CHAPTER 3
METHODOLOGY

This research emphasizes significant analysis and development. The objectives are indicated as 1) To synthesize standards and indicators of Internal Educational Quality Assurance for Bilingual Schools in Early Childhood Education Level 2) To construct and develop Internal Educational Quality Assurance Model for Bilingual Schools in Early Childhood Education Level and 3) To study and analyze the result of Internal Educational Quality Assurance Model for Bilingual Schools in Early Childhood Education Level. The content of this chapter shows research methodology including the detail of research design, the scope of population and samples, construction and efficiency of the instrument used in analysis, collection of data and analysis of data. The researcher created methodology with 3 relevant steps according to objective of research as shown in the followings.

Phase 1 The synthesis and quality checking of standards and indicators on education quality in Bilingual Schools on Early Childhood Education Level.

1. Synthesizing of standards and indicators on education quality in Bilingual Schools on Early Childhood Education Level.

2. Quality checking of standards and indicators on education quality in Bilingual Schools on Early Childhood Education Level.

Phase 2 The construction and development of Internal Assurance model in Bilingual Schools on Early Childhood Education Level.

1. Synthesizing major factors of Internal Assurance model in Bilingual Schools on Early Childhood Education Level.

2. Drafting of Model blueprint, handbook and evaluation program for Internal Education Quality Assessment in Bilingual Schools on Early Childhood Education Level.

3. Checking of genuine quality of Internal Assurance model in Bilingual Schools on Early Childhood Education Level.

Phase 3 The study upon the implication of the trial-use of Internal Assurance model in Bilingual Schools on Early Childhood Education Level.

1. Experimenting with Internal Assurance model in Bilingual Schools on Early Childhood Education Level.

2. Studying the result and re-evaluating the Internal Assurance model in Bilingual Schools on Early Childhood Education Level.

3. Checking the resulting consequence of trial use model about concurrent validity. Which have the following implementation below.

3.1 Phase 1 The synthesizing and quality checking of standards and indicators on education quality in Bilingual Schools on Early Childhood Education Level.

The synthesis of standards and indicators Internal Assessment in Bilingual Schools on Early Childhood Education Level includes 2 steps : the first is to synthesize education quality of standards and indicators on Early Childhood Education Level from 10 countries which individuals acquired top scores on PISA'2009, UNESCO bilingual school, World Class bilingual school, ONESQA and OBEC of Thailand and researches. The second is to check on the quality of standards and indicators of internal education quality in Bilingual Schools on Early Childhood Education Level**.**

1. The internal education quality synthesis of standards and indicators on Early Childhood Education Level possess the following implementation steps below.

1) The study of the concept, theory, literature and researches related to education assurance as well as concept and principle to construct standard and indicators

2) The synthesis of standard and indicators internal education quality in Bilingual Schools on Early Childhood Education Level from 10 countries that expose top score on PISA'2009 (including Finland, Korea, Shanghai China, Hong Kong China, Singapore, Canada, New Zealand, Japan, Australia and Netherlands), UNESCO bilingual school, World Class bilingual school, ONESQA and OBEC of Thailand and researches.

2. The checking of quality of internal education quality of standards and indicators in Bilingual Schools on Early Childhood Education Level includes 2 steps

which are : 1) To examine the validity of contents including comprehensiveness, consistency of standards and indicators with consistency of indicators and documents which are data, evidence and resource that show result of implementation in each indicators by experts and 2) To check structure validity and consistency between standards and indicators model with empirical data have the following implementation steps below.

2.1 To examine the validity of contents including comprehensiveness, consistency of standards and indicators with consistency of indicators and documents

Upon checking content accuracy and validity including comprehensiveness, consistency of standards and indicators with consistency of indicators and documents which are data, evidence and resource that shows result of implementation in each indicator as the following.

1) Collaboration of standards and indicators that were synthesized from the step 1 to create first questionnaire which will be used in checking content accuracy and comprehensiveness of standards and indicators.

2) Distributing the first questionnaire to twenty efficient experts for evaluation of content accuracy and validity of standards and indicators. The experts are profound on measurement and evaluation, teaching in bilingual school, and 20 representatives on behalf of parents' council. The qualification criteria for experts includes graduated doctorate majoring on educational administration or organization administration with educational measurement and evaluation . Or experts who bestowed knowledge, proficiency and experience related with criteria mentioned above for at least 5 years or claiming to have qualified research related with education administration in bilingual program or relation with educational quality assurance and may have descendants in which study in Bilingual Schools in Early Childhood Education Level (details are displayed in Appendix A, p. 143).

3) Generating the result in order to analyze Item Objective Congruence Index (IOC) between standards and indicators and select indicators that have IOC more or equal to 0.8. And to analyze Item Objective Congruence Index (IOC) between indicators and evidence or resources then select indicators that have IOC more or equal to 0.75 because during this part researcher separates experts to 5 groups with 4 experts per groups (details are displayed in Appendix C, p. 166).

4) To improve words and add more standards and indicators according to expert's suggestion.

2.2 To check the structure validity and consistency between standards and indicators model with empirical data provides as the following implementation steps below.

1) To re-introduce standards and indicators from mass step of 2.1 in order to construct second questionnaire for evaluation of structure validity and consistency between standards and indicators model with the above mentioned empirical data.

2) To distribute second questionnaire intended to collect data from 30 samples (which are not targeted group) to seek value of reliability. The reliability score is .952 (details shown in Appendix C, p. 166).

3) To distribute second questionnaire to the sample group for the collecting of data.

4) To distribute the data in order to check structure validity and set the value of standards and indicators by Exploratory Factor Analysis (EFA) from the first 380 samples. Then, to check consistency between standards and indicators model with empirical data by Second-Order Confirmatory Factor Analysis (2nd. Order CFA) from the last 520 samples.

5) The result from checking basic assumption of EFA by Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) is value 0.974. So, the variables is very good for EFA, following the critical of Hair and committee (Supamas Angsuchoti, 2010), and the result of hypothesis testing by Bartlett's Test of Sphericity found that 76 variables have correlation with a statistical significance at .05 which have correlation and can also be used by EFA. The detail explain in table 3.6- 3.14 (details shown in Appendix D, p. 172)

Table 3.6 Value of KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.974
Bartlett's Test of	Approx. Chi-Square	40213.781

Sphericity	df	2850
	Sig.	.000

The result of coefficient of correlation analysis between variables in each standard for checking correlation of variable before bring it to analysis by using EFA, found that the coefficient of correlation in each variables have correlation with a statistical significance at .01 and have detail as follows.

Table 3.7 The coefficient of correlation of variables in factors on educational management.

