0.308**	0.305**	0.268**	0.253**	0.383**	0.599**	0.642**	0.550**	0.546**	0.669**	1.00							
Life7	0.320**	0.328**	0.271**	0.280**	0.384**	0.591**	0.640**	0.553**	0.551**	0.663**	0.841**	1.00						
Life8	0.263**	0.313**	0.250**	0.277**	0.384**	0.546**	0.548**	0.567**	0.571**	0.588**	0.733**	0.733**	1.00					
Life9	0.290**	0.321**	0.229**	0.282**	0.371**	0.571**	0.649**	0.558**	0.586**	0.672**	0.790**	0.808**	0.780**	1.00				
Life10	0.275**	0.284**	0.203**	0.264**	0.336**	0.469**	0.503**	0.504**	0.590**	0.576**	0.671**	0.699**	0.650**	0.724**	1.00			
Life11	0.315**	0.361**	0.256**	0.293**	0.360**	0.532**	0.564**	0.597**	0.637**	0.602**	0.653**	0.649**	0.616**	0.704**	0.720**	1.00		
Life12	0.204**	0.265**	0.209**	0.268**	0.316**	0.544**	0.446**	0.413**	0.439**	0.398**	0.469**	0.459**	0.530**	0.502**	0.472**	0.552**	1.00	
Life13	0.324**	0.315**	0.220**	0.244**	0.302**	0.383**	0.384**	0.480**	0.454**	0.445**	0.448**	0.457**	0.536**	0.499**	0.457**	0.495**	0.492**	1.00
MEAN	4.70	4.72	4.87	4.80	4.82	4.80	4.70	4.67	4.64	4.66	4.60	4.52	4.62	4.58	4.46	4.59	4.82	4.76
SD	0.48	0.46	0.34	0.40	0.40	0.42	0.53	0.53	0.53	0.54	0.58	0.62	0.56	0.59	0.62	0.57	0.39	0.44

KMO = 0.947 , Barlett's Test of Sphericity Chi-square = 17,609.217 , df = 1,378 , p = 0.000

**p < .01

From Table 4.11, correlation coefficient was different from zero with statistical significance .01. Correlation coefficient was 0.128 – 0.606 which meant there was the low to average level of relationship. Index of KMO = 0.947 , Barlett's Test of Sphericity Chi-square = 17,609.217, df = 1,378, p = 0.000 which was different from zero with statistical significance .01. This meant correlation matrix of the observable indicators was not identity matrix and the relationship between indicators was sufficient for analyzing.

Table 4.12 Result of verifying the validity of the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level

Independent Variable		BETA					
		Instru			SupportA		
Effect Variable		b	SE	t	b	SE	t
Life		0.64	0.07	8.93**	-	-	-
Instru		-	-	-	0.87	0.10	9.09**

Independent Variable		GAMMA								
		Manage			Access			Teacher		
Effect Variable		b	SE	t	b	SE	t	b	SE	t
SupportA		0.48	0.11	4.30**	0.30	0.10	2.86**	0.20	0.09	2.21*

Exogenous latent variables		LAMBDA-X				predictive validity coefficient (R²)
		Factor Loading (b)	Standard Error (SE)	t		
Teacher1		0.43	0.03	13.61**	0.33	
Teacher2		0.41	0.03	13.01**	0.30	
Teacher3		0.83	0.06	14.00**	0.34	
Teacher4		0.87	0.06	14.77**	0.38	
Teacher5		0.45	0.03	13.56**	0.32	
Teacher6		0.40	0.03	14.46**	0.36	
Teacher7		0.48	0.03	14.54**	0.36	
Teacher8		0.36	0.03	12.49**	0.28	
Teacher9		0.48	0.03	14.38**	0.36	

Table 4.12 (continued)

LAMBDA-X				
Exogenous latent variables	Factor loading : b	Standard error : SE	t	predictive validity coefficient (R²)
Manage1	0.41	0.03	12.97**	0.33
Manage2	0.49	0.04	13.11**	0.34
Manage3	0.48	0.04	11.77**	0.28
Manage4	0.38	0.04	9.83**	0.21
Assess1	0.82	0.06	13.57**	0.34
Assess2	0.41	0.03	12.81**	0.31
Assess3	0.54	0.04	14.32**	0.37
Assess4	0.50	0.04	12.74**	0.30
Assess5	0.56	0.04	13.91**	0.35
LAMBDA-Y				
Exogenous latent variables	Factor loading : b	Standard error : SE	t	predictive validity coefficient (R²)
Instru1	0.38	-	-	0.28
Instru2	0.34	0.004	9.77**	0.22
Instru3	0.43	0.04	9.92**	0.31
Instru4	0.45	0.05	9.72**	0.29
Instru5	0.45	0.05	9.66**	0.29
Instru6	0.51	0.05	10.27**	0.35
Instru7	0.48	0.05	9.56**	0.28
Instru8	0.57	0.06	9.71**	0.29
Instru9	0.49	0.05	10.44**	0.27
Instru10	0.38	0.04	9.53**	0.28
Instru11	0.37	0.04	9.53**	0.33

Table 4.12 (continued)

Exogenous latent variables	LAMBDA-Y			predictive validity coefficient (R ²)
	Factor loading : b	Standard error : SE	t	
Support1	0.72	-	-	0.26
Support2	0.45	0.05	10.10**	0.35
Support3	0.38	0.04	8.99**	0.24
Support4	0.34	0.04	9.26**	0.26
Support5	0.42	0.05	9.48**	0.28
Support6	0.41	0.04	9.65**	0.30
Atmos1	0.42	0.05	9.13**	0.25
Atmos2	0.46	0.05	10.03**	0.34
Atmos3	0.48	0.05	9.42**	0.28
Atmos4	0.47	0.05	9.84**	0.32
Atmos5	0.55	0.06	9.96**	0.33
Life1	0.63	-	-	0.37
Life2	0.73	0.06	12.67**	0.36
Life3	0.61	0.05	11.68**	0.35
Life4	0.59	0.05	11.94**	0.37
Life5	0.65	0.05	12.02**	0.38
Life6	0.72	0.06	12.67**	0.43
Life7	0.75	0.06	12.68**	0.43
Life8	0.70	0.06	12.45**	0.41
Life9	0.78	0.06	12.91**	0.45
Life10	0.62	0.05	12.16**	0.39
Life11	0.67	0.05	12.45**	0.41
Life12	0.46	0.04	11.13**	0.31
Life13	0.45	0.04	10.65**	0.28

Variable Structural Equation Life = 0.40, Instru=0.79, SupportA=0.83

Chi-square = 954.93, df = 1,306, p = 1.000, GFI = 1.00, AGFI = 0.93, RMSEA = 0.000

*p < .05 (t > 1.96) , **p < .01 (t > 2.58)

Table 4.13 Result of analyzing the correlation between variables and statistical analysis on the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level

	Manage			Access			Teacher			Instru			SupportA		
	TE	IE	DE	TE	IE	DE	TE	IE	DE	TE	IE	DE	TE	IE	DE
Life	0.26	0.26	-	0.17	0.17	-	0.11	0.11	-	0.64	-	0.64	0.55	0.55	-
	0.06	0.06	-	0.06	0.06	-	0.05	0.05	-	0.07	-	0.07	0.07	0.07	-
	4.23**	4.23**	-	2.84**	2.84**	-	2.20*	2.20*	-	8.93**	-	8.93**	8.56**	8.56**	-
Instru	0.42	0.42	-	0.26	0.26	-	0.18	0.18	-	-	-	-	0.87	-	0.87
	0.10	0.10	-	0.09	0.10	-	0.08	0.08	-	-	-	-	0.10	-	0.10
	4.29**	4.29**	-	2.86**	2.86**	-	2.21*	2.21*	-	-	-	-	9.09**	-	9.09**
SupportA	0.48	-	0.48	0.30	-	0.30	0.20	-	0.20	-	-	-	-	-	-
	0.11	-	0.11	0.11	-	0.11	0.09	-	0.09	-	-	-	-	-	-
	4.30**	-	4.30**	2.86**	-	2.86**	2.21*	-	2.21*	-	-	-	-	-	-

Correlation matrix between variables

	Life	Instru	SupportA	Manage	Access	Teacher
Life	1.00					
Instru	0.59	1.00				
SupportA	0.61	0.77	1.00			
Manage	0.53	0.74	0.82	1.00		
Access	0.64	0.73	0.82	0.78	1.00	
Teacher	0.68	0.83	0.93	0.89	0.88	1.00

Remark Numbers were factor loading, Standard error: SE, t

TE = Total Effects, IE = Indirect Effects,

DE = Direct Effects

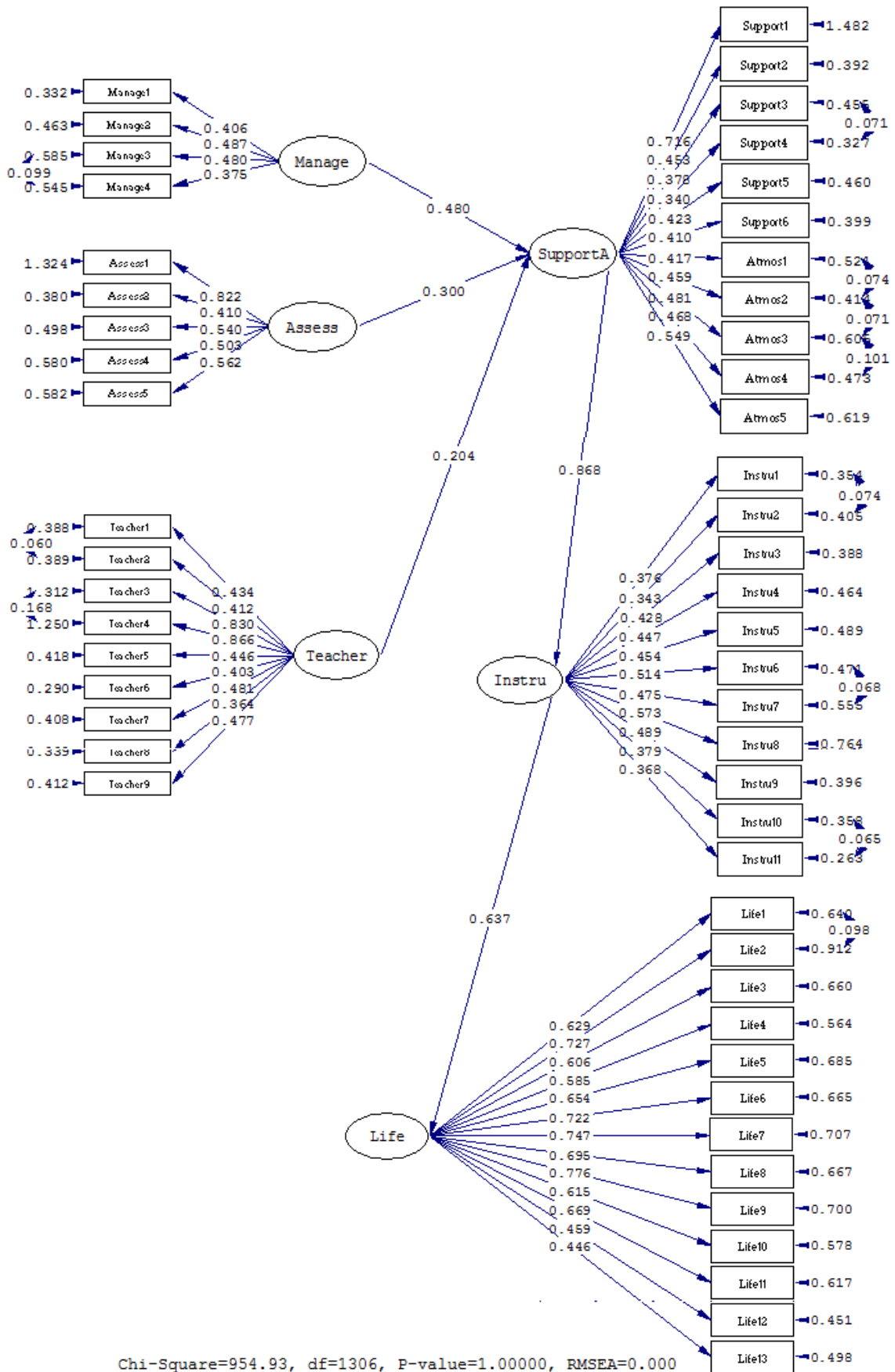


Figure 4.7 Model of relationship of teachers' roles to promote Lifelong Learningskills of students at the basic educational level

From Table 4.11-4.13 and Figure 4.7, index of KMO = 0.947, Barlett's Test of Sphericity Chi-square = 17,609.217, df = 1,378, p = 0.000 which was different from zero with statistical significance .01. This meant correlation matrix of the observable indicators was not identity matrix and the relationship between indicators was sufficient for analyzing. Result of the first round analyzing the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level found that the model had no consistency with empirical data. Thus, the researcher adjusted the model considering the modification indices and allowed the related error. Results was the relationship model was consistent with the empirical data, Chi-square = 954.93, df = 1,306, p = 1.000, GFI = 0.94, AGFI = 0.93, RMSEA = 0.000. The factors of teachers' attributes in setting study plan (Instru) had direct effect on Lifelong Learning skills (Life). The factors of learning support and setting atmosphere for learning (SupportA), class management (Manage), observing, monitoring, and assessment (Assess), and teachers' attribute (Teacher) had indirect effect on Lifelong Learning (Life) as detail below.

1) Factors of teachers' roles in study plan (Instru) had direct effect on Lifelong Learning(Life) which the effect size was different from zero with the statistical significance .01 and had positive direct effect on the factors of Lifelong Learning skills (Life) with the effect coefficient 0.64.

2) Factors of learning support and atmosphere of learning (Support A) had indirect effect on Lifelong Learning(Life) by transferring through latent variable of factors of study plan (Instru) which the effect size was different from zero with the statistical significance .01 and the effect coefficient was 0.87.

3) Class management (Manage) in observing, monitoring, and assessment (Assess) had indirect effect on Lifelong Learning(Life) by transferring through latent variable of factors of learning support and atmosphere of learning (Support A) transferring through latent variable of factors of study plan (Instru). The effect size was different from zero with the statistical significance .01 and the effect coefficient was 0.48 and 0.30 respectively.

4) Factors of teachers' attributes (Teacher) had indirect effect on Lifelong Learning (Life) by transferring through latent variable of factors of learning support and

atmosphere of learning (Support A) and transferring through latent variable of factors of study plan (Instru). The effect size was different from zero with the statistical significance .05 and the effect coefficient was 0.20.

Considering predictive validity coefficient (R^2), the factors of Lifelong Learning (Life)'s value was 0.40, which meant all 5 independent variables: factor of teachers' roles in setting study plan (Instru), learning support and setting atmosphere for learning (Support A), class management (Manage), observing, monitoring, and assessment (Assess), and teachers' attributes (Teacher) were able to explain the co-variance of the variables of factors of Lifelong Learning skills (Life) at 40% as detail below.

From the validity of observable factors measuring from predictive validity coefficient (R^2), it indicated that the observable variables had co-variance with the exogenous latent variables of factors of teachers' attributes (Teacher), class management (Manage), observing, monitoring, and assessment (Assess A) had the value between 0.21 to 0.38. Predictive validity coefficient (R^2) of the observable variables of the exogenous latent variables of factors of Lifelong Learning skills (Life), teachers' roles in setting study plan (Instru), observing, monitoring, and assessment (Assess A) had the value between 0.22 - 0.45.

Result of verifying the validity of the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level concluded that the factors of teachers' roles which affected the Lifelong Learning skills (Life) were 1) factors of teachers' attributes (Teacher), 2) factors of teachers' roles in setting study plan (Instru), 3) factors of teachers' roles in observing, monitoring, and assessment (Assess), 4) factors of teachers' roles in learning support and setting atmosphere for learning (Support A), and 5) factors of teachers' roles in class management (Manage) respectively.

Observable factors measuring from predictive validity coefficient (R^2), it indicated that the observable variables had co-variance with the exogenous latent variables of factors of teachers' attributes (Teacher), class management (Manage), observing, monitoring, and assessment (Assess A) had the value between 0.21 to 0.38. Predictive validity coefficient (R^2) of the observable variables of exogenous latent variables of factors of Lifelong Learning skills (Life), teachers' roles in setting study plan (Instru), observing, monitoring, and assessment (Assess A) had the value between 0.22 - 0.45.

It could be explained that the first teachers' role which affected Lifelong Learning skills of students in the basic educational level was teachers' attributes (Teacher) which measured from 9 indicators: having positive attitude and value the learning (Teacher4), being aware of the importance of ongoing learning (Teacher3), being the role model in learning and pursuing knowledge (Teacher7), studying the information to apply to the learning constantly (Teacher9), applying technology to develop themselves and the learners (Teacher5), having knowledge of setting up atmosphere to support Lifelong Learning (Teacher1), knowing the learning centers and advise to the learners (Teacher6), facilitating the learning (Teacher8), and having teaching knowledge to promote self-learning (Teacher2) respectively.

The second teachers' role which affected Lifelong Learning skills of students in the basic educational level was set up study plan (Instru) which measured from 11 indicators: organizing activities to learn from the variety of sources (Instru8), organizing activities for the learners to practice thinking process skill (Instru6), organizing the practical activities (Instru7), setting content and activities to be consistent with the interest and individual differences (Instru5), giving the importance to the learning process by reflecting what the learners had learnt rather than what they had been instructed (Instru9), based on research methodology to set study plan (Instru4), integrating various contents and skills (Instru3), promoting self-learning (Instru1), promoting peer learning (Instru2), update learning content (Instru10), and organizing the activities for the learners to study (Instru11) respectively.

The third teachers' role which affected Lifelong Learning skills of students in the basic educational level was observing, monitoring, and assessment (Assess) which measured from 5 indicators: teacher evaluated the learners based on the actual situation (Assess1), evaluating the learning both during and after learning in order to set the development plan for the next academic year (Assess5), reporting evaluation result for the learners' development (Assess3), identifying the evaluation as a part of the learning (Assess4), and having many types of assessment such as learners evaluated themselves, evaluated by teachers or peers (Assess2) respectively.

The fourth teachers' role which affected Lifelong Learning skills of students in the basic educational level was learning support and setting atmosphere for learning

(Support) which measured from 11 indicators: promoting the learners to pursuit knowledge (Support1), being friendly and took care of the learners (Atmos5), providing the chance to explain or present the works in classroom (Atmos3), providing the chance to ask questions and show opinion (Atmos4), supporting learning cooperation and experiences exchange among the learners (Atmos2), setting classroom atmosphere to support the learners based on their potentialities, interests, and requirements (Atmos1), organizing or simulating the situation to motivate learning participation (Support2), providing learning media for the learners (Support6), organizing activities to promote thinking, practicing, and learning processes (Support5), advising learning sources both inside and outside classroom (Support3), and providing the guideline of pursuit the sources of knowledge to the learners (Support4) respectively.

The fifth teachers' role which affected Lifelong Learning skills of students in the basic educational level was class management (Manage) which measured from 4 indicators: giving importance to learners' differences and constraints (Manage2), governing the classroom with the regulations (Manage3), having punishment system based on the regulation and promoting learners' discipline (Manage4) and setting up classroom to support learning activities (Manage1) respectively.

Moreover, Lifelong Learning skills of students in the basic educational level were measured from 13 indicators which were: being critical thinking (Life9), love reading, writing, and listening for questioning (Life2), being able to synthesize (Life7), being able to analyze (Life6), being creative (Life8), being able to communicate with language, transfer knowledge, understanding, and attitude via speaking and writing (Life5), being able to set purpose and make decision (Life11), pursuing knowledge(Life1), being self-learning (Life3), being able to predict (Life10), being able to learn continuously (Life4), being able to work in group (Life12), and being able to apply technology for learning (Life13) respectively.

Table 4.14 Factors loading and number of indicators from the model of relationship of teachers' roles to promote Lifelong Learning skills of students

Factors	Factor Loading (Percentage)	Number of Indicators
Factors and indicators of teachers' roles to promote Lifelong Learning skills of students		
1. Setting study plan	26	11
2. Learning support and setting atmosphere for learning	35	11
3. Class Management	8	4
4. Observing, Monitoring, and Assessment	12	5
5. Teachers' Attributes	19	9
Total	100	40
Factors and indicators of Lifelong Learning skills		
1. Lifelong Learning skills of students	100	13
Total	100	13

Table 4.14 showed the detail of five factors loading and 40 indicators of teachers' roles to promote Lifelong Learning skills of students from the relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level model. The detail of indicators showed in Table 4.15-4.0 below.

Table 4.15 Factors loading and number of indicators of setting up study plan obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students

Indicator	Indicator of Setting Study Plan	Factor loading : b	Percentage of Factor loading
1	Set study plan to promote self-learning	0.38	8
2	Set study plan to promote peer learning	0.34	7
3	Set study plan by integrating various contents and skills	0.43	9
4	Base on research methodology to set study plan	0.45	9
5	Set content and activities to be consistent with the interest and individual differences	0.45	9
6	Organize activities for the learners to practice thinking process skill	0.51	10
7	Organize the practical activities	0.48	10
8	Organize activities to learn from the variety of sources	0.57	12
9	Give the importance to the learning process by reflecting what the learners had learnt rather than what they had been instructed	0.49	10
10	Update learning content	0.38	8
11	Organize the activities for the learners to study	0.37	8
Total		4.85	100

Table 4.15 showed the detail of factors loading and indicators of setting study plan obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

Table 4.16 Factors loading and number of indicators of learning support and setting atmosphere for learning obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students

Indicator	Indicator of Setting Study Plan	Factor loading : b	Percentage of Factor loading
1	Promote the learners to pursuit knowledge	0.72	14
2	Organize or simulate the situation to motivate learning participation	0.45	9
3	Advise learning sources both inside and outside classroom	0.38	8
4	Provide the guideline of pursuit the sources of knowledge to the learners	0.34	7
5	Organize activities to promote thinking, practicing, and learning processes	0.42	8
6	Provide learning media for the learners	0.41	8
7	Set classroom atmosphere to support the learners based on their potentialities, interests, and requirements	0.42	8
8	Support learning cooperation and experiences exchange among the learners	0.46	9
9	Provide the chance to explain or present the works in classroom	0.48	9
10	Provide the chance to ask questions and show opinion	0.47	9
11	Being friendly and took care of the learners	0.55	11
Total		5.10	100

Table 4.16 showed the detail of factors loading and indicators of learning support and setting atmosphere for learning obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

Table 4.17 Factors loading and number of indicators of class management obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students

Indicator	Indicator of Setting Study Plan	Factor loading : b	Percentage of Factor loading
1	Set up classroom to support learning activities	0.41	23
2	Give importance to learners' differences and constraints	0.49	28
3	Governing the classroom with the regulations	0.48	27
4	Having punishment system based on the regulation and promoting learners' discipline	0.38	22
Total		1.76	100

Table 4.17 showed the detail of factors loading and indicators of class management obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