	E7.1	E7.2	E7.3	E7.4	A8.1	A8.2	A8.3	A8.4	A8.5	A8.6	SC9.1	SC9.2	SC9.3	OB10.1	OB10.2	OB10.3	EC11.1	EC11.2	EC11.3	EC11.4	EC11.5
E7.1	1.00																				
E7.2	.758**	1.000																			
E7.3	.725**	.801**	1.000																		
E7.4	.692**	.746**	.787**	1.000																	
A8.1	.706**	.657**	.662**	.704**	1.000																
A8.2	.716**	.656**	.685**	.662**	.758**	1.000															
A8.3	.659**	.618**	.619**	.624**	.744**	.740**	1.000														
A8.4	.704**	.696**	.640**	.668**	.730**	.746**	.759**	1.000													
A8.5	.680**	.662**	.659**	.659**	.683**	.725**	.732**	.817**	1.000												
A8.6	.719**	.687**	.649**	.659**	.686**	.740**	.688**	.764**	.788**	1.000											
SC9.1	.681**	.673**	.675**	.661**	.694**	.737**	.695**	.773**	.775**	.795**	1.000										
SC9.2	.664**	.652**	.648**	.630**	.648**	.700**	.660**	.692**	.676**	.728**	.801**	1.000									
SC9.3	.560**	.571**	.575**	.635**	.625**	.675**	.634**	.650**	.681**	.640**	.725**	.802**	1.000								
OB10.1	.642**	.672**	.658**	.688**	.688**	.713**	.675**	.719**	.720**	.687**	.698**	.641**	.607**	1.000							
OB10.2	.605**	.666**	.635**	.663**	.646**	.698**	.624**	.659**	.661**	.689**	.667**	.658**	.611**	.772**	1.000						
OB10.3	.630**	.634**	.607**	.640**	.623**	.674**	.691**	.666**	.689**	.685**	.678**	.675**	.638**	.758**	.791**	1.000					
EC11.1	.647**	.666**	.658**	.682**	.673**	.692**	.646**	.707**	.727**	.701**	.730**	.651**	.630**	.794**	.750**	.778**	1.000				
EC11.2	.653**	.655**	.629**	.648**	.610**	.656**	.627**	.681**	.678**	.712**	.717**	.672**	.621**	.713**	.783**	.779**	.818**	1.000			
EC11.3	.616**	.616**	.607**	.685**	.632**	.649**	.654**	.658**	.681**	.682**	.689**	.649**	.689**	.716**	.742**	.738**	.787**	.756**	1.000		
EC11.4	.607**	.586**	.562**	.655**	.596**	.604**	.634**	.619**	.626**	.643**	.617**	.613**	.607**	.652**	.695**	.712**	.708**	.723**	.728**	1.000	
EC11.5	.641**	.622**	.621**	.676**	.645**	.628**	.606**	.622**	.654**	.640**	.678**	.634**	.627**	.737**	.701**	.727**	.716**	.718**	.707**	.742**	1.000

** P < .01

Table 3.7 show that correlation between variables in factor of educational management which have value start from 0.607 to 0.818. When test statistical significance found that all of variable have level of significance .01. As the result, each indicators have relation and suitable for EFA.

Table 3.8 The coefficient of correlation of variables in factors on physical and intellectual development of students.

	ST1.1	ST1.2	SB2.4	SS3.1	SS3.2	SS3.3	SS3.4	SS3.5	SR4.1	SR4.2	SR4.3	SR4.4	SR4.5	SR4.6	SR4.7
ST1.1	1.000														
ST1.2	.669**	1.000													
SB2.4	.436**	.454**	1.000												
SS3.1	.504**	.502**	.629**	1.000											
SS3.2	.584**	.564**	.590**	.754**	1.000										
SS3.3	.401**	.447**	.456**	.614**	.661**	1.000									
SS3.4	.451**	.524**	.533**	.633**	.648**	.664**	1.000								
SS3.5	.461**	.565**	.500**	.535**	.562**	.537**	.689**	1.000							
SR4.1	.384**	.454**	.464**	.430**	.481**	.500**	.474**	.479**	1.000						
SR4.2	.399**	.427**	.530**	.558**	.532**	.525**	.502**	.515**	.662**	1.000					
SR4.3	.484**	.493**	.485**	.560**	.602**	.470**	.466**	.500**	.526**	.570**	1.000				
SR4.4	.430**	.434**	.431**	.531**	.548**	.442**	.450**	.467**	.478**	.616**	.674**	1.000			
SR4.5	.489**	.441**	.522**	.585**	.600**	.511**	.503**	.488**	.523**	.668**	.688**	.698**	1.000		
SR4.6	.560**	.545**	.488**	.562**	.596**	.515**	.572**	.509**	.578**	.595**	.605**	.570**	.692**	1.000	
SR4.7	.463**	.449**	.616**	.647**	.565**	.510**	.514**	.485**	.517**	.675**	.546**	.564**	.657**	.642**	1.000

** P < .01

Table 3.8 show that correlation between variables in factor of physical and intellectual development of students which have value start from 0.401 to 0.754. When test statistical significance found that all of variable have level of significance .01. As the result, each indicators have relation and suitable for EFA.

Table 3.9 The coefficient of correlation of variables in factors on general management.

	SV12.1	SV12.2	SV12.3	SV12.4	SV12.5	MA13.1	MA13.2	MA13.3	MA13.4
SV12.1	1.000								
SV12.2	.763**	1.000							
SV12.3	.698**	.755**	1.000						
SV12.4	.625**	.711**	.709**	1.000					
SV12.5	.688**	.672**	.690**	.806**	1.000				
MA13.1	.602**	.613**	.658**	.663**	.641**	1.000			
MA13.2	.623**	.673**	.673**	.673**	.677**	.738**	1.000		
MA13.3	.612**	.667**	.644**	.687**	.643**	.740**	.801**	1.000	
MA13.4	.654**	.656**	.684**	.645**	.653**	.753**	.747**	.780**	1.000

** P < .01

Table 3.9 shows correlation between variables in factor of general management which value starts from 0.602 to 0.806. While testing statistical significance, it is found out that all of variable have level of significance of .01. As the result, each indicator proved to have relations and is suitable for EFA.

Table 3.10 The coefficient of correlation of variables in factors on efficient and effective performance of teachers.

	T5.1	T5.2	T5.3	T5.4	T5.5	T5.6	T5.8	T5.9	T5.10	T5.11	T5.12
T5.1	1.000										
T5.2	0.728	1.000									
T5.3	0.654	0.692	1.000								
T5.4	0.619	0.624	0.727	1.000							
T5.5	0.582	0.599	0.674	0.738	1.000						
T5.6	0.563	0.613	0.661	0.741	0.796	1.000					
T5.8	0.517	0.606	0.629	0.632	0.639	0.650	1.000				
T5.9	0.575	0.577	0.590	0.647	0.688	0.682	0.672	1.000			
T5.10	0.625	0.645	0.649	0.708	0.639	0.635	0.638	0.668	1.000		
T5.11	0.574	0.581	0.626	0.646	0.663	0.657	0.644	0.721	0.695	1.000	
T5.12	0.527	0.525	0.557	0.653	0.616	0.596	0.608	0.621	0.649	0.683	1.000

** P < .01

Table 3.10 shows that correlation between variables in factor of efficient and effective performance of teachers which value starts from 0.517 to 0.796. While testing statistical significance found that all of variable have level of significance of .01. As the result, each indicator have relation and suitable for EFA.

Table 3.11 The coefficient of correlation of variables in factors on efficient and effective performance of administrator.

	M6.1	M6.2	M6.3	M6.4	M6.5	M6.6	M6.7
M6.1	1.000						
M6.2	0.816	1.000					
M6.3	0.738	0.770	1.000				
M6.4	0.701	0.723	0.800	1.000			
M6.5	0.708	0.779	0.729	0.780	1.000		
M6.6	0.731	0.737	0.728	0.733	0.801	1.000	
M6.7	0.701	0.707	0.736	0.719	0.745	0.780	1.000

** P < .01

Table 3.11 shows the correlation between variables in factor of efficient and effective performance of administrator which value starts from 0.701 to 0.816. While testing statistical significance found that all of variable have level of significance of .01. As the result, each indicator have relation and suitable for EFA.

Table 3.12 The coefficient of correlation of variables collaborating major factors on self-care and social interactions in multicultural social group of students.

	ST1.3	ST1.4	ST1.5	SS3.6	SS3.7	SS3.8
ST1.3	1.000					
ST1.4	0.577	1.000				
ST1.5	0.521	0.577	1.000			
SS3.6	0.472	0.451	0.508	1.000		
SS3.7	0.500	0.476	0.447	0.705	1.000	
SS3.8	0.520	0.433	0.388	0.580	0.718	1.000

** P < .01

Table 3.12 show that correlation between variables in factor of self-care and interaction in multicultural society of students which have value start from 0.388 to 0.718. While testing statistical significance found that all of variable have level of significance .01. As the result, each indicator proved to have relation and is suitable for EFA.

Table 3.13 The coefficient of correlation of variables in factors on emotions and mind set of student.

	SB2.1	SB2.2	SB2.3	SB2.5
SB2.1	1.000			
SB2.2	0.672	1.000		
SB2.3	0.491	0.574	1.000	
SB2.5	0.509	0.531	0.579	1.000

** P < .01

Table 3.13 shows the correlation between variables in factor of emotions and mind set of students which value starts from 0.491 to 0.672. While testing statistical significance found out that all of variable have significance level of .01. As the result, each indicator proved to have relation and is suitable for EFA.

Table 3.14 The coefficient of correlation of variables in factors on quality of teaching and promotion.

	T5.7	T5.13	T5.14
T5.7	1.000		
T5.13	0.427	1.000	
T5.14	0.532	0.566	1.000

** P < .01

Table 3.14 shows the correlation between variables in factor of quality of teaching and promotion which value starts from 0.427 to 0.566. While testing statistical significance found out that all of variable have significance level of .01. As the result, each indicator proved to have relation and is suitable for EFA.

Sample group

The sample group used for data collection in order to analyze the quality of tools on the reliability is made up of 30 participating schools' administrators and teachers from Mini English program (MEP) schools on Early Childhood Education Level in Chiang Mai. The samples are taken in randomly by means of Cluster Random Sampling method.

1. The sample group used for data collection in order to check structure validity and consistency between standards and indicators model with empirical data including

director, head of academic affair, staff who are responsible for internal assurance and 900 teachers in bilingual school in Early Childhood Education Level from all over the nation. The samples are taken by means of Stratified Random Sampling method which are detailed as follows.

1.1 Separating schools in to 4 groups according to the size of schools and criteria of ONESQA (the Office for National Education Standards and Quality Assessment, 2011,p.62) including Small school (number of students least than 301) Modern school (number of student equal 301-1,000) large school (number of student equal 1,001-2,000 คน) and extra-large (number of student more than 2001)

1.2 Setting ratio of samples each groups to collect data.

1.3 Randomize staffs in each school.

Details are shown in table 3.15 below.

Table 3.15 The number of population and sample group in the research.

Group of school	School	Population	Samples
Small school	47	203	60
Modern school	23	267	79
large school	32	1,105	324
extra-large school	37	1,484	437
Total		3,059	900

1.4 The sample group are used for data collection in order to check structure validity and consistency between standards and indicators model with empirical data by Exploratory Factor Analysis (EFA) from the first 380 sample and by Second-Order Confirmatory Factor Analysis (2nd. Order CFA) from the last 520 sample. (Comrey and Lee,1992, in Sombat Tairuakam: 274) and have detail in the upcoming table 3.16 to 3.17 .

Table 3.16 Number and percentage of basic data in sample group for Exploratory Factor Analysis.

Personal data	Frequency (n=380)	Percentage
Status		
– Director	41	10.8
– Head of academic affair	54	14.2
– Staff who take responsibility in internal assurance	35	9.2
– Teacher	250	65.8
Sex		
– Male	54	14.2
– Female	326	85.8
Age		
– 23 – 30 year old	68	17.9
– 31 - 40 year old	136	35.8
– 41 – 60 year old	164	43.1
– > 60 year old	12	3.2
Highest degree		
– Under Bachelor degree	8	2.1
– Bachelor degree	272	71.6
– Masters degree	92	24.2
– Doctorate	8	2.1
Work Experience		
– 1-10 years	174	45.7
– 11 – 20 years	85	22.4
– 21 – 30 years	58	15.3
– > 30 years	63	16.6

Table 3.16 shows the sample group that used in EFA with diverse in status, age, education and work experience. The most sample groups are teachers (65.8 percent), female (85.8 percent), the age range between 41 – 60 year old (43.1 percent), Bachelor degree (71.6 percent) and with work experience of 1-10 years (45.7 percent).

Table 3.17 Number and percentage of basic data in sample group for Second-Order Confirmatory Factor Analysis.

Personal data	Frequency (n=520)	Percentage
Status		
– Director	63	12.1
– Head of academic affair	74	14.2
– Staff who take responsibility in internal assurance	56	10.8
– Teacher	327	64.9
Sex		
– Male	70	13.5
– Female	450	86.5
Age		
– 23 – 30 year old	92	17.7
– 31 - 40 year old	188	36.1
– 41 – 60 year old	225	43.3
– > 60 year old	15	2.9
Highest degree		
– Under Bachelor degree	13	2.5
– Bachelor degree	366	70.4
– Masters degree	131	25.2
– Doctorate	10	1.9
Work Experience		
– 1-10 years	240	46.2
– 11 – 20 years	108	20.8
– 21 – 30 years	87	16.7
– > 30 years	85	16.3

Table 3.17 shows that sample group that used in Second-Order CFA are diverse in status, age, education and work experience. According to the table most sample groups are teachers (64.9 percent), female (86.5 percent), the age range between 41 – 60 year old (43.3 percent), Bachelor degree (70.4 percent) with work experience of 1-10 years (46.2 percent).

Tools used in research

The researcher used 3 tools in research as follows.

1. The recording of synthesis document (details are displayed in Appendix B, p. 149)

2. The questionnaire to check content validity for experts including comprehensiveness and consistency of standards and indicators with consistency of indicators and evidence or resources that show result of implementation in each indicators. This questionnaire has five rating scales (details shown in Appendix B, p. 149)

The questionnaire is divided into two following parts.