Table 4.18 Factors loading and number of indicators of observing, monitoring, and assessment obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students

Indicator	Indicator of Setting Study Plan	Factor loading : b	Percentage of Factor loading
1	Evaluate the learners based on the actual situation	0.82	29
2	Have many types of assessment such as learners evaluate themselves, evaluated by teachers or peers	0.41	14
3	Report evaluation result for the learners' development	0.54	19
4	Identify the evaluation as a part of the learning	0.50	18
5	Evaluate the learning both during and after learning in order to set the development plan for the next academic year	0.56	20
Total		2.83	100

Table 4.18 showed the detail of factors loading and indicators of observing, monitoring, and assessment obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

Table 4.19 Factors loading and number of indicators of teachers' attributes obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students

Indicator	Indicator of Setting Study Plan	Factor loading : b	Percentage of Factor loading
1	Have knowledge of setting up atmosphere to support Lifelong Learning	0.43	9
2	Have teaching knowledge to promote self-learning	0.41	9
3	Aware of the importance of on-going learning	0.83	18
4	Have positive attitude and value the learning	0.87	18
5	Apply technology to develop themselves and the learners	0.45	10
6	Know the learning centers and advise to the learners	0.40	8
7	Be the role model in learning and pursuing knowledge	0.48	10
8	Facilitate the learning	0.36	8
9	Study the information to apply to the leaning constantly	0.48	10
Total		4.71	100

Table 4.19 showed the detail of factors loading and indicators of teachers' attributes obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

Table 4.20 Factors loading and number of indicators of Lifelong Learning skills obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students

Indicator	Indicator of Setting Study Plan	Factor loading : b	Percentage of Factor loading
1	Pursue knowledge	0.63	8
2	Love reading, writing, and listening for questioning	0.73	9
3	Be self-learning	0.61	7
4	Be able to learn continuously	0.59	7
5	Be able to communicate with language, transfer knowledge, understanding, and attitude via speaking and writing	0.65	8
6	Be able to analyze	0.72	9
7	Be able to synthesize	0.75	9
8	Be creative	0.70	8
9	Be critical thinking	0.78	9
10	Be able to predict	0.62	7
11	Be able to set purpose and make decision	0.67	8
12	Be able to work in group	0.46	6
13	Be able to apply technology for learning	0.45	5
Total		8.26	100

Table 4.20 showed the detail of factors loading and indicators of Lifelong Learning skills obtained from the model of relationship of teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

Part 2 Result of developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students

Results from Part 1 were the factors, indicators, factor loading of factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational. The researcher employed those results as the basic information to develop the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational. In addition, the researcher studied and synthesized the model based on the concept and theory of evaluation model development and produced the model manual (Appendix C page 256) and the evaluation model's quality was examined by the experts to develop the model before tryout as the following detail.

2.1 Result of developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students

Studying the concept and theories of evaluation model development, the evaluation model was flexible. Most of the raters applied the concepts and theories to develop and support the suitable evaluation. The researcher applied the concept of Nevo (1983, p.117-126) and Sirichai Kahchanawasee (2009, p.55-60) which were in consistent to develop to the concept of evaluation model development. The evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level referred to the structure showed the relationship between the significant factors of the evaluation of teacher's roles to promote Lifelong Learning skills of students at the basic educational level which consisted of 1) evaluation objectives 2) evaluation subjects 3) evaluation method 4) evaluation criteria 5) evaluation reporting and implementing the evaluation result for development as showed in Figure 4.8.

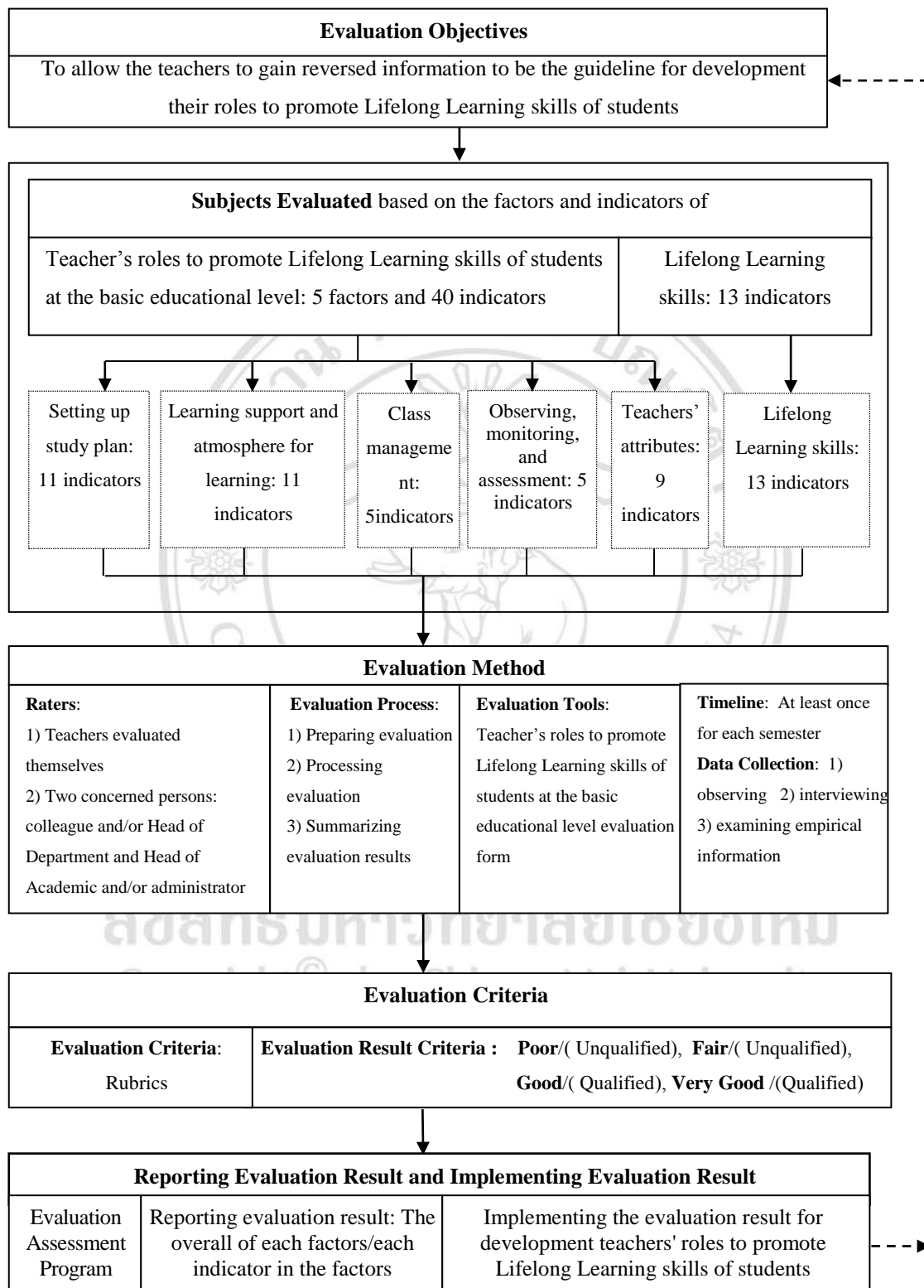


Figure 4.8 The evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level

1) Evaluation Objectives

To allow the teachers to gain reversed information to be the guideline for development their roles to promote Lifelong Learning skills of students. The evaluation model applied to the evaluation on Primary school level based on the concept of Medel Anonuevo (2001) which mentioned that the process of promoting students to have Lifelong Learning skills should be formed since the primary school level because it was the preliminary stage of learning and development. An inefficient basic would have great effect on the higher educational level.

2) Evaluated Subjects

There were factors, indicators, factors and indicators loading

Factors and Indicators

Evaluate by indicators of teacher's roles to promote Lifelong Learning skills of students at the basic educational level that the researcher obtained from related principles, concepts, and theories which were: factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level and actors and indicators of Lifelong Learning skills of students at the basic educational level.

Factors and indicators of teachers' roles to promote Lifelong Learning skills of students at the basic educational level, 5 factors and 40 indicators were:

- (1) Setting study plan: 11 indicators which were:
 - 1.1) Set study plan to promote self-learning
 - 1.2) Set study plan to promote peer learning
 - 1.3) Set study plan by integrating various contents and skills
 - 1.4) Base on research methodology to set study plan
 - 1.5) Set content and activities to be consistent with the interest and individual differences
 - 1.6) Organize activities for the learners to practice thinking process skill
 - 1.7) Organize the practical activities
 - 1.8) Organize activities to learn from the variety of sources
 - 1.9) Give the importance to the learning process by reflecting what the learners had learnt rather than what they had been instructed
 - 1.10) Update learning content
 - 1.11) Organize the activities for the learners to study
- (2) Learning support and setting atmosphere for learning: 11 indicators which were:
 - 2.1) Promote the learners to pursuit knowledge
 - 2.2) Organize or simulate the situation to motivate learning participation

- 2.3) Advise learning sources both inside and outside classroom
- 2.4) Provide the guideline of pursuit the sources of knowledge to the learners
- 2.5) Organize activities to promote thinking, practicing, and learning processes
- 2.6) Provide learning media for the learners
- 2.7) Set classroom atmosphere to support the learners based on their potentialities, interests, and requirements
- 2.8) Support learning cooperation and experiences exchange among the learners
- 2.9) provide the chance to explain or present the works in classroom
- 2.10) Provide the chance to ask questions and show opinion
- 2.11) Being friendly and took care of the learners
- (3) Class management: 4 indicators which were:
 - 3.1) Set up classroom to support learning activities
 - 3.2) Give importance to learners' differences and constraints
 - 3.3) Governing the classroom with the regulations
 - 3.4) Having punishment system based on the regulation and promoting learners' discipline
- (4) Observing, monitoring, and assessment: 5 indicators which were:
 - 4.1) Evaluate the learners based on the actual situation
 - 4.2) Have many types of assessment such as learners evaluate themselves, evaluated by teachers or peers
 - 4.3) Report evaluation result for the learners' development
 - 4.4) Identify the evaluation as a part of the learning
 - 4.5) Evaluate the learning both during and after learning in order to set the development plan for the next academic year
- (5) Teachers' attributes: 9 indicators which were:
 - 5.1) Have knowledge of setting up atmosphere to support Lifelong Learning
 - 5.2) Have teaching knowledge to promote self-learning
 - 5.3) Aware of the importance of on-going learning
 - 5.4) Have positive attitude and value the learning
 - 5.5) Apply technology to develop themselves and the learners
 - 5.6) Know the learning centers and advise to the learners
 - 5.7) Be the role model in learning and pursuing knowledge
 - 5.8) Facilitate the learning
 - 5.9) Study the information to apply to the learning constantly

Factors and indicators of Lifelong Learning skills, 1 factor and 13

indicators which were:

(1) Lifelong Learning skills: 13 indicators which were:

- 1.1) Pursue knowledge
- 1.2) Love reading, writing, and listening for questioning
- 1.3) Be self-learning
- 1.4) Be able to learn continuously
- 1.5) Be able to communicate with language, transfer knowledge, understanding, and attitude via speaking and writing
- 1.6) Be able to analyze
- 1.7) Be able to synthesize
- 1.8) Be creative
- 1.9) Be critical thinking
- 1.10) Be able to predict
- 1.11) Be able to set purpose and make decision
- 1.12) Be able to work in group
- 1.13) Be able to apply technology for learning

3) Evaluation Method consisted of rater, evaluation process, evaluation tool, evaluation timeline, and evaluation method.

Indicators in the related factors were evaluated and compare to the evaluation criteria. The rater should understand the factors, indicators, and evaluation criteria on the evaluation manual. Only the behaviors related to the indicators were evaluated. The feeling or the information has been told from others should not be considered. The evaluation should consider the roles or behaviors of the evaluated person behaved which were the outstanding roles or behaviors compare to the scoring rubrics by interviewing or questioning the evaluated person focusing on the participation and empirical information.

Rater

Studying document and researches related to teacher evaluation. It was found that the evaluation should be completed from the concerned persons who were able to provide information reflected the fact. Thus, the teachers' roles to promote Lifelong Learning skills evaluation model set the qualification of the evaluated teachers in two groups to make it accurate and reliable which were:

1) Teachers evaluated themselves on the roles and behaviors based on the indicators and evaluation criteria.

2) Two concerned persons: colleagues and/or Head of Department and/or Head of Academic and/or the administrator evaluated the teachers. They should be the operation staff who worked together and were able to observe the roles and behaviors of the teachers, understood the factors, indicators, and evaluation criteria, had justice in evaluation considering from related documents, evidences, empirical information, not the personal opinion or feeling.

Evaluation Process

Teachers' roles to promote Lifelong Learning skills of the students at the basic educational level evaluation process consisted of preparing evaluation, processing evaluation, and summarizing the evaluation result.

Preparing evaluation was to prepare the understanding and knowledge to the teachers who employed the evaluation model, study the detail on the manual.

Processing evaluation was to evaluate the teachers' roles to promote Lifelong Learning skills of students at the basic educational level.

Summarizing the evaluation result was to analyze the result, summarize the result, and the guideline of implementing the result. The summarize showed in Figure 4.9

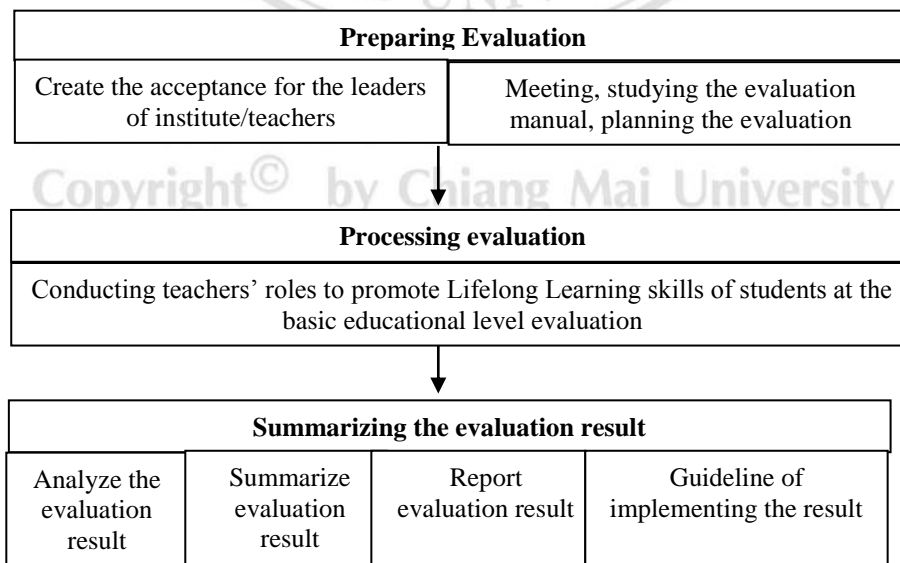


Figure 4.9 Evaluation Process

Evaluation Tool

The evaluation tool was the evaluation form for teachers' roles to promote Lifelong Learning skills of students at the basic educational level. There were three main parts of the evaluation form: 1) general information of the applicants 2) teachers' roles to promote Lifelong Learning skills of students at the basic educational level evaluation and 3) Lifelong Learning skills of students. In part two, teachers' roles to promote Lifelong Learning skills of students had 5 factor, 40 lists in total. Part 3, Lifelong Learning skills of students had 13 lists. The evaluation criterion was Rubrics. The detail of the tool structure showed in Table 7 and the evaluation form sample. (Appendix B page 252)

Table 4.21 Structure of the evaluation form for teachers' roles to promote Lifelong Learning skills of students

Content	Factors	Factor Load (percentage)	Criteria	No	Rater
Teachers' roles to promote Lifelong Learning skills of students	1. Setting study plan	26	Rubrics	11	<ul style="list-style-type: none"> Teachers (self-evaluate) Two concerned persons which were colleague and/or Head of Department and/or Head of Academic and/or the administrator (evaluated teachers)
	2. Learning support and setting atmosphere for learning	35		11	
	3. Class management	19		4	
	4. Observing, monitoring, and assessment	12		5	
	5. Teachers' attributes	8		9	
Lifelong Learning skills of students	1. Lifelong Learning skills of students	100	Rubrics	13	<ul style="list-style-type: none"> Teachers (evaluate students) Two concerned persons which were colleague and/or Head of Department and/or Head of Academic and/or the administrator (evaluate students)

Evaluation Time

Evaluation time for evaluating teachers' roles to promote Lifelong Learning skills of students must be conducted at least once a semester such as at the beginning of the term and/or in mid-semester and/or at end of semester. This would be beneficial for

the teacher to obtain the reversed information from the evaluation in order to prepare the improvement on teachers' roles to promote Lifelong Learning skills of students.

Data Collection

Data was collected by observation, interviewing the evaluated teachers, examining the related document, and empirical information.

4) Evaluation Criteria

Absolute criterion, which was the criteria had been developed from the principles of teachers' roles to promote Lifelong Learning skills of students at the basic educational level, related document, and the experts' opinion was applied. It was the Rubrics criteria, the scoring guideline which was the combination between scoring criteria and rating scale. Rubrics criteria defined the differences of behaviors of teachers' roles and Lifelong Learning skills of students to be the guideline for grading. Moreover, it was applied from the guideline of basic education to the practical approach of Bureau of Academic Affairs and Educational Standards, Office of Basic Education Commission, Ministry of Education (2007) by defining 4 levels from 1 to 4 as below.

Evaluation Criteria of the quality of indicators of teachers' roles to promote students Lifelong Learning skills. The criteria detail was applied from the criteria of teachers' performance ability of teachers' development system, Institute for Development of Educational Administrators, Ministry of Education (2005).

Aspects	Very Good (4) /Qualified	Good (3) /Qualified	Fair (2) /Unqualified	Poor (1) /Unqualified
Understanding	Have great understanding, be able to well operate job and advise others.	Have high understanding, be able to operate job	Have less understanding, insufficient to operate job.	Have none understanding, insufficient to operate job.
Performance	Regularly practice (81-100% of the practice)	Frequently practice (61-80% of the practice)	Occasionally practice (1-60% of the practice)	No practice
Attributes	Most	Many	Few	None

Evaluation Criteria of the quality of indicators of Lifelong Learning skills of students. The criteria detail was applied from the basic educational standard to the performance, Institute for Development of Educational Administrators, Ministry of Education (2005).

Poor (1) /Unqualified	Fair (2) /Unqualified	Good (3) /Qualified	Very Good (4) /Qualified
Numbers of the learners who qualified Level 3 is less than 50%	Numbers of the learners who qualified Level 3 between 50 – 74%	Numbers of the learners who qualified Level 3 between 75 – 89%	Numbers of the learners who qualified Level 3 at 90% and higher

Evaluation result criteria calculate the mean of each indicator and indicator loading and compare to the evaluation result criteria to summarize the indicator evaluation result. The criteria was applied from the basic educational standard to the performance, Institute for Development of Educational Administrators, Ministry of Education (2005) as followed.

Average Score	Quality Levels
Lower than 1.75	Unqualified Poor Level and required the prompt improvement
1.75 – 2.74	Unqualified Fair Level and required the improvement
2.75 – 3.49	Qualified Good Level and the weakness could be improved and had no effect on teachers' roles to promote Lifelong Learning of students
3.50 – 4.00	Qualified Very Good Level and affected teachers' roles to promote Lifelong Learning of students efficiently

The detail of factors, indicators, evaluation criteria, data collection/source of data related to teachers' roles to promote Lifelong Learning of students at the basic educational level (Appendix C pages 260).

5) Reporting Evaluation Result and Implementing Evaluation Result

When finishing evaluate all indicators, the rater or the in charge person input data on the evaluation program to evaluate and summarize the evaluation result.

Evaluation Program

The researcher created the evaluation program to facilitate the users to access via website <http://www.llskill.com/assessment/index.php>. However, there would be the authorize restriction to access the evaluation. The person in charge of school system was to be

considered by Head of Department or Head of Academic or the administrators. The researcher set Username and Password to the school system controller and school system controller was able to authorize those to the raters and the evaluated teachers in school. In addition, to access the evaluation report, the users must be authorized. The evaluation program manual detail was in (Appendix C pages 274).

Reporting Evaluation Result

Reporting the evaluation result to teachers, administrators, and other concerned staff, they would be able to learn the reversed information in order to improve their roles in promoting Lifelong Learning skills to the students. There were two types of the evaluation result reports: the report on the overall evaluation result of each factor, and the report of evaluation result of each indicator in the factors. The detail and the sample of evaluation result report (Appendix C pages 266).

The evaluation defined the score loading of each factor and indicator differently depends on their importance. Thus, considering the score to each indicator and summarizing the overall would start with calculating each indicator, each factor, and the overall respectively as the detail below.

To calculate score of each indicator:

$$\text{Indicator score} = \frac{(\text{score from 1}^{\text{st}} \text{ rater} + \text{2}^{\text{nd}} \text{ rater} + \text{3}^{\text{rd}} \text{ rater})}{\text{Total score (4)}}$$

To calculate score of each factor:

$$\text{Factor score} = \frac{\sum (\text{indicator score} \times \text{indicator loading})}{100}$$

Implementing Evaluation Result for Development

It was beneficial for teachers to gain the reversed information to improve their roles in promoting student to have Lifelong Learning skills through learning processes. In addition, it was beneficial for Head of Department, Head of Academic and the administrators to set the teachers' roles development plan policy. This approach had been developed from studying the documents; teacher development system, Institute for Development of Educational Administrators, Ministry of Education (2005, pages 17-19) and synthesizing related researches to teacher development approach from the electronic

database which gathering thesis, researches, textbooks, journals, and 13 of Thai Digital Collection during 2004-2014: Teacher Development System, Institute for Development of Educational Administrators, Ministry of Education (2005), Samorn Praituen (2009), Thanabordee Buayairaksa (2007), Thongboon Jan-Horm (2009), Kiatchai Phuimart (2009), Ratchaya Wiwek (2008), Nittaya Thongsong (2009), Surachet Soisawing (2009), Santi A-Wanna (2008), Somboon Phurahong (2008), Kittinart Fuengfung (2005), Amnuay Kitchareon (2004), and Waratchaya Wiwek (2008).

There were four approaches to develop teachers' roles to promote Lifelong Learning skills of the students which were: 1) self-development by reading textbooks, searching from internet, leaning from media, experimenting from the real situation, learning from the experts, and training. 2) Developing by the experts by giving advice, suggestions, demonstration, providing sample of learning plan to the teachers, exchanging learning networks, applying local wisdom to learning management. 3) Training in the set courses: class training, training by distance learning, training by electronic media, workshops. 4) Further education by studying the curriculum of the institutes or department in the country, studying the curriculum of the institutes or department in other countries. The detail of development approach by each factor (Appendix C pages 271).