Part 1 Questionnaire on the consistency of standards and indicators in internal educational quality assurance for bilingual schools in early childhood education level.

Part 2 Questionnaire on the consistency of indicators and documents which are data, evidence and resource that show result of implementation in each indicators

3. Questionnaire on the propriety of using standards and indicators internal educational quality assurance for bilingual schools in early childhood education level. It used to check structure validity and consistency between standards and indicators model with empirical data. This questionnaire has five rating scales (details shown in Appendix B, p. 149)

The questionnaire to check content validity is divided into two following parts.

Part 1 The questionnaires on basic data of sample group.

Part 2 Questionnaire on the propriety of using standards and indicators internal educational quality assurance for bilingual schools in early childhood education level

The tools construction

The researcher constructed tools as the following processes.

1. The constructions of recording of synthesis document were shown as the following.

1.1 Studying on the concepts and related literature (researches) on constructing the tools for recording of synthesis document and selecting the type of appropriate tools.

1.2 Constructing the recording of synthesis document

1.3 Consultation for the set constructed recording of synthesis document form with the advisor for improvements and revisions to make accuracy and appropriate tools.

1.4 Preparation of the complete set of the recording of synthesis document form.

2. The creation of questionnaire on checking content validity was shown as the following.

2.1 Studying on the concepts and related literature (researches) on constructing the tools for analyising content validity and selecting the type of appropriate tools.

2.2 Constructing the content validity questionnaires including comprehensiveness and consistency of standards and indicators with consistency of indicators and document which are data, evidence or resources that show result of implementation in each indicators.

2.3 Consultation on the questionnaires form created with the advisor for further improvements and revisions to focus on accuracy and appropriate tools.

2.4 Preparation of the complete set of the content validity checking questionnaire form.

3. The construction of questionnaire on the propriety of using standards and indicators internal educational quality assurance for bilingual schools in early childhood education level. It used to check structure validity and consistency between standards and indicators model with empirical data were shown as the following.

3.1 Bringing the result from questionnaire on checking content validity to find Item Objective Congruence Index (IOC) by choosing the indicators which have value of consistency more or equal to 0.8 from the experts (details shown in Appendix C, p. 166).

3.2 Creating the questionnaires according to standards and indicators as mentioned in 3.1

3.3 Distributing questionnaires collecting data from 30 samples (which are not the targeted group) in order to find value of reliability. The reliability score is .952 (details shown in Appendix C, p. 166).

3.4 Revising and preparing the complete of questionnaires.

Data Collection

The researcher collected data from 3 tools as the followings.

1. The data collecting methods for synthesis document related with standards and indicators on educational quality for Bilingual Schools in Early Childhood Education Level were shown as followings.

1.1 Collecting crucial information providing knowledge within and beyond the nation from evidence found on the internet.

1.2 Analyzing document.

1.3 Summarizing data and writing report.

2. The data collecting methods for evaluation of content validity from experts including comprehensiveness and consistency of standards and indicators with consistency of indicators and evidence or resources that show result of implementation in each indicator were shown as followings.

2.1 Contact and inquire assistance from the experts by telephone communication.

2.2 Write letters inquiring assistance from experts on educational research and development, Faculty of Education, Chiang Mai University. Researcher sent the questionnaires and asks the experts to reply through post, e-mail or significant face – to – face manner up to the experts need to ensure the completion of questionnaires sent.

2.3 Deliver questionnaires directly to the experts.

3. The data collection for evaluation of propriety of using standards and indicators internal educational quality assurance for bilingual schools in early childhood education level. It used to check structure validity and consistency between standards and indicators model with empirical data were shown as the followings.

3.1 Write letters to director, head of academic with desire for internal quality assurance responsible staff and relevant teachers of Bilingual Schools in Early Childhood Education Level to provide assistance throughout the educational research of analysis and development Faculty of Education, Chiang Mai University.

3.2 Researcher send questionnaires and inquire completely fulfilled version to be sent back by post.

Data Analysis

The data analysis can be accomplished as the following.

1. The recording of synthesis document related with standards and indicators on internal quality education for Bilingual Schools in Early Childhood Education Level was analyzed by frequency test and content analysis.

2. The questionnaire on checking content validity including comprehensiveness and consistency of standards and indicators with consistency of indicators and evidence or resources that show result of implementation in each indicator was analyzed by Item Objective Congruence Index (IOC) and the criteria of questionnaires selection were more than 0.70.

3. The questionnaire on the propriety of using standards and indicators on internal educational quality assurance for bilingual schools in early childhood education level used to check structure validity and consistency between standards and indicators model with empirical data include 4 parts as the followings.

3.1 The data analyze for quality checking of tools including

1) The analysis of comprehensiveness and consistency of standards and indicators with consistency of indicators and document which are data, evidence or resources from experts was analyzed by Item Objective Congruence Index (IOC) that have value between 0.75-1.00(details shown in Appendix C, p. 166).

2) The analysis to find reliability of the tools by using the Cronbach's Alfa Coefficient that have value equal 0.952 (details shown in Appendix C, p. 166)

3.2 The data analysis by descriptive statistic including frequency distribution, percentage, mean and standard deviation.

The interpretation criteria of the propriety of using standards and indicators internal educational quality assurance for bilingual schools in early childhood education level were shown as the following (Boonchom Srisa ard, 2545)

Score	1	mean	the evaluation at the "least" level
Score	2	mean	the evaluation in "little" level
Score	3	mean	the evaluation in "moderate" level

Score 4 mean the evaluation in "high" level

Score 5 mean the evaluation in "highest" level

Mean 1.00-1.49 mean the evaluation at the "least" level

Mean 1.50-2.49 mean the evaluation in "little" level

Mean 2.50-3.49 mean the evaluation in "moderate" level

Mean 3.50-4.49 mean the evaluation in "high" level

Mean 4.50-5.00 mean the evaluation in "highest" level

3.3 The structure validity analysis by using exploratory Factor Analysis which used Principal Component Analysis and Orthogonal Rotation by Varimax technique. Then choosing indicators have factor loading more than 0.30 and Eigen value more than 1 in order to set this hypothesis model.

3.4 The consistency analysis between standards and indicators model with empirical data by Second-Order Confirmatory Factor Analysis which used Program Computer.

The interpretation criterias of the consistency between model with empirical data by using Second-Order Confirmatory Factor Analysis in Internal assurance for Bilingual schools in Early childhood Education level as the followings.

Chi-Square test (χ^2) is not different statistically significant or P-value beyond .05 , shows consistency with the empirical data.

χ^2/df value

CFI value is equal or more than 0.90, shows consistency with the empirical data.

TLI value is equal or more than 0.90, shows consistency with the empirical data.

RMSEA value is less than 0.08, shows consistency with the empirical data.

SRMR value is less than 0.08, shows consistency with the empirical data.