In addition, the researcher created the website to be a source of information, which related to teachers' roles in promoting Lifelong Learning skills to the students for people to study and apply for self-development in setting study plan, learning support and environment for learning, class management, observing, monitoring, and assessment, teachers' attributes, and Lifelong Learning skills of students. The link to the website was: <http://www.lllskill.com>

2.2 Result of verifying the quality of evaluation model for teacher's roles to promote Lifelong Learning skills of students by the experts

The results from 26 experts: 13 experts on study measuring and assessment and 13 academic experts, who were school administrators, educational supervisor, teachers, and computer experts, showed that they strongly agreed with the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level. The average was 4.51. Considering each aspect, they agreed on the evaluation model at the high and the highest level. They strongly agreed on the utility and accuracy of the evaluation model, and quite agreed on its utility and propriety as presented in the Table 4.22 - 4.26. The results of improving the evaluation model by applying the experts' suggestions were following.

2.2.1 Result of verifying the quality of evaluation model for teacher's roles to promote Lifelong Learning skills of students by the experts

Table 4.22 Average, Standard Deviation and the opinion of the experts to the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level overall

Model Quality	No.	Average	Standard Deviation	Interpretation
1. Utility	26	4.61	0.49	Strongly Agreed
2. Feasibility	26	4.40	0.51	Agreed
3. Propriety	26	4.42	0.61	Agreed
4. Accuracy	26	4.61	0.51	Strongly Agreed
Total		4.51	0.53	Strongly Agreed

From Table 4.22, the experts strongly agreed on the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level as a whole, which the average was 4.51. Considering each aspect, they strongly agreed on utility and accuracy and agreed on propriety and feasibility respectively.

Table 4.23 Average, Standard Deviation and the opinion of the experts on the utility of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level

Items	No.	Average	Standard Deviation	Interpretation
1. Information gained from applying the evaluation form responded to the requirement of concerned persons	26	4.50	0.51	Strongly Agreed
2. Evaluation results were beneficial for teachers to develop their roles in promoting Lifelong Learning skills to students	26	4.73	0.45	Strongly Agreed
3. Evaluation results were beneficial information for the administrators, teachers, and concerned persons to set teachers' roles in promoting Lifelong Learning skills to students development policy	26	4.65	0.49	Strongly Agreed
4. The evaluation period was suitable for implementing the evaluation result to teachers' roles development	26	4.54	0.51	Strongly Agreed
5. Evaluation model stimulated the concerned persons to be aware of the benefits of the constant evaluation	26	4.65	0.49	Strongly Agreed
Total		4.61	0.49	Strongly Agreed

From Table 4.23, the experts strongly agreed on the utility of evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level, which the average was 4.61. Considering each item, they strongly agreed that evaluation results were the most beneficial for teachers to develop their roles in promoting Lifelong Learning skills to students.

Table 4.24 Average, Standard Deviation and the opinion of the experts on the feasibility of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level

Items	No.	Average	Standard Deviation	Interpretation
1. Evaluation model was practical	26	4.50	0.51	Strongly Agreed
2. Evaluation model was consistent with the institute circumstance	26	4.50	0.51	Strongly Agreed
3. Evaluation model was suitable with the teachers and concerned persons' context	26	4.42	0.50	Agreed
4. Evaluation model possibly received the cooperation from the raters	26	4.19	0.49	Agreed
5. Evaluation model possibly received the cooperation from the evaluated teachers	26	4.15	0.54	Agreed
6. Evaluation results could improve/develop teachers' roles to promote Lifelong Learning skills of students	26	4.65	0.49	Strongly Agreed
Total		4.40	0.51	Agreed

From Table 4.24, the experts agreed on the feasibility of the evaluation model for teachers' roles to for promote Lifelong Learning skills of students at the basic educational level in the aspect of feasibility, which the average was 4.40. Considering each item, they gave opinion that the evaluation results could be utilized to improve/develop teachers' roles to promote Lifelong Learning skills of students the most.

Table 4.25 Average, Standard Deviation and the opinion of the experts on the propriety of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level

Items	No.	Average	Standard Deviation	Interpretation
1. The rater evaluated based on ethics, not personal or information received from others	26	4.23	0.71	Agreed
2. The rater was aware of the privacy of the evaluated persons	26	4.35	0.69	Agreed
3. Evaluation result provided both outstanding and weakness of what was evaluated	26	4.58	0.58	Strongly Agreed
4. Evaluation model gave priority to the information acknowledgement of the person	26	4.38	0.57	Agreed
5. Evaluation model had clear criteria which affected to the transparency	26	4.54	0.51	Strongly Agreed
Total		4.42	0.61	Agreed

From Table 4.25, the experts agreed on the propriety of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level, which the average was 4.42. Considering each item, they gave opinion that the evaluation results gave the priority to the information acknowledgement of the person the most.

Table 4.26 Average, Standard Deviation and the opinion of the experts on the accuracy of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level

Aspects	No.	Average	Standard Deviation	Interpretation
Objectives of Evaluation Model				
1. Evaluation model had been developed from the reliable theories	26	4.69	0.47	Strongly Agreed
2. Evaluation model had clear objectives	26	4.73	0.53	Strongly Agreed
Evaluation Subjects				
3. Factors/indicators of teachers' roles to promote Lifelong Learning skills of students were clearly defined	26	4.81	0.40	Strongly Agreed
Evaluation Method				
4. Clearly defined the concerned person with the evaluation	26	4.73	0.45	Strongly Agreed
5. The evaluation process was practical	26	4.50	0.58	Strongly Agreed
6. Evaluation tools, teachers' roles to promote Lifelong Learning skills of students evaluation form, included all evaluation aspects	26	4.58	0.50	Strongly Agreed
7. Evaluate once a semester was adequate.	26	4.62	0.50	Strongly Agreed
8. Data collection from observation, interview, and examine the documents and empirical information were inclusive	26	4.50	0.58	Strongly Agreed
Evaluation Criteria				
9. Evaluation criteria was clear and support the final evaluation result accurately	26	4.42	0.58	Agreed

Table 4.26 (continued)

Aspects	No.	Average	Standard Deviation	Interpretation
Reporting Results from Program and Implementing Results				
10. The model to implement the evaluation results was clear and applicable	26	4.50	0.51	Strongly Agreed
11. Evaluation program was easy to practice	26	4.58	0.50	Strongly Agreed
12. Evaluation program was accurate	26	4.62	0.50	Strongly Agreed
13. The speed of the program	26	4.65	0.49	Strongly Agreed
14. Evaluation manual was understandable and applicable	26	4.58	0.50	Strongly Agreed
15. Evaluation manual contained the inclusive evaluation model information	26	4.65	0.49	Strongly Agreed
Total		4.61	0.51	Strongly Agreed

From Table 4.26, the experts agreed on the accuracy of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level, which the average was 4.61. Considering each item, the experts agreed with the evaluation subject had clearly defined the factors/indicators of teachers' roles to promote Lifelong Learning skills of students the most. Next, was the evaluation model clearly defined the objectives of the evaluation, and the evaluation method which clearly defined the concerned persons with the evaluation respectively.

Furthermore, the computer experts gave more opinion on the evaluation program that it was consistent with the objective of the program, to evaluate the evaluation and to facilitate the data input to quick and accurate analyze and evaluate. Printing evaluation report was suitable. The screen, background, and font management were suitable and simple to understand. The program manual was beneficial with the appropriate language and content.

2.2.2 Result of developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students by the experts

The researcher developed the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level from the experts' suggestion as the summary below.

Evaluation Model and Evaluation Model Manual had the detail below.

1. From the experts' suggestions on the evaluation process, the instruction on the evaluation preparation step was unclear. The researcher revised the instruction to be clearer and focused on how to prepare the evaluation.

2. From the experts' suggestions on the evaluation result report, the detail of calculating evaluation score to make the applicants have more understanding. The researcher added more instruction detail of calculating evaluation score for each indicator and factor

3. From the experts' suggestions, the explanation of some indicators were unclear. The researcher had studied the related documents and updated the behavior/explanation of indicators of factors 1-5 to be clearer.

4. From the experts' suggestions, the criteria of indicators quality was unclear. The researcher adjusted the criteria of indicators quality from the practice level: most/many/some/few/none or / occasionally, frequently, and regularly to be Rubrics which was more clear by synthesizing related documents and researches in 10 indicators: 1.3, 1.4, 1.5, 4.1-4.5, 5.5, 5.9

5. From the experts' suggestions, data collection method/sources of some indicators were unclear. The researcher studied related documents and applied to the data collection/sources of information to be clearer in indicators: 4.1-4.5, 5.5-5.7, 5.9.

6. From the experts' suggestions, there should be more detail on the evaluation result report. The researcher updated the report to be clearer. Previously, there was no average and evaluation level of sub-indicators but the average and evaluation level of the factors. The researcher then added the average and evaluation level of sub-indicators to allow the applicants to learn the sub-indicators evaluation results in order to see further development method.

Evaluation Program had the detail below.

1. From the experts' suggestions, the evaluation results could not be saved as a file. The researcher developed the program, which only accessed the report on the screen, then printed out to be able to download as Excel file and saved as the electronic file.

2. From the experts' suggestions, the instruction of accessing the program should be clearer. The researcher revised the instruction on the manual to be more understandable by adding the login button on <http://www.lllskill.com/assessment/index.php> , so the users would log in the program easily. Previously, the users would have to go to <http://www.lllskill.com> and go to log in on the top right, for Admin, and on the left menu, the teacher evaluation form. This caused the confusion to the users sometime.

3. From the experts' suggestions, Pop up should be add on the explanation of evaluation criteria for evaluation program. The researcher added Pop up to show the explanation of evaluation criteria for each indicator to facilitate the raters and save time from opening the manual. Clicking on the indicator, there was a Pop up or the small window to show the detail of indicators, criteria, evaluation criteria, data collection/sources of information.

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

Part 3 Result of the tryout to examine the quality of evaluation model for teacher's roles to promote Lifelong Learning skills of students

The researcher had tried out and examined the quality of the developed evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level which was qualified from the experts. The tester were 42 administrators and teachers from 11 schools; 3 small schools, 4 of each medium and large schools applied to all grade levels and departments. First, conducting the tryout with one of the small, medium, and large schools to obtain the suggestion for improving the model. Then, implementing the model to eight schools to examine the quality of the model on utility, feasibility, propriety, and accuracy. Analyzing of Concurrent Validity was applying by Known groups method with the statistics of Mann-Whitney U test. Analyzed the quality of the evaluation results agreement by calculating Rater Agreement Index: RAI and examine the evaluation results' reliability quality by applying Generalizability Theory or G-Theory to analyze G-Coefficient and develop the model after trying out. The detail was following.

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

3.1 Results of evaluating teacher's roles to promote Lifelong Learning skills of students at the basic educational level

Teacher's roles to promote Lifelong Learning skills of students were excellent. The Lifelong Learning skills of students were good. The detail showed on Table 4.27 – 4.33

Table 4.27 Average, Standard Deviation and evaluation results of teachers' roles to promote Lifelong Learning skills of students in overall

Aspects	No.	Average	Standard Deviation	Interpretation
1. Setting study plan	42	3.44	0.57	Good
2. Learning support and setting atmosphere for learning	42	3.54	0.55	Excellent
3. Class management	42	3.53	0.53	Excellent
4. Observing, monitoring, and assessment	42	3.50	0.57	Excellent
5. Teachers' attributes	42	3.70	0.51	Excellent
Total		3.54	0.55	Excellent

From Table 4.27, the overall evaluation result of teachers' roles to promote Lifelong Learning skills of students at the basic educational level was excellent, which the average was 3.54. Considering each aspect, the opinion was in the good and excellent level. Teachers' attributes, learning support and setting atmosphere for learning, class management, observing, monitoring, and assessment were excellent while setting study plan was good.

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

Table 4.28 Average, Standard Deviation and evaluation results of teachers' roles to promote Lifelong Learning skills of students in setting study plan aspect

Setting study plan	No.	Average	Standard Deviation	Interpretation
1. Set study plan to promote self-learning	42	3.40	0.54	Good
2. Set study plan to promote peer learning	42	3.45	0.55	Good
3. Set study plan by integrating various contents and skills	42	3.50	0.59	Excellent
4. Base on research methodology to set study plan	42	3.12	0.71	Good
5. Set content and activities to be consistent with the interest and individual differences	42	3.36	0.53	Good
6. Organize activities for the learners to practice thinking process skill	42	3.62	0.54	Excellent
7. Organize the practical activities	42	3.48	0.59	Good
8. Organize activities to learn from the variety of sources	42	3.50	0.59	Excellent
9. Give the importance to the learning process by reflecting what the learners had learnt rather than what they had been instructed	42	3.36	0.62	Good
10. Update learning content	42	3.57	0.50	Excellent
11. Organize the activities for the learners to study	42	3.48	0.51	Good
Total		3.44	0.57	Good

From Table 4.28 , the evaluation result of teachers' roles to promote Lifelong Learning skills of students at the basic educational level on setting study plan was good, which the average was 3.44. Considering each aspect, teachers were excellent at organizing activities for the learners to practice thinking process skill.

Table 4.29 Average, Standard Deviation and evaluation results of teachers' roles to promote Lifelong Learning skills of students in learning support and setting atmosphere for learning aspect

Learning support and setting atmosphere for learning	No.	Average	Standard Deviation	Interpretation
1. Promote the learners to pursuit knowledge	42	3.50	0.51	Excellent
2. Organize or simulate the situation to motivate learning participation	42	3.48	0.51	Good
3. Advise learning sources both inside and outside classroom	42	3.48	0.71	Good
4. Provide the guideline of pursuit the sources of knowledge to the learners	42	3.71	0.46	Excellent
5. Organize activities to promote thinking, practicing, and learning processes	42	3.45	0.59	Good
6. Provide learning media for the learners	42	3.50	0.55	Excellent
7. Set classroom atmosphere to support the learners based on their potentialities, interests, and requirements	42	3.40	0.50	Good
8. Support learning cooperation and experiences exchange among the learners	42	3.52	0.63	Excellent
9. Provide the chance to explain or present the works in classroom	42	3.40	0.63	Good
10. Provide the chance to ask questions and show opinion	42	3.71	0.51	Excellent
11. Being friendly and took care of the learners	42	3.79	0.47	Excellent
Total		3.54	0.55	Excellent

From Table 4.29, the evaluation result of teachers' roles to promote Lifelong Learning skills of students at the basic educational level on learning support and setting atmosphere for learning was excellent, which the average was 3.54. Considering each aspect, teachers were friendly and took care of the learners very well.

Table 4.30 Average, Standard Deviation and evaluation results of teachers' roles to promote Lifelong Learning skills of students in class management aspect

Class management	No.	Average	Standard Deviation	Interpretation
1. Set up classroom to support learning activities	42	3.48	0.59	Good
2. Give importance to learners' differences and constraints	42	3.57	0.50	Excellent
3. Governing the classroom with the regulations	42	3.55	0.50	Excellent
4. Having punishment system based on the regulation and promoting learners' discipline	42	3.52	0.51	Excellent
Total		3.53	0.53	Excellent

From Table 4.30, the evaluation result of teachers' roles to promote Lifelong Learning skills of students at the basic educational level on class management was excellent, which the average was 3.53. Considering each aspect, teachers gave the great importance to learners' differences and constraints.

Table 4.31 Average, Standard Deviation and evaluation results of teachers' roles to promote Lifelong Learning skills of students in observing, monitoring, and assessment aspect

Observing, monitoring, and assessment	No.	Average	Standard Deviation	Interpretation
1. Evaluate the learners based on the actual situation	42	3.55	0.55	Excellent
2. Have many types of assessment such as learners evaluate themselves, evaluated by teachers or peers	42	3.38	0.54	Good
3. Report evaluation result for the learners' development	42	3.57	0.59	Excellent
4. Identify the evaluation as a part of the learning	42	3.43	0.59	Good
5. Evaluate the learning both during and after learning in order to set the development plan for the next academic year	42	3.55	0.59	Excellent
Total		3.50	0.57	Excellent

From Table 4.31, the evaluation result of teachers' roles to promote Lifelong Learning skills of students at the basic educational level on observing, monitoring, and assessment was excellent, which the average was 3.50. Considering each aspect, teachers were good at reporting the evaluation result to the learners for their development.

Table 4.32 Average, Standard Deviation and evaluation results of teachers' roles to promote Lifelong Learning skills of students in teachers' attributes aspects

Teachers' attributes	No.	Average	Standard Deviation	Interpretation
1. Have knowledge of setting up atmosphere to support Lifelong Learning	42	3.48	0.59	Good
2. Have teaching knowledge to promote self-learning	42	3.57	0.55	Excellent
3. Aware of the importance of on-going learning	42	3.76	0.48	Excellent
4. Have positive attitude and value the learning	42	3.79	0.47	Excellent
5. Apply technology to develop themselves and the learners	42	3.69	0.52	Excellent
6. Know the learning centers and advise to the learners	42	3.71	0.51	Excellent
7. Be the role model in learning and pursuing knowledge	42	3.81	0.45	Excellent
8. Facilitate the learning	42	3.76	0.53	Excellent
9. Study the information to apply to the leaning constantly	42	3.71	0.46	Excellent
Total		3.70	0.51	Excellent

From Table 4.32, the evaluation result of teachers' roles to promote Lifelong Learning skills of students at the basic educational level on teachers' attributes was excellent, which the average was 3.70. Considering each aspect, teachers were very good role model in learning and pursuing knowledge.

Table 4.33 Average, Standard Deviation and evaluation results of Lifelong Learning skills of students at the basic educational level

Lifelong Learning skills of students	No.	Average	Standard Deviation	Interpretation
1. Pursue knowledge	42	3.14	0.42	Good
2. Love reading, writing, and listening for questioning	42	3.00	0.62	Good
3. Be self-learning	42	3.14	0.72	Good
4. Be able to learn continuously	42	3.36	0.53	Good
5. Be able to communicate with language, transfer knowledge, understanding, and attitude via speaking and writing	42	3.24	0.58	Good
6. Be able to analyze	42	3.05	0.58	Good
7. Be able to synthesize	42	3.02	0.68	Good
8. Be creative	42	3.07	0.60	Good
9. Be critical thinking	42	3.00	0.73	Good
10. Be able to predict	42	2.98	0.68	Good
11. Be able to set purpose and make decision	42	3.31	0.60	Good
12. Be able to work in group	42	3.55	0.55	Excellent
13. Be able to apply technology for learning	42	3.24	0.62	Good
Total		3.16	0.61	Good

From Table 4.33, the evaluation result of Lifelong Learning skills of students at the basic educational level on teachers' attributes was good, which the average was 3.16. Considering each aspect, students were excellent in working with others.

3.2 Result of verifying the quality of the evaluation model for teacher's roles to promote Lifelong Learning skills of students in utility, feasibility, propriety, and accuracy by the testers

42 testers had were satisfied with the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level in overall, which had the average at 4.42. Considering each aspect, they were very satisfied with utility, feasibility, propriety, and accuracy of the model. The detail showed in Table 4.34 – 4.38

Table 4.34 Average, Standard Deviation and the testers' satisfaction of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level

Model Quality	No.	Average	Standard Deviation	Interpretation
1. Utility	42	4.41	0.52	Very Satisfied
2. Feasibility	42	4.35	0.54	Very Satisfied
3. Propriety	42	4.47	0.53	Very Satisfied
4. Accuracy	42	4.45	0.52	Very Satisfied
Total		4.42	0.53	Very Satisfied

From Table 4.34, the testers were very satisfied with the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level in utility, feasibility, propriety, and accuracy of the model, which had the average at 4.42. Considering each aspect, they were very satisfied with all aspects.

Table 4.35 Average, Standard Deviation and the testers' satisfaction in the utility of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level

Lists	No.	Average	Standard Deviation	Interpretation
1. Information gained from applying the evaluation form responded to the requirement of concerned persons	42	4.29	0.51	Very Satisfied
2. Evaluation results were beneficial for teachers to develop their roles in promoting Lifelong Learning skills to students	42	4.38	0.58	Very Satisfied
3. Evaluation results were beneficial information for the administrators, teachers, and concerned persons to set teachers' roles in promoting Lifelong Learning skills to students development policy	42	4.52	0.51	Strongly Satisfied
4. The evaluation period was suitable for implementing the evaluation result to teachers' roles development	42	4.29	0.51	Very Satisfied
5. Evaluation model stimulated the concerned persons to be aware of the benefits of the constant evaluation	42	4.57	0.50	Strongly Satisfied
Total		4.41	0.52	Very Satisfied

From Table 4.35, the testers were very satisfied with the utility of the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level, which had the average at 4.41. Considering each aspect, they agreed that the evaluation model would help stimulating the concerned persons to be aware of the benefits of the constant evaluation.

Table 4.36 Average, Standard Deviation and the testers' satisfaction in the feasibility of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level

Lists	No.	Average	Standard Deviation	Interpretation
1. Evaluation model was practical	42	4.38	0.58	Very Satisfied
2. Evaluation model was consistent with the institute circumstance	42	4.24	0.53	Very Satisfied
3. Evaluation model was suitable with the teachers and concerned persons' context	42	4.40	0.59	Very Satisfied
4. Evaluation model possibly received the cooperation from the raters	42	4.38	0.58	Very Satisfied
5. Evaluation model possibly received the cooperation from the evaluated teachers	42	4.33	0.48	Very Satisfied
6. Evaluation results could improve/develop teachers' roles to promote Lifelong Learning skills of students	42	4.38	0.49	Very Satisfied
Total		4.35	0.54	Very Satisfied

From Table 4.36, the testers were very satisfied with the feasibility of the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level, which had the average at 4.35. Considering each aspect, they agreed that the evaluation model was suitable with the teachers and concerned persons' context.

Table 4.37 Average, Standard Deviation and the testers' satisfaction in the propriety of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level

Lists	No.	Average	Standard Deviation	Interpretation
1. The rater evaluated based on ethics, not personal or information received from others	42	4.40	0.59	Very Satisfied
2. The rater was aware of the privacy of the evaluated persons	42	4.52	0.51	Strongly Satisfied
3. Evaluation result provided both outstanding and weakness of what was evaluated	42	4.38	0.54	Very Satisfied
4. Evaluation model gave priority to the information acknowledgement of the person	42	4.38	0.49	Very Satisfied
5. Evaluation model had clear criteria which affected to the transparency	42	4.64	0.53	Strongly Satisfied
Total		4.47	0.53	Very Satisfied

From Table 4.37, the testers were very satisfied with the propriety of the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level, which had the average at 4.47. Considering each aspect, they agreed that the evaluation model had the clear criteria which affected to the evaluation transparency.