The summarize of procedure in Phase 1 were shown in figure 3.1

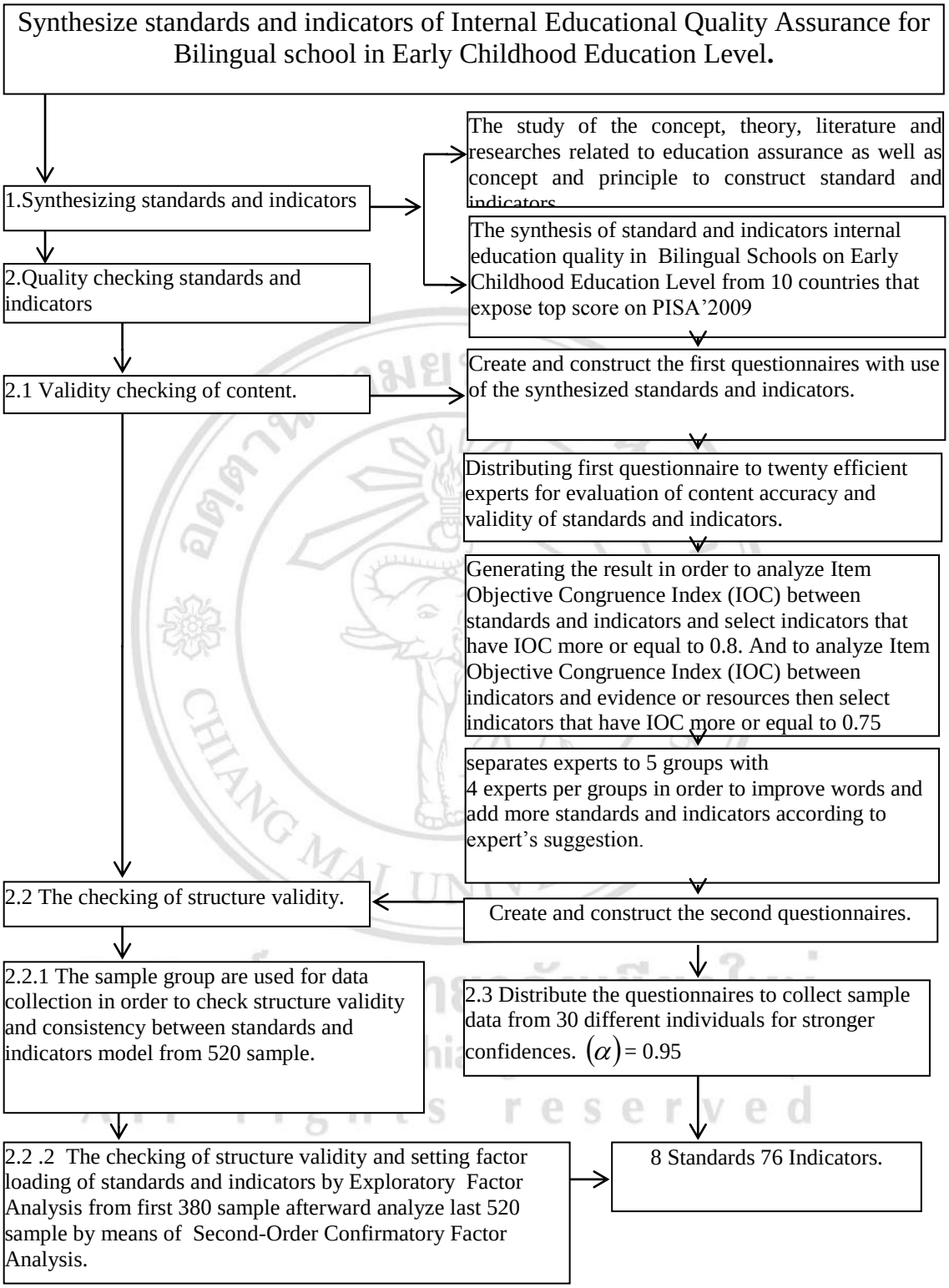

Figure 3.1 Synthesis Chart of standards and indicators of Internal Educational Quality Assurance for Bilingual school in Early Childhood Education Level.

3.2 Phase 2 The construction and development of Internal Assurance model in Bilingual Schools on Early Childhood Education Level.

To construct and develop Internal Assurance model in Bilingual Schools on Early Childhood Education Level, the researcher have three procedure including the factors synthesis of Internal Assurance model in Bilingual Schools on Early Childhood Education Level process, drafting Model, handbook and evaluation program for Internal Education Quality Assessment in Bilingual Schools on Early Childhood Education Level process and checking feasibility, propriety, accuracy and utility quality on Internal Educational Quality Assurance Model for Bilingual Schools in Early Childhood Education Level process.

1. The factors synthesis of Internal Assurance model in Bilingual Schools on Early Childhood Education Level was shown as the followings.

1.1 Studying concept and theory related with internal assurance in Bilingual Schools on Early Childhood Education Level.

1.2 Synthesizing factors of Internal Assurance model in Bilingual Schools on Early Childhood Education Level from the concept of Dale (1994), Murgatroyd & Morgan (1994), Office of the Basic Education Commission of Thailand (OBEC, 2009) and researches. Then chose factors which are those proposed as concepts, theory or conducted researchers by more than two academics. After that, this research synthesizes them all together to construct the model which has 5 factors: 1) the goal of model 2) standards and indicators 3) the process of model 4) The report of internal assurance (details shown p. 36).

2. Drafting Model, handbook and evaluation program for Internal Education Quality Assessment in Bilingual Schools on Early Childhood Education Level were shown as the followings.

2.1 Studying concept, theory and researches related with construction and development of Internal Assurance model in Bilingual Schools on Early Childhood Education Level.

2.2 Bringing factors of Internal Assurance model in Bilingual Schools on Early Childhood Education Level which acquired from step 2.1 to draft the model.

2.3 Setting criteria of assessment according to ONESQA and OBEC.

2.4 Setting procedure of Quality Control, Quality Audit and Quality Assessment according to the result of step 1 and 2.3

2.5 Making handbook and evaluation program for evaluate internal education quality in Bilingual Schools on Early Childhood Education Level.

2.6 Assigning the model, handbook and evaluation program to adviser for quality checking of the model and retrieving suggestion which would assist in improving the model.

3. The judgment of Internal Educational Quality Assurance Model for Bilingual Schools in Early Childhood Education Level.

The judgment of Model requires 2 steps including 1) Reviewing and making comment on model upon 2 significant points including content validity and suitable language in use 2) Reviewing accuracy, propriety, feasibility and utility of model which is prepared by arrangement of an expert brainstorming meeting which are detailed as the followings.

3.1) The judgment on model including content validity and appropriateness in the language use. Researcher procedures are listed below as the followings.

1) Contact and inquire assistance from 5 experts including experts on measurement and evaluation and programming which require doctoral degrees on educational measurement and evaluation, at least 5 years of work experience. (details shown in Appendix A, p. 143) to be able to judge content validity of model which judge consistency between questions and operational definition, appropriateness in the language use and the content arrangement in the handbook and program.

2) Assign the Model and tools used to the experts with inquiries of returning them.

3) Analyze data including Item Objective Congruence Index (IOC) and Content analyze. The value is between 0.80 – 1.00 (details shown in Appendix C, p. 166)

4) Revise the Model and tools based on the suggestion from experts and produce complete version of the questionnaires.

5) Distribute questionnaires to directors, heads of academic and teachers in MEP schools in Chiang Mai province. The sample is taken by a simple random sampling method to find reliability equal to 0.910 (details shown in Appendix C, p. 166)

6) Revise and produce complete version of the questionnaires.

3.2) The judgment on model including content validity and appropriateness in the language use, the content arrangement in the handbook and program and content validity of questionnaires for model evaluation. The researcher procedures are as followings.

1) Contact and inquire assistance from 7 experts to make judgment on model including accuracy, propriety, feasibility and utility: experts on measurement and evaluation, teaching in bilingual school, assurance and the representative from parents. The requirements are listed as followings. (details are displayed in Appendix A, p. 143)

The expert of assurance are required to have experience in school internal assurance for at least 5 years or being an inspector with experience in evaluation of at least 50 schools.

The expert of measurement and evaluation required doctoral degrees on educational measurement and evaluation and/or has at least 5 year of work experience.

The expert of teachings in bilingual school required master degree or doctoral degrees on educational administration and has been managing bilingual school at least 5 year.

The representative from parents required doctoral degrees on educational measurement and evaluation while having children who are studying or studied in Bilingual Schools on Early Childhood Education Level.

2) Prepare the invitation letter for the experts to attend the meeting on the appointed date, time and venue. Also, sending document of model one month before the appointed date and appoint submission date for the document 3 weeks later.

3) Prepare letter of approval to the school in order to gain usage of space and access during the appointed date, time and venue.

4) Analyze data (before Brainstorming process) by content analysis and summarizing data for conceptual Brainstorming meeting.

5) Arrange brainstorming meeting by allowing the experts to make judgment on accuracy, propriety, feasibility and utility followed by providing suggestions to improve model, handbook and program on 14th June 2015 at Wichai Wittaya Bilingual School.

6) Prepare revision of the model and handbook with the suggestion of the experts accordingly.

7) Complete the handbook and begin programming for Internal Assurance Model for Bilingual Schools in Early Childhood Education Level.

Sample group

The sample group for data collection for analysis of the reliability of tools includes director, head of academic and teachers in around 30 MEP schools in Chiang Mai province. The sample is taken by means of Cluster Random Sampling method.

Tools used in research

Researcher used 3 significant tools in the research as follows.

1. The questionnaires for experts to check qualities of model (before conceptual Brainstorming process).

2. The recording of Brainstorming meeting about quality of model.

3. The questionnaire for experts to check qualities of model including accuracy, propriety, feasibility and utility.

The tools constructions were shown as the followings.

1. Questionnaires construction for experts to make judgment model (before Brainstorming process) and recoding construction of brainstorming meeting have the following implementation steps.

1.1 Set the issue for Brainstorming meeting.

1.2 Construct the recording Brainstorming meeting

1.3 Present the tool to advisor inquiring for suggestions of improvement with benefit for further revision.

1.4 Revise the tool based on the suggestion provided by the advisor and afterward completes the set of questionnaires.

2. Questionnaires construction for checking of the model in content validity, consistency between questions and operational definition. Moreover, appropriateness in the language used and content arrangement in the handbook and program. The implementation is undertaken as follows.

2.1 Study of concept relating to educational quality assessment of model from document and researches.

2.2 Analysis of data from concept about what implement are used in model quality judgment which includes 4 parts: accuracy, propriety, feasibility and utility. Moreover, appropriateness in the language used and the content arrangement in the handbook and program were also judged.

2.3 Bringing analyzed data to construct questionnaires for reaping of data on quality of model which are set to have 5 rating scales then later present the tool to ask for advisor suggestion for further revision.

2.4 Revising the tools based on the suggestion.

2.5 Sending the questionnaires to 5 experts on measurement and evaluation and programing to judge content validity of model which would apply on consistency between questions and operational definition, appropriateness in the language use and the content arrangement in the handbook and program.

2.6 Bringing data to analyze Item Objective Congruence Index (IOC). The value is between 0.80 – 1.00 (details shown in Appendix C, p. 166) and revise the questionnaires based on the experts suggestion. Assign the questionnaires to ask director, head of academic and teachers in around 30 MEP schools in Chiang Mai province. The sample is taken by a simple random sampling method to find reliability that shown equal to 0.910 (details shown in Appendix C, p. 166).

2.7 Revise and produce complete version of questionnaires.

Data collection

The data collection has the following implementation steps.

1. Contact and inquire assistance from experts to make judgment on the qualities model.

2. Write letter to ask for assistance from the experts on education research and development, Faculty of Education, Chiang Mai University.

3. Researcher sends a letter to ask for assistance with model draft and handbook a month before the appointed date. To provide time for the experts to read and check the model and handbook.

Data Analysis

The data analysis for model quality judging on accuracy, propriety, feasibility and utility including the questionnaires for quality checking of the model (before Brainstorming) and the recording of Brainstorming meeting were analyzed. Content

analysis and the model quality checking questionnaires for experts were analyzed by mean and standard deviation.

The interpretation criteria of Internal Assurance Model for Bilingual Schools in Early Childhood Education Level were shown as the followings (Boonchom Srisa ard, 2545).

Score	1	mean	the evaluation at the “least” level
Score	2	mean	the evaluation in “little” level
Score	3	mean	the evaluation in “moderate” level
Score	4	mean	the evaluation in “high” level
Score	5	mean	the evaluation in “highest” level
Mean	1.00-1.49	mean	the evaluation at the “least” level
Mean	1.50-2.49	mean	the evaluation in “little” level
Mean	2.50-3.49	mean	the evaluation in “moderate” level
Mean	3.50-4.49	mean	the evaluation in “high” level
Mean	4.50-5.00	mean	the evaluation in “highest” level

The summarize of procedure in Phase 2 were shown in figure 3.2

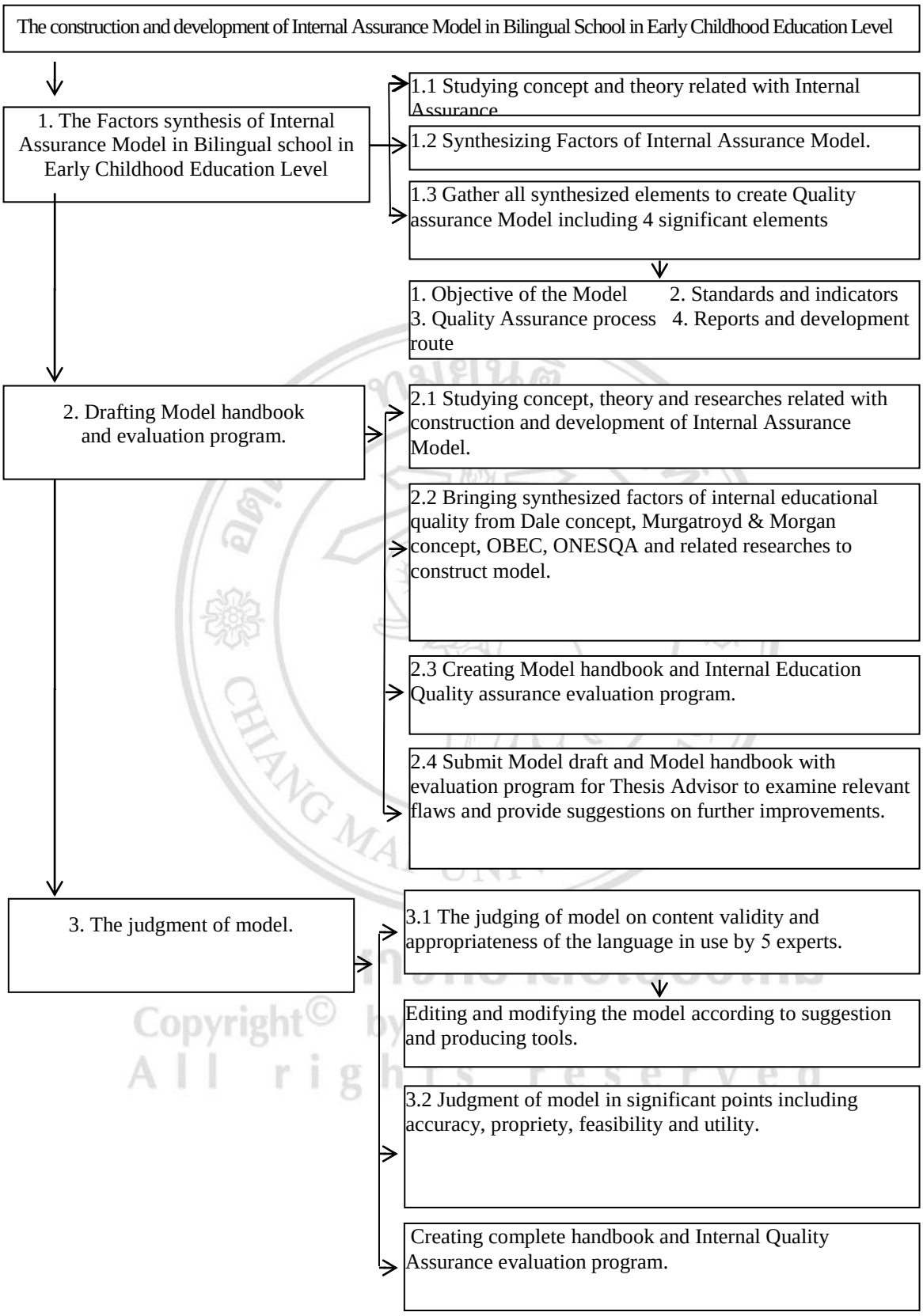

Figure 3.2 The construction and development of Internal Assurance Model in Bilingual school in Early Childhood Education Level.

3.3 Phase 3 The study of the implication of the trial-use of Internal Assurance model in Bilingual Schools on Early Childhood Education Level.

The study of the implication of the trial-use of Internal Assurance model in Bilingual Schools on Early Childhood Education Level has 3 following implementation steps.

1. Trial use of the Internal Assurance model in Bilingual Schools on Early Childhood Education Level in 3 schools including medium school, large school and small school is done as following.

1.1 Contact and inquire for cooperation from the schools administrators at Wichai Wittaya school, Pitisuksa School and Pornpikul Pittaya school as the sample group of school in the trial use of the model.

1.2 Write letter to ask for assistance from the schools samples group in the trial use of the Quality Assessment part of model on education research and development, Faculty of Education, Chiang Mai University.

1.3 Hold a meeting with related staffs of the school in order to create the common understanding on the trial use of the model and set the implementation plan together for trial use of the model.

1.4 Implement of the trial use of the model according to the implementation plan as shown in table 3.18

Table 3.18 Implementation Plan for the trial use of the Internal Assurance model in Bilingual Schools on Early Childhood Education Level in Internal Quality Assessment part.

The time of trial use/ School	**Date /Month /year**	**Development Steps**
1st time : medium school	21-23 July 2015	1. Prepare Internal Quality Assessment of the model which have 3 parts as followings. 1.1 The researcher : 1) Explain objective of research and trial use of the model to director and related staffs 2) Appoint Internal Quality Assessment committee around 3 people to perform educational quality assessment according to the model. 1.2 Internal Quality Assessment committee : 1) Study model in quality assessment part including standards and indicators, assessment approach, criterion of evaluation and judgment result of evaluation 2) Study report doing of evaluation result 3) Plan educational quality assessment and appoint schedule with schools for trial use the model in quality assessment part. 1.3 School : 1) Study model and hold a meeting for the teacher team in order to create the common understanding and assign duty to prepare document on the trial use the model 2) Prepare document which are data, evidence and resource that show the result of implementation 3) Coordinate informant group and get oral suggestions including school committee, representative from parents, representative from community and staffs in the school. 2. Implement internal educational quality assessment. 3. Hold a meeting to simulate suggestion and revision of model every day.

Table 3.18 (Continued)

The time of trial use/ School	Date /Month /year	Development Steps
		4. Revise model on the suggestions and report to related people with the model trial use while every morning evaluation. 5. Evaluate the result of trial use the model
2nd time: large school	Giving advice on 27th August 2015	1. Prepare Internal Quality Assessment of the model which has 2 parts as followings. 1.1 The researcher : 1) Explain objective of research and trial use of the model to director and related staffs 2) Follow up result of trial use model and revise model on suggestion of users. 1.2 School : 1) Study model and hold a meeting for the teacher team in order to create the common understanding and assign duty to prepare document on the trial use the model 2) Appoint Internal Quality Assessment Committee around 3 people for educational quality evaluation follow the model 3) Prepare document which are data, evidence and resource that show result of implementation 4) Implement internal educational quality assessment 5) Evaluate the result of model trial use and give suggestion to researcher for revise the model through http://202.28.25.120/.
3rd time : Small school	Giving advice on 4th September 2015	1. Prepare Internal Quality Assessment of the model which has 2 parts as followings. 1.1 The researcher : 1) Explain objective of research and trial use of the model to director and related staffs 2) Follow up result of trial use model and revise model on suggestion of users. School : 1) Study model and hold a meeting for the teacher

Table 3.18 (Continued)

The time of trial use/ School	Date /Month /year	Development Steps
		team in order to create the common understanding and assign duty to prepare document on the trial use the model 2) Appoint Internal Quality Assessment Committee around 3 people for educational quality evaluation follow the model 3) Prepare document which are data, evidence and resource that show result of implementation 4) Implement internal educational quality assessment 5) Evaluate the result of model trial use and give suggestion to researcher for revise the model through http://www1.edu.cmu.ac.th/inasmodel/home

2. The study on the result of using the Internal Assurance model in Bilingual Schools on Early Childhood Education Level in Quality Assessment part is done as followings.

2.1 Study on the result of using the model in Quality Assessment part from staffs in school sample group which have the following implementation.

1) Study on the result of using the model in the first time by brainstorming meeting and use satisfaction questionnaires on the result of using the model including accuracy, propriety, feasibility and utility.

2) Study on the result of using the model in the second and third time by online questionnaires on the result of using the model including accuracy, propriety, feasibility and utility.

2.2 Revise model on the suggestions.

3. Checking result of trial use model about concurrent validity which have the following implementation.

3.1 Summarize report of internal educational quality assurance from model and original affiliation.

3.2 Choose standards and indicators which are similar to the model and original affiliation.

3.3 Analyze data by Pearson Product Moment Correlation Coefficient.

3.4 Summarize result of concurrent validity of model.

Sample group

The sample group in the trial-use of Internal Assurance model in Bilingual Schools on Early Childhood Education Level were director team and staffs from 3 schools including medium school, large school and small school separate according management structure. The sample is taken by a cluster random sampling method.

Tools used in research

1. The questionnaire for sample group to check quality of model including accuracy, propriety, feasibility and utility.

2. The recording of Brainstorming meeting on the result of using the model.

Remark : All of the tools were constructed in step 2.

Data gathering

The data gathering about the result of trial use model have the following 2 implementation parts.

1. The researcher collected data by one self in the first time by bring satisfaction questionnaires on the result of using the model to quality assessment committee, director and related staffs then recorded the result of brainstorming meeting.

2. The researcher collected data by online questionnaires from the program in second and third time.

Data analysis

The researcher analyzed data as followings.

1. Satisfaction questionnaires on the result of using the model were analyzed by mean and standard deviation.

The interpretation criteria on the result of using the model were shown as the following (Boonchom Srisa ard, 2545)

Mean	1.00-1.49	mean	the evaluation at the “least” level
Mean	1.50-2.49	mean	the evaluation in “little” level
Mean	2.50-3.49	mean	the evaluation in “moderate” level
Mean	3.50-4.49	mean	the evaluation in “high” level
Mean	4.50-5.00	mean	the evaluation in “highest” level

2. The recording of Brainstorming meeting on the result of using the model was analyzed by content analysis.

3. The checking of result of trial use model about concurrent validity was analyzed by the Pearson Product Moment Correlation Coefficient

The interpretation criteria on correlation coefficient of Bartz (Supamas Angsuchoti,2011, p.57)

Correlation coefficient	level of correlation
0.81-1.00	the correlation in “highest” level
0.61-0.80	the correlation in “high” level
0.41-0.60	the correlation in “moderate” level
0.21-0.40	the correlation in “little” level
0.00-0.20	the correlation in “least” level

The summarize of procedure in Phase 3 were shown in figure 3.3

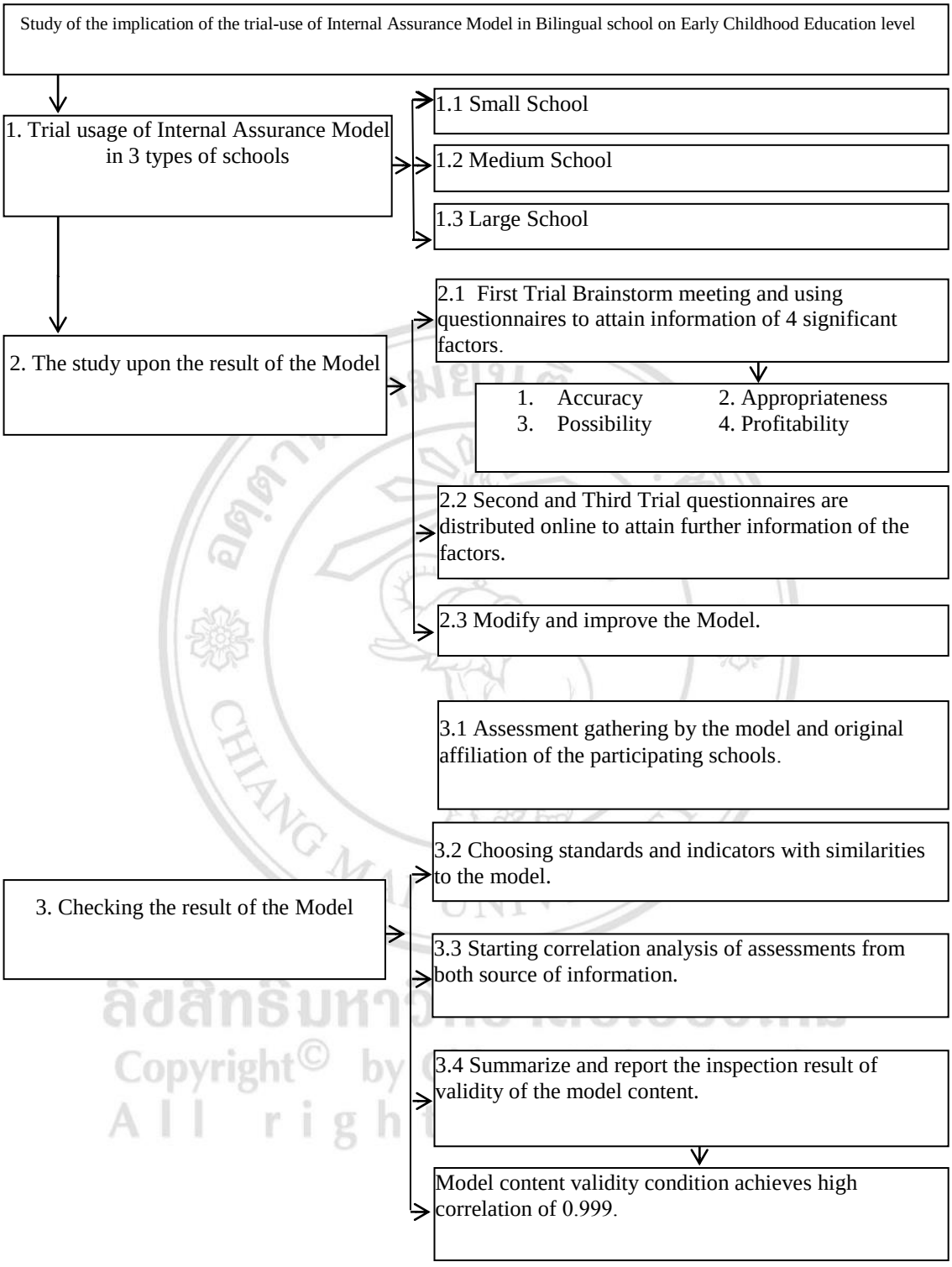

Figure 3.3 Study of the implication of the trial-use of Internal Assurance Model in Bilingual school on Early childhood Education level.