Table 4.38 Average, Standard Deviation and the testers' satisfaction in the accuracy of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level

List	No.	Average	Standard Deviation	Interpretation
Objectives of Evaluation Model				
1. Evaluation model had been developed from the reliable theories	42	4.57	0.50	Strongly Satisfied
2. Evaluation model had clear objectives	42	4.62	0.54	Strongly Satisfied
Evaluation Subjects				
3. Factors/indicators of teachers' roles to promote Lifelong Learning skills of students were clearly defined	42	4.76	0.43	Strongly Satisfied
Evaluation Method				
4. Clearly defined the concerned person with the evaluation	42	4.55	0.55	Strongly Satisfied
5. The evaluation process was practical	42	4.40	0.50	Very Satisfied
6. Evaluation tools, teachers' roles to promote Lifelong Learning skills of students evaluation form, included all evaluation aspects	42	4.24	0.48	Very Satisfied
7. Evaluate once a semester was adequate.	42	4.21	0.68	Very Satisfied
8. Data collection from observation, interview, and examine the documents and empirical information were inclusive	42	4.36	0.58	Very Satisfied

Table 4.38 (continued)

List	No.	Average	Standard Deviation	Interpretation
Evaluation Criteria				
9. Evaluation criteria was clear and support the final evaluation result accurately	42	4.50	0.51	Strongly Satisfied
Reporting Results from Program and Implementing Results				
10. The model to implement the evaluation results was clear and applicable	42	4.31	0.52	Very Satisfied
11. Evaluation program was easy to practice	42	4.69	0.47	Strongly Satisfied
12. Evaluation program was accurate	42	4.40	0.54	Very Satisfied
13. The speed of the program	42	4.43	0.55	Very Satisfied
Evaluation Manual				
14. Evaluation manual was understandable and applicable	42	4.36	0.53	Very Satisfied
15. Evaluation manual contained the inclusive evaluation model information	42	4.40	0.50	Very Satisfied
Total		4.45	0.52	Very Satisfied

From Table 4.38, the testers were very satisfied with the accuracy of the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level, which had the average at 4.45. Considering each aspect, they strongly satisfied with the clearness of evaluation subjects which clearly defined factors/indicators of teachers' roles to promote Lifelong Learning skills of students. They also strongly satisfied with the evaluation program in terms of the understandable content and practical use and the clear objectives of the evaluation respectively.

3.3 Result of verifying the quality of the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level from the testers in terms of Concurrent Validity, Rater Agreement Index: RAI and Reliability of the evaluation results.

Analyzing the quality in terms of the evaluation results agreement by calculating Rater Agreement Index or RAI, it was found that the rater were in consistent with each other to score the evaluation and examine the reliability quality of the evaluation results. Applying Generalizability Theory or G-Theory to analyze G- Coefficient discovered that the reliability of the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level was in high level. G- Coefficient was 0.9726 and the score difference was 48.38% caused by the relationship between the indicators of the questions in the evaluation and the evaluated person and the unsourced sampling error and 23.35% caused by the roles of the individual teachers. The rater had no difference in scoring. Considering in each aspect, G-Coefficient was in high level, 0.7643 – 0.9629. The detail shoed in Table 4.39 – 4.47

3.2.1 Results of analyzing the quality in terms of concurrent validity

Analyzing the quality in terms of concurrent validity by Known group method and Mann-Whitney U test. Grouped the teachers into 2 groups. The first group, Known group, consisted of 5 teachers who were award Good Teaching Award, Outstanding Public School Teacher Award which had some of the criteria were in consistent with teachers' attributes that set the study plan to support Lifelong Learning skills to students. The second group, General group, consisted of 9 teachers. It was found that the teachers from Known group had the different score in evaluating teachers' roles to promote Lifelong Learning skills to students with significant level 0.5. The average evaluation score of the teachers from Known group was higher than the teachers from General group. It indicated that the tool was valid as shown in Table 4.39

Table 4.39 Results of the comparison of Known group' score and General group' score in evaluating teachers' roles to promote Lifelong Learning skills of students by applying Mann-Whitney U test

Group	No.	Mean	Mean Rank	Mann-Whitney U Value	Mann-Whitney U Prob
1 (Known Group)	5	149.07	11.20	4.00	0.01*
2 (General Group)	9	136.78	5.44		

From Table 4.39, teachers from Known group had the different score of evaluating teachers' roles to promote Lifelong Learning skills of students at significant level .05. The average evaluation score of teachers from Known group was higher than the score of teachers from General group. It indicated that the tool was valid.

3.2.2 Results of analyzing the quality of evaluation result agreement by Rater Agreement Index: RAI

Analyzing the quality of evaluation result agreement by Rater Agreement Index: RAI, which was the agreement index between the raters based on the concept of Judith A. Burry-Stock et al (1996). In case of having many behavior indicators, one evaluated person, and many raters, rater agreement index was 0.81 – 0.93. It indicated that the raters were able to score the evaluation coherently for all school sizes as shown in Table 4.40.

Table 4.40 Rater Agreement Index: RAI by schools, schools size, and evaluated persons

Schools	Schools Size	1st Evaluated Person	RAI (3 Raters)	Interpretation
1. 1 st School	Small	1	0.93	High Coherent
2. 2 nd School	Small	2	0.82	High Coherent
3. 3 rd School	Small	3	0.92	High Coherent
4. 4 th School	Medium	4	0.88	High Coherent
5. 5 th School	Medium	5	0.92	High Coherent
6. 6 th School	Medium	6	0.87	High Coherent
7. 7 th School	Medium	7	0.84	High Coherent
		8	0.82	High Coherent
		9	0.85	High Coherent
8. 8 th School	Large	10	0.81	High Coherent
9. 9 th School	Large	11	0.90	High Coherent
		12	0.89	High Coherent
10. 10 th School	Large	13	0.92	High Coherent
11. 11 th School	Large	14	0.89	High Coherent
Total			0.88	High Coherent

From Table 4.40, rater agreement index was 0.81 – 0.93 which indicated that the raters were able to score the evaluation coherently for all schools size.

3.2.3 Results of examining the quality of reliability of the evaluation results by applying Generalizability Theory or G-Theory to analyze G-Coefficient, which was the statistical theory to analyze the reliability or the confidence of evaluation tools and design in order to obtain the reliable results. GENOVA (Crick; & Brennan, 1983) was used to design Two Facet Design, R : P X I Design, when each teacher (P) was evaluated by each question indicators (I) by the different sets of raters (R) as shown in Table 4.41 – 4.47.

Table 4.41 Reliability of evaluation results of teachers' roles to promote Lifelong Learning skills of students at the basic educational level in overall when each teacher (P) was evaluated by each question indicators (I) by the different sets of raters (R) ($n_P=14$, $n_I=53$, $n_R=3$)

Variance Sources	DF	Sum of Square (SS)	Mean Square (MS)	Estimate Variance Component	% of Total Variance	G- Coefficient
P	13	26177.8553	14.0112	0.0863	23.35	0.9726
I	52	26094.3571	1.8971	0.0360	9.74	
R:P	28	26180.2076	0.0840	0.0000	0.00	
PI	626	26536.3333	0.3844	0.0685	18.53	
IR:P,e	1456	26799.0000	0.1788	0.1788	48.38	
Total	2225	131787.7533	-	0.3696	100.00	

From Table 4.41, the reliability of evaluation results of teachers' roles to promote Lifelong Learning skills of students at the basic educational level was high. G-Coefficient was 0.9726. Considering the variance sources when comparing to the total variance, relationship between question indicators and the evaluated persons of each rater and the sampling error (IR:P,e) was 0.1788, which accounted for 48.38%, the variance of evaluated teachers (P) was 0.0863, which accounted for 23.35%. This indicated the differences of evaluation scores caused by the roles of each evaluated teachers. The variance between the raters of each evaluated teachers (R:P) was 0.0000 which indicated that the raters had no difference in rating score. This was to say the difference of evaluation score 48.38% caused by the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error, and

23.35% caused by the roles of evaluated teachers. Regarding the raters, there was no difference in evaluation rating.

Table 4.42 Reliability of evaluation results of teachers' roles in setting study plan to promote Lifelong Learning skills of students at the basic educational level, when each teacher (P) was evaluated by each question indicators (I) by the different sets of raters (R) (nP=14, nI=11, nR=3)

Variance Sources	DF	Sum of Square (SS)	Mean Square (MS)	Estimate Variance Component	% of Total Variance	G- Coefficient
P	13	5371.9394	2.8196	0.0766	22.09	0.8962
I	10	5343.2857	0.8004	0.0121	3.49	
R:P	28	5374.5455	0.0931	0.0000	0.00	
PI	130	5418.0000	0.2927	0.0174	5.02	
IR:P,e	280	5488.0000	0.2407	0.2407	69.41	
Total	461	26995.7706	-	0.3468	100	

From Table 4.42, the reliability of evaluation results of teachers' roles in setting study plan to promote Lifelong Learning skills of students at the basic educational level was high. G- Coefficient was 0.8962. Considering the variance sources when comparing to the total variance, the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error (IR:P,e) was 0.2407, which accounted for 69.41%. The variance of evaluated teachers (P) was 0.0766, which accounted for 22.09%, indicated the differences of evaluation scores caused by the roles of each evaluated teachers. The variance between the raters of each evaluated teachers (R:P) was 0.0000 which indicated that the raters had no difference in rating score. This was to say the difference of evaluation score 69.41% caused by the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error, and 22.09% caused by the roles of evaluated teachers. Regarding the raters, there was no difference in evaluation rating.

Table 4.43 Reliability of evaluation results of teachers' roles in learning support and setting atmosphere for learning to promote Lifelong Learning skills of students at the basic educational level, when each teacher (P) was evaluated by each question indicators (I) by the different sets of raters (R) ($n_P=14$, $n_I=11$, $n_R=3$)

Variance Sources	DF	Sum of Square (SS)	Mean Square (MS)	Estimate Variance Component	% of Total Variance	G- Coefficient
P	13	5696.3333	2.8333	0.0775	22.55	0.9023
I	10	5671.5000	1.2000	0.0220	6.40	
R:P	268	5699.1818	0.1017	0.0000	0.00	
PI	130	5744.3333	0.2769	0.0163	4.74	
IR:P,e	280	5811.0000	0.2279	0.2279	66.31	
Total	461	28622.3484	-	0.3437	100	

From Table 4.43, the reliability of evaluation results of teachers' roles in learning support and setting atmosphere for learning to promote Lifelong Learning skills of students at the basic educational level was high. G- Coefficient was 0.9023. Considering the variance sources when comparing to the total variance, the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error (IR:P,e) was 0.2279, which accounted for 66.31%. The variance of evaluated teachers (P) was 0.0775, which accounted for 22.55%, indicated the differences of evaluation scores caused by the roles of each evaluated teachers. The variance between the raters of each evaluated teachers (R:P) was 0.0000 which indicated that the raters had no difference in rating score. This was to say the difference of evaluation score 66.31% caused by the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error , and 22.55% caused by the roles of evaluated teachers. Regarding the raters, there was no difference in evaluation rating.

Table 4.44 Reliability of evaluation results of teachers' roles in class management to promote Lifelong Learning skills of students at the basic educational level, when each teacher (P) was evaluated by each question indicators (I) by the different sets of raters (R) ($n_P=14$, $n_I=4$, $n_R=3$)

Variance Sources	DF	Sum of Square (SS)	Mean Square (MS)	Estimate Variance Component	% of Total Variance	G- Coefficient
P	13	2058.3333	1.1008	0.0701	23.66	0.7643
I	3	2045.5714	0.5159	0.0061	2.06	
R:P	28	2061.5000	0.1131	0.0000	0.00	
PI	39	2070.0000	0.2595	0.0197	6.65	
IR:P,e	84	2090.0000	0.2004	0.2004	67.63	
Total	167	10325.4047	-	0.2963	100	

From Table 4.44, the reliability of evaluation results of teachers' roles in class management to promote Lifelong Learning skills of students at the basic educational level was high. G- Coefficient was 0.7643. Considering the variance sources when comparing to the total variance, the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error (IR:P,e) was 0.2004, which accounted for 67.63%. The variance of evaluated teachers (P) was 0.0701, which accounted for 23.66%, indicated the differences of evaluation scores caused by the roles of each evaluated teachers. The variance between the raters of each evaluated teachers (R:P) was 0.0000 which indicated that the raters had no difference in rating score. This was to say the difference of evaluation score 67.63% caused by the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error, and 23.66% caused by the roles of evaluated teachers. Regarding the raters, there was no difference in evaluation rating.

Table 4.45 Reliability of evaluation results of teachers' roles in observing, monitoring, and assessment to promote Lifelong Learning skills of students at the basic educational level, when each teacher (P) was evaluated by each question indicators (I) by the different sets of raters (R) ($n_P=14$, $n_I=5$, $n_R=3$)

Variance Sources	DF	Sum of Square (SS)	Mean Square (MS)	Estimate Variance Component	% of Total Variance	G- Coefficient
P	13	2551.7333	2.1539	0.1268	36.53	0.8833
I	4	2526.5714	0.7095	0.0111	3.20	
R:P	28	2557.2000	0.1952	0.0012	0.35	
PI	52	2567.3333	0.2454	0.0187	5.39	
IR:P,e	112	2594.0000	0.1893	0.1893	54.54	
Total	209	12796.8380	-	0.3471	100	

From Table 4.45, the reliability of evaluation results of teachers' roles in class management to promote Lifelong Learning skills of students at the basic educational level was high. G- Coefficient was 0.8833. Considering the variance sources when comparing to the total variance, the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error (IR:P,e) was 0.1893, which accounted for 54.54%. The variance of evaluated teachers (P) was 0.1268, which accounted for 36.53%, indicated the differences of evaluation scores caused by the roles of each evaluated teachers. The variance between the raters of each evaluated teachers (R:P) was 0.0012 which accounted for 0.35%, indicated that the raters had less difference in rating score. This was to say the difference of evaluation score 54.54% caused by the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error, and 36.53% caused by the roles of evaluated teachers. Regarding the raters, there was less difference in evaluation rating which accounted for 0.35%.

Table 4.46 Reliability of evaluation results of teachers' roles in teachers' attributes to promote Lifelong Learning skills of students at the basic educational level, when each teacher (P) was evaluated by each question indicators (I) by the different sets of raters (R) ($n_P=14$, $n_I=9$, $n_R=3$)

Variance Sources	DF	Sum of Square (SS)	Mean Square (MS)	Estimate Variance Component	% of Total Variance	G- Coefficient
P	13	5073.7778	2.7448	0.0884	30.64	0.8694
I	8	5043.4762	0.6726	0.0091	3.15	
R:P	28	5079.3333	0.1984	0.0076	2.63	
PI	104	5109.3333	0.2901	0.0534	18.51	
IR:P,e	224	5144.0000	0.1300	0.1300	45.06	
Total	377	25449.9206	-	0.2885	100	

From Table 4.46, the reliability of evaluation results of teachers' roles in class management to promote Lifelong Learning skills of students at the basic educational level was high. G- Coefficient was 0.8694. Considering the variance sources when comparing to the total variance, the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error (IR:P,e) was 0.1300, which accounted for 45.06%. The variance of evaluated teachers (P) was 0.0884, which accounted for 30.64%, indicated the differences of evaluation scores caused by the roles of each evaluated teachers. The variance between the raters of each evaluated teachers (R:P) was 0.0076, which accounted for 0.35%, indicated that the raters had less difference in rating score. This was to say the difference of evaluation score was 45.06% caused by the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error, and 30.64% caused by the roles of evaluated teachers. Regarding the raters, there was less difference in evaluation rating which accounted for 2.63%.

Table 4.47 Reliability of evaluation results of Lifelong Learning skills of students at the basic educational level, when each student was evaluated by each question indicators by the different raters (R) ($n_P=14$, $n_I=13$, $n_R=3$)

Variance Sources	DF	Sum of Square (SS)	Mean Square (MS)	Estimate Variance Component	% of Total Variance	G- Coefficient
P	13	5556.9744	7.7532	0.1914	46.24	0.9629
I	12	5464.2857	0.6752	0.0092	2.22	
R:P	28	5559.8462	0.1026	0.0000	0.00	
PI	156	5610.0000	0.2880	0.0373	9.01	
IR:P,e	336	5672.0000	0.1760	0.1760	42.52	
Total	545	27863.1063	-	0.4139	100	

From Table 4.47, the reliability of evaluation results of Lifelong Learning skills of students at the basic educational level was high. G- Coefficient was 0.9629. Considering the variance sources when comparing to the total variance, the variance of evaluated students (P) was 0.1914, which accounted for 46.24%, indicated the differences of evaluation scores caused by the roles of each evaluated students. The relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error (IR:P,e) was 0.1760, which accounted for 42.52%. The variance between the raters of each evaluated students (R:P) was 0.0000, which indicated that there was no difference in rating score. This was to say the difference of evaluation score was 46.24% caused by the relationship between question indicators and the evaluated persons of each rater and the unsourced sampling error, and 42.52% caused by the roles of evaluated teachers. Regarding the raters, there was no difference in evaluation rating.

3.3 Result of the tryout to examine the quality of evaluation model for teacher's roles to promote Lifelong Learning skills of students.

Implementing the tryout of the evaluation model for teachers' roles to promote Lifelong Learning skills of students at the basic educational level had been completed in 2 phases. First phase was the tryout with one of the small, medium, and large school to obtain the suggestion for improving the model. Second phase was the implementation of the developed model to eight schools and developed the evaluation model applying the suggestions from during and after the tryout. The detail was following.

3.3.1 Results of developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic level of education after the tryout

Interviewing the model tryout testers from the three schools, one from each small, medium, and large schools, the testers had some suggestions and opinion which the researcher had applied them to develop the evaluation model as the following detail.

Regarding the evaluation model and the manual, the tester stated that the model was suitable and had clear beneficial objectives, clear factors and indicators, appropriate evaluation method, clear evaluation criteria. In addition, they stated that reporting evaluation results was suitable and fast. The report could be printed out and saved as the electronic file for the further access and the evaluation results were very beneficial for developing the model. The website providing the related information was very useful for self-development. Regard to the manual, it was too thick which quite worried the reader. The researcher had revised the manual to be the double-sided which help reducing the book size and be convenient to carry. In addition, the researcher had rearranged the category which only 18 pages remaining. The sub-detail pages were moved to appendix part.

From the interview, regarding the evaluation program, the program and the evaluation results presenting were suitable. It was easy to record because there were the pop-up to show the explanation of the criteria by the indicator clearly. When clicking on each indicator, there was a pop-up or a small window of the indicators' detail, evaluation criteria, data collection/sources of information on the screen promptly.

Further, the report summarize could be done quickly. However, the testers said that the font on the program was too small and the pop-up windows were too small and were placed in the inappropriate positions. Thus, the researcher had adjusted the font size on the program to be bigger and re-arrange the pop-up positions to be more convenient for the users.

3.3.2 Results of developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students during the tryout

During the tryout, the researcher applied the obtained information to develop the evaluation model as the following detail.

Regarding the evaluation model and the manual, the testers stated that the model and the manual were appropriate. However, regarding the evaluation tools, the researcher used white papers with all three sets of form: teachers form to evaluate themselves, form for 1st concerned person evaluate teachers, and form for 2nd concerned person evaluate teachers. This caused the confusion to the rater. Moreover, the researcher had modified the evaluation tool by using different color of papers: yellow, blue, and pink and adjusted the font on the top right corner: Set 1- Teachers self-evaluation Form, Set 2 - For 1st concerned person, and Set 3 – For 2nd concerned person, to make them different.

Regarding the evaluation program, the testers stated that the program and the evaluation results presenting were suitable and easy to record the results. However, there was the suggestion on recording the results from open-end suggestion on the development. There was the limit at 200 alphabets. Typing over this limit would not be recorded. For this reason, the researcher had modified the program to accept unlimited text. During the tryout, some schools had the problem on internet issue since they were in the remote area. The researcher created the program on Microsoft Office Excel format by editing the formula to facilitate the testers in filling the evaluation data and summarizing the results without connecting the internet network.

3.3.3 Results of developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students after the tryout

The researcher applied the information obtained after the tryout to develop the evaluation model as the following detail.

Regarding the evaluation model and the manual, the testers stated that the model and the manual were appropriate since they had been developed from the reliable theories. The testers possibly re-access this model in the future because it was inclusive. Also, if the teachers applied the evaluation results to develop themselves, it would affected the learners to have Lifelong Learning skills. This could also be applied to other areas in the schools. Besides, there were clear factors and indicators, factors and indicators loading. Before the tryout, the testers were worried about the concept of the different factors and indicators loading and the complicated relationship model. They were upset with the model interpretation which might cause the complicated practice and evaluation summary. However, they found that the manual was uncomplicated and understandable. The evaluation program was not complicated as they expected. They suggested this evaluation model should be promoted to the educational institutes throughout the country because it was very beneficial for education development.

The evaluation objectives were very clear and beneficial for teachers to obtain the reversed information to develop their roles' to promote Lifelong Learning skills of students.

Evaluation subjects, which were factors, indicators, factors and indicators loading were suitable. All had been developed from the reliable concept and theories.

Regard to the evaluation method, there was clear detail of the raters, the evaluation process, evaluation time, and procedure so it was very convenient to apply the model. The tester suggested on the evaluation concerned persons that they should have their colleagues as the rater in order to obtain all-inclusive information. Thus, the researcher added the status of the raters, "concerned person/colleagues", on the evaluation tool and evaluation program.

Regard to the evaluation times, it should be conducted at least once a semester, during the semester such as the beginning of the semester and/or in mid-

semester and/or at the end of semester in order to allow the teachers to obtain the reversed information from the evaluation to develop their roles in setting study plan to promote Lifelong Learning to students. The tester expressed their opinion that large school size might have the time constraint in evaluation because there were lot of personals so it needed time for evaluation, Evaluating the large amount of people must take much time. It might be impossible to conduct the evaluation at the beginning, in the middle, or at the end of the semester. Thus, only once a semester was acceptable.

Regard to evaluation criteria, the testers, at the beginning, felt that it might take long time to evaluate because they had to observe behavior, study documents and empirical information of many indicators. However, when after the tryout, they found that Rubrics was in detail, suitable and clear. There was the explanation of each indicator which made it easy to understand. Data collection/sources of information were clear with the detail. The criteria detail helped facilitating the evaluation. However, if there was the evaluation for specific group of each department and each grade level, it might make the evaluation clearer. Furthermore, the source of the evaluation criteria was referred whether it had been adapted or was belong to which educational department, which created the reliability. This was beneficial for applying the criteria to the other job area in the schools.

Regard to the evaluation results report, it was suitable so the result was reported quickly and could be printed promptly. Further, the results could be saved as a file ready for self-development and school educational development plan.

Regard to developing the evaluation results, it was suitable and had the approach to apply the results for developing. The websites which gathering the information facilitated the self-study for teachers to improved their weakness. Moreover, school would realize that the evaluation in the past only report the evaluation results without suggesting the development approach. If the idea of developing evaluation results would be considered, it might be very beneficial in the future.

The model manual was clear and understandable with the well-classified content. People who were interested in the model were able to study and apply the manual themselves.

Regard to evaluation program, it was suitable and easy to access. There was the manual to facilitate the program. The program had the detail menu with other important information provided. Recoding the result was simple. The explanation of each indicator, evaluation criteria, data collection/sources of information by the indicators were provided. It helped saving paper by completing the evaluation on the computer which could assess the results quickly and promptly.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved