Chapter 2
Review of Literature

The study about Internal Educational Quality Assurance of bilingual school for the kindergarten comprises three main concepts /theories and related researches which are 1) Education Quality Assurance concept 2) Research and Development way of Education Quality Assurance concept 3) Educational Management in bilingual concept. The researcher synthesizes the related literature then summarizes them as following

2.1 Educational Quality Assurance

2.1.1 Educational Quality Assurance concept

1) Definition and background of the Government policy and the signification of Educational Quality Assurance.

2) Concept of the External Quality Assurance

3) Principle of Educational Quality Assurance for kindergarten.

4) The relation between Internal Educational Quality Assurance and the External Quality Assurance for kindergarten.

5) Synthesis of components in Internal Educational Quality Assurance

6) Synthesis of the research work on the educational quality assurance

2.1.2 Education Standards

1) Definition of education standards / indicators / criteria

2) Development of the standards and indicators

3) Synthesis of the standards and indicator of Internal Educational Quality Assurance for kindergarten in the standard of UNESCO, the education standards of ten countries that have high score in PISSA, the education standards of Thailand for kindergarten and the standard of educational management in bilingual from UNESCO bilingual school and World Class bilingual school

2.2 The research and development of model evaluation

2.2.1 Definition and proceeding of research and development

2.2.2 Concept and the process of model development

2.2.3 Synthesis of components of model evaluation

2.2.4 Model evaluation and synthesis of quality evaluation

2.3 Bilingual school

2.3.1 Background of bilingual school

2.3.2 Mission and model of educational administration of bilingual school for kindergarten.

2.3.3 The internal quality assurance of bilingual school

2.3.4 Synthesis of the research work about the educational program in bilingual

2.1 Educational Quality Assurance

2.1.1 Educational Quality Assurance concept

1) Definition of Educational Quality Assurance

The researcher studies many definitions of the word "Educational Quality Assurance" with the following results

Based on the National Education Act of B.E. 2542 defines the meaning of Educational Quality Assurance as quality assessment and monitoring, educational standards of academy are included the Internal Quality Assurance and the External Quality Assurance

National Education Standards and Quality Assessment (Public Organization) (2010, p.18) defines the Educational Quality Assurance as to create quality standards in management and do activities that the academy give in order to develop the quality of learners and to ensure service recipients including students, parents and society.

Oxford Advanced Learner's Dictionary (2005, p. 1233) defines "Quality Assurance" as the practice of managing the way goods are produced of services are provided to make sure they are kept at a high standard

Macmilian English Dictionary (2007, p. 1213) which defines the meaning of "Quality Assurance" as the method that a company uses to check that the standard of its services or goods is high enough.

Rung Kaewdang (2002, p. 9) defines as to create security for parents, communities and societies that the implementation of the academy is in accordance to the identified mission.

In conclusion, The Educational Quality Assurance means mechanism to evaluation and monitoring the quality and the education standards by their own academy and from other organizations. The purpose is to create the graduated from academy to have knowledge and ability based on curriculum and the social expectation as well as to ensure the parents, community and society that if the implementation of the academy is in accordance to the identified mission is complete more or less.

Background of Educational Quality Assurance

Rung Kaewdang (2002, p. 28) the concept about the Quality Assurance began in the US before the Second World War. At first, the Quality Assurance only used for industrial products, the control of products quality brought reliability to the industrial system of the US that the quality of the products is good enough to export to all around the world. When Japan lose in the Second World War, The industrial products of Japan had low quality. The US supported Japan in improving the quality of the industrial products by send Dr. Edwards Deming to be the advisor and consultant about the products quality assurance for Japan. Dr. Edwards Deming brought "Quality Control Circles" or QCC which emphasized on the processes of planning, implementing process, evaluating process and action (PDCA) into suggestion and put the system into the Japanese Industrialization and it was very successful. It developed from the products quality assurance to the quality assurance on the whole system. The assurance started from the production process until it became products which are called "Total Quality Management" or TQM. Later, the European Countries brought the system of the Quality Assurance into usage and called "International Standard Organization" or ISO which is different from Japan that Japan is emphasize about the Internal Evaluation but the ISO process is emphasize about the External Evaluation. After that, many countries brought the system of the Educational Quality Assurance to use in their country to ensure that their academy can do good quality and standards in educational management because all countries believe that the education is "The investment for the future" especially in New Economy –KBE and the Knowledge-Based Economy –KBE. In Thailand, Office of National Education Commission (ONEC)study about two interesting countries that operating the Educational Quality Assurance which are New Zealand and England in 1996 following section 5 of National Education Commission act in 1992 that specified the National Education Commission responsible for policy

making about education plan and education development plan. Furthermore, specified by law that the National Education Commission responsible for coordinating and monitoring evaluation, The Office of National Education Commission (ONEC) found the Institute of National Education Standards and Quality Assessment (ONESQA) to be the organization under the Office of National Education Commission on November 4th 1997. ONESQA is neutral organization that responsible about promoting quality assurance and standards of all levels. After that, the Office of Education Commission drafted National Education act of 2542/1999 and legislate into law in paragraph 6 section 47 to 51 from the following

Section 47 - to have a system about Educational Quality Assurance for quality development and standards of all levels comprise the Internal Quality Assurance and External Quality Assurance.

Section 48 - original affiliation organization and academy to have a system about the Educational Quality Assurance and regard the Internal Quality Assurance as one of the process in educational management that have to continuing proceed and have to send the report every year to original affiliation organization, related organization and publicly in order to develop quality and standards of education and in order to affirm the External Quality Assurance.

Section 49 - to have organization affirm the standards and evaluate quality of education which the organization has to be the public organization that responsible for develop criteria, way of evaluate the External Quality and result of educational management in order to check quality of the academy which considering about aim, principles and way of educational management in every academy. From the specify in this act that have to evaluate the External Quality of every academy at least once in five years from the last assurance and have to present the result of evaluation to related organization and publicly.

Section 50 - the academy have to cooperate in preparing documents that have information about the academy. Parents and related people give the information that are related to the operation of academy as requested from the Institute of National Education Standards and Quality Assessment or person or other organizations that evaluate the External Quality of academy.

Section 51- if the result of evaluation is not followed the standards that the organization specified, the Institute of National Education Standards and Quality Assessment has to make the recommendation to original affiliation organization in order to give the academy to correct mistakes within the time specified. If the academy not follow the recommendation, the Institute of National Education Standards and Quality Assessment will report to the Basic Education Commission or the Higher Education Commission.

In January 4th 2000 the cabinet has approved in education standards draft which have 27 standards, these standards will be used for develop quality in basic education and standards for the External Quality. At first, the evaluation use 14 standards and 53 indicators which publish in document name "The education standards for the External Quality" After having National Education act for 1 year and 2 months, decree about set up of the Institute of National Education Standards and Quality Assessment, Public Organization was success and effective from November 3rd 2000 which make Thailand has the educational quality assurance system and brought to evaluation for affirm the standards which responsible about develop criteria, way for evaluate the External Quality and the evaluation of the educational management in order to check quality of the academy which consider about aim, principles and way of education management in all levels.

Government policy and the signification of the Educational Quality Assurance

Educational Quality Assurance

For making Educational Quality Assurance system, there are principles that we have to consider from the following

1. Quality Assurance system is the tool that has to use with the decentralization of educational management

2. Education standards has to conform to the purpose of the National Education Act which emphasize learning process. Learning process has to be difference and student-centered.

3. The Quality Assurance has 4 missions and responsibility from the following

3.1 Specify the standards and criteria of the Quality Assurance system is responsible by central.

3.2 The Internal Evaluation is responsible by the academy and original affiliation organization which has to develop the Internal Evaluation system and it's necessary to have community and related person to participate.

3.3 The External Evaluation is responsible by Independent Organization (Public Organization) The reason that Independent Organization responsible for this because it has to be autonomous from government due to the evaluation that has to evaluate both public academy and private academy.

3.4 For rectify the result of evaluation, responsible by Educational Administrator from the principles and the signification of the Quality Assurance, the Institute of National Education Standards and Quality Assessment (Public Organization)

The signification of Educational Quality Assurance

1. People will receive information about educational quality which reliable and they can decide to use services that have standard quality.

2. Prevent the educational management that has no quality, this is the Consumer Protection and all people will have the equality of opportunity about the education.

3. People that responsible for the educational management will manage it seriously which it make the education strong enough to develop population quality.

As we can see that the quality development and education of Thailand from the past until the present time, the Office of National Education Commission, Government and many of academicians operated it until it became a system which began from education to create knowledge and educational quality, prepare personnel which prepare by training, do pilot project and public relations in order to make people in academic circles know and understand the importance and brought the Educational Quality Assurance system to use in the education system of Thailand.

2) Concept, Principle of evaluation for development

Buraphatid Ploysuwan (2012) defines the meaning of evaluation for development as to appraise or meaning of data or phenomenon of things that we want to evaluate by compare data that we measured and criteria that we specify, after that we will use what we evaluated to be way for improve.

3) Components of evaluation for development

Components of evaluation for development are not different from the general evaluation but the purpose is different. Components of evaluation for development are

1. Philosophy and purpose of the evaluation emphasize from real state in order to improve the quality.

2. Criteria / Standards of evaluation emphasizes to have criteria indicator and degree of evaluation that are degree of quality which brought to enhance degree of development.

3. Ways and process of measurement and evaluation emphasizes from real state which use the process of quality administration as ways for measure and evaluate. Quality administration are planning, implementing, evaluating and improve operation.

4. Assessor and the tool that use to measure and evaluate emphasize assessor and the tool that can support the development which has been developed to understand and can evaluated by the purpose.

The process of evaluation for development

The process of evaluation for development is not different from quality administration. The process and main activities are step by step as the following

1. Specify the main focus on both person and way purpose
2. Choose the best way that can brought success
3. Understanding and implementing
4. Check the result
5. Revision and work continuously
6. Use the result of evaluation for development

In conclusion, the evaluation for development is related with data/phenomenon of things that we want to evaluate, measure and define value/ meaning and use the result of evaluation. The researcher uses this concept as a base for the development of Internal Quality Assurance in Bilingual school for kindergarten.

3) Principle of Educational Quality Assurance in Early Childhood year

Definition of Internal Quality Assurance

The researcher studies many definitions of the word “Internal Quality Assurance” with the following results

National Education act of B.E. 2542 (1999) means evaluation and follow up to check the quality and educational standards of the academy internally by the personnel of the academy or by the original affiliation organization that have responsible for that academy.

Office of National Education and Standard Quality Assessment (Public Organization) (2010, p. 18) defines meaning of "Internal Quality Assurance" as the evaluation and follow up to check the quality and educational standards of the academy internally by the personnel of that academy.

Rattana Buason (2007, p. 46-47) means the academy or the education organization have to manage under the administrator of academy that has knowledge and realize about this through the process of educational management system which comprises planning, implementing (Do), evaluating (Check) and action or called this system management "PDCA". As we can see that Internal Quality Assurance is to complete mission of the academy, quality development of learning and teaching for learners (Office of National Education Commission, 2003) when the end of year of educational management, the academy have to do report to assess themselves. (SAR: Self Assessment Report)

In sum, internal quality assurance is the process of evaluation by the personnel of the academy or related person in order to get information that can help to improve and brought success to the work, this process is self- evaluation and should be in step of the work continuously which the main is the academy do self-evaluation continuously to get information for self-development and ready for external evaluation.

Principles and processes for Internal Education Quality Assurance system for Early Childhood

The principles for internal education quality assurance have three following objectives.

1. Decentralization – the academy is autonomous and streamline administration as well as can decide about work of administration, academic, budget, personnel, resources, the facilities and teachers can design activities to develop learning followed by the purpose of curriculum as well as the academy can improve themselves, responsibility and manage the education that conform to area, community and society needs.

2. Participation – government, private sector, entrepreneur, venerable person, local wisdom or local intellectual can participate to be the commission of academy and proud of achievement of the academy. It is beneficial for educational management.

3. Accountability - the academy and the commission of academy can set goals and main focus that want to develop (Focus Areas)

The Educational Quality Assurance system has 3 processes that are related to each other from the following

1. Develop Quality is the operation for develop quality of academy to achieve the education standards. The main point of quality development is to make everyone realize the importance of group work, work systematically and everyone responsible for improve work continuously, make information in their own part responsible and use information for work development annual. It is necessary to collect data and classify the information systematically.

The way for achieve the education standards of quality development for academy is to make the strategic plan that every activities/project/work has the same goal is to improve the quality of learners, there are development for factors to make it effective, recruiting, always keep it good and safe for use. The main point is to have a system and mechanism of operation as plan along with follow up to check the operation seriously and continuously as figure 2.1

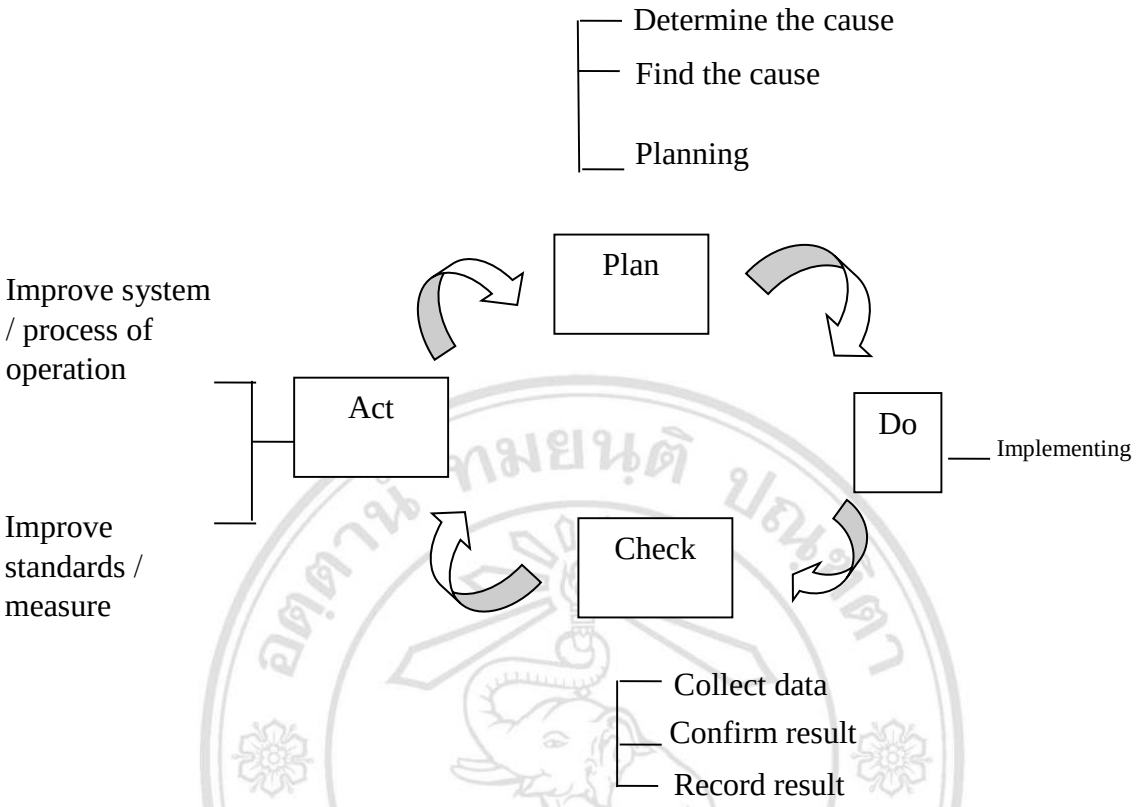


Figure 2.1 Process of operation continuously according "PDCA" cycle

Source: Bureau of Academic Affairs and Educational Standards (2006, p. 4)

2. Follow up and check about the quality is the operation that help, support, follow up advancement and confirm quality development, educational management of the academy that will followed by purpose and standards. Follow up and check quality can operating in many levels as following

2.1 Follow up and check about the quality for the academy which academy has a working group that will collecting information, operation/project throughout the academy year which are about the quality development for learners, quality of teaching management, quality management, education management and the development of learning communities which make it into information systems that can use to improve and develop as well as can use the information for internal quality assurance in the academy.

2.2 Follow up and check about the quality for the academy by the office of Educational Service Area or the organization that responsible for the academy in order

to promote and help the academy to operate quality development by Educational Service Area at least once in three years (from ministerial regulations, criteria and process of the educational quality assurance) for the academy to has strengthened. The Educational Service Area should promote it continuously, praising the academy that has good concept of development in order to be an example for other academies. The academy that has low quality of learners and continuous to be lower due to many problems, Educational Service Area should have working group to help that academy continuously and follow up the progress. Educational Service Area have to do report about the follow up and quality check after present the report to The Educational Service Area Commission.

2.3 Follow up and check, evaluating the Educational Quality Assurance in national overview is the main responsibility for the organization called " The office of Educational Service Area" in order to use the information for policy making ,promoting, supporting and push forward the academy to develop the quality of education continuously as well as specify standards for improve the quality of the academy that are not up to standards, promoting the participation between the academies as to enhance capacity of academy to manage the education extremely.

3. Evaluation and affirm about the quality is the operation for follow up and check the educational management which has two parts that are related to each other from the following

3.1 The Internal Educational Quality Assurance – from the follow up and check about the quality of the academy in 2.1, Academy use information to evaluate quality that determine from the educational standards (From the Educational Level in this context means the education standards for Early Childhood) and do report about the educational quality assurance each year of the academy, present to the academy commission, head of community, original affiliation organization and publicly.

3.2 The evaluation for affirm education standards – the evaluation for this part is operated by the organizations outside Ministry of Education include the Institute of National Education Standards and Quality Assessment which is public organization evaluating and affirm that the academy has educational management follow the education standards every five years. The overview result of evaluation will present to

the government in order to use in the budget allocation, determine the movement of quality development in educational management.

Three operations are processes that related to each other especially the follow up and check about quality, can operate in part of quality development and quality evaluation as figure 2.2

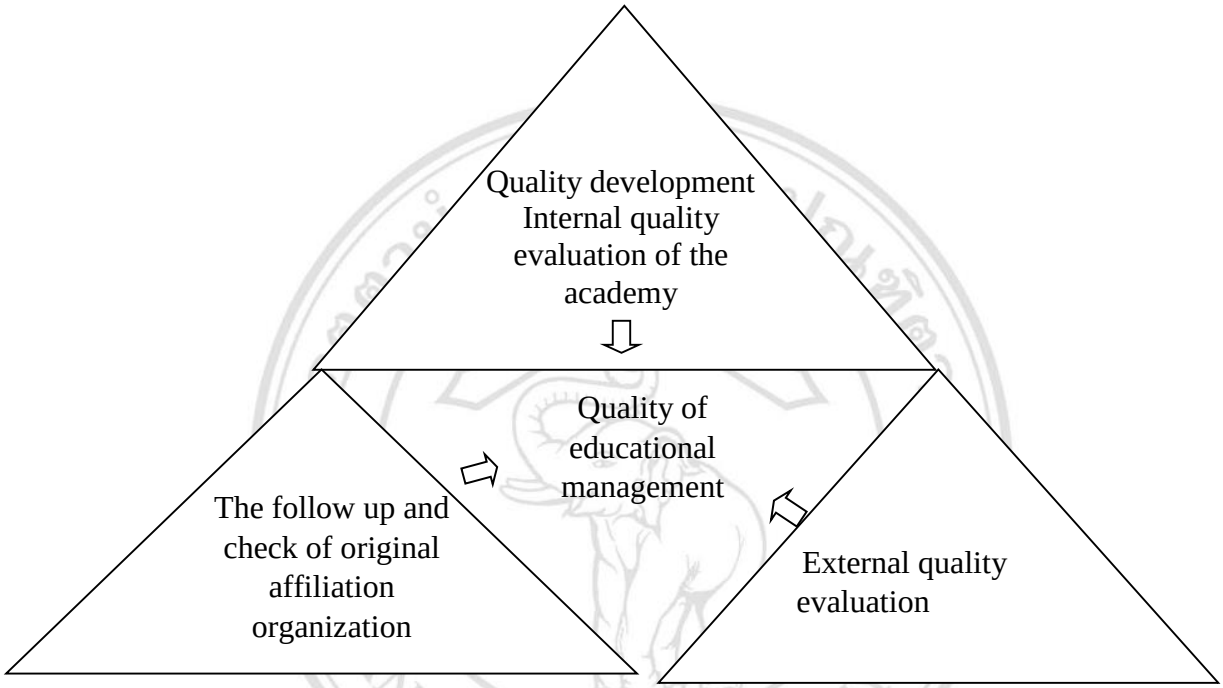


Figure 2.2 Relationship of the Educational Quality Assurance processes

Source: Bureau of Academic Affairs and Educational Standards (2006, p. 6)

The operation of quality assurance system of the academy for Early Childhood

From section 47, in the national education act of B.E.2542 (1999) amends (No.2) specified that system, criteria and ways for the Educational Quality Assurance are determined by ministerial regulations which brought to preparation of ministerial regulations deal with system, criteria and ways for the Educational Quality Assurance of B.E.2546 (2003) and improve by brought internal quality assurance system of the main organizations that responsible for education either inside and outside the system to be together About the education for Early Childhood specified that the academy have to prepare about the internal educational quality assurance in academy

which comprises the eight operations that emphasize about participation from the following

1. Specify the education standards for the academy
2. Systematization of management and information
3. Making development plans for the academy that emphasize about quality of education
4. The operations follow the academy development plans
5. Check and revise quality of education
6. The educational quality evaluation according to the standards determined
7. Annual report about quality of education
8. Development for quality of education continuously

Which have details from the following

1. Specify the education standards for the academy

The Education Standards are important and necessary for educational management that use decentralization to the academy which the academy can determine their own curriculum and manage to use curriculum properly conform to real state, problems and local needs so the government determined the national educational standards in order to be provisions about characteristic and quality that desirable and standards that want every academy to use and use this provisions to be the principles for comparison about promote, control, check, evaluation and educational quality assurance which comprise the national education standards and this brought to preparation for basic education standards and education standard for Early Childhood and announce that every academy that teach in this level use it to be goal of development. The academy have to use basic education standards and education standards for Early Childhood to be goal of the academy development. However, Educational Service Area and the academy might have to add the education standards that are specific and from local needs.

2. Systematization of management and information

The academy should set structure management that conducive to work development and set Internal Quality Assurance system for medium academy and small academy. Furthermore, the academy should has working group that responsible for

planning, follow up and check quality and do report about annual educational quality development of the academy which working group is personnel from different sections that have to work together.

3. Making development plans for the academy that emphasize about quality of education

In order to make the educational management reach the education standards, the academy has to do the academy development plans that emphasize about quality of education.

4. The operations follow plans the academy development plans

The academy development plans that emphasize about quality of the education have projects / activities that have to operate to reach the purpose and success from specified in indicator.

Example of management techniques that are successful

4.1 The quality development cycle “PDCA” of Deming (Deming Cycle) is the technique that most of administrator use because it is the process that assess itself all the time from Planning, Implementing (Do),Checking and bring the result of revaluation to revise, improve, set standards/ measure for determine the steps again (Act) in order to continuous the operation.

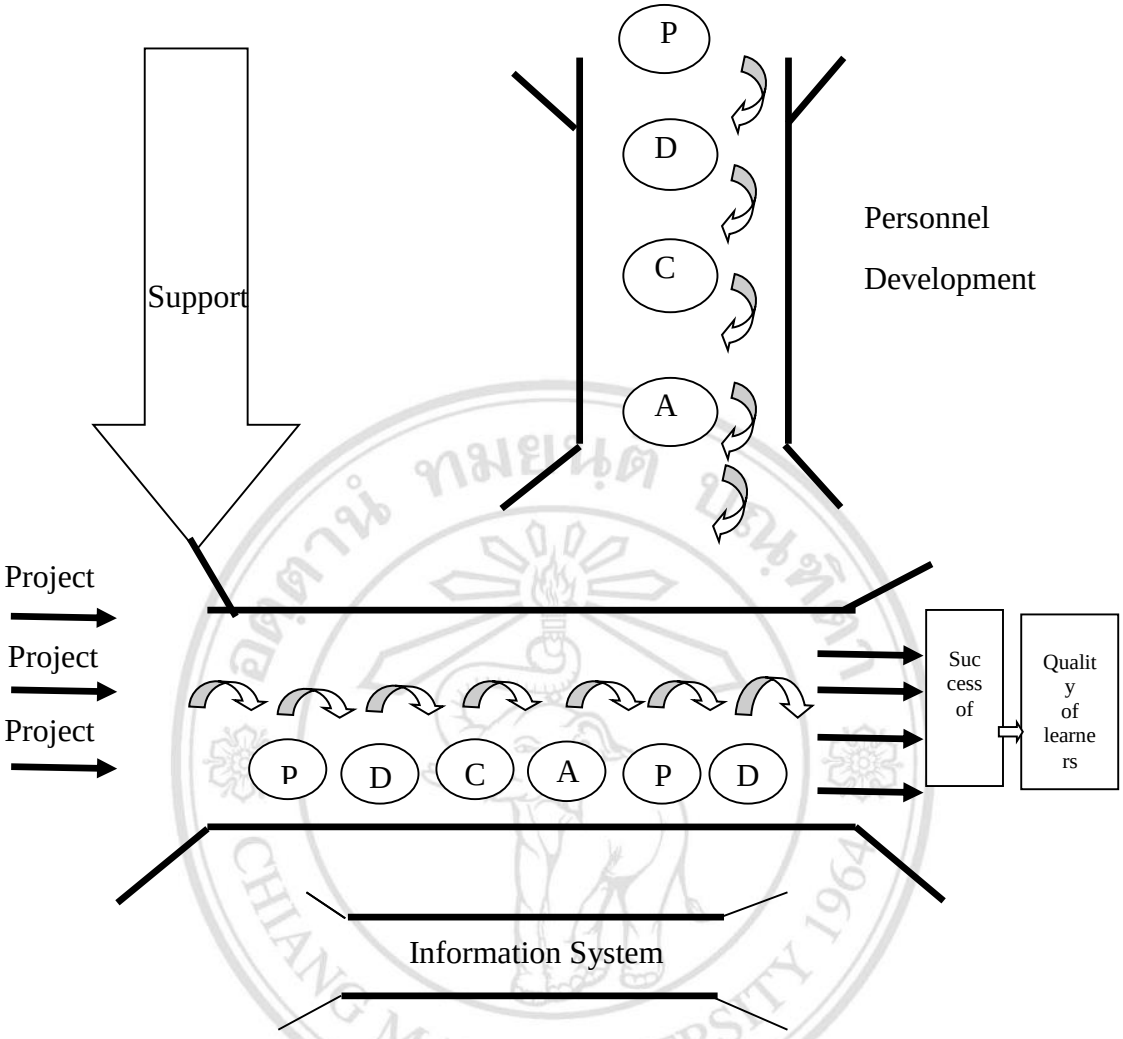


Figure 2.3 Example of the process of the operation from PDCA cycle that are working at the same time

Source: Bureau of Academic Affairs and Educational Standards (2003, p.10)

4.2 Balance Scorecard Concept

Many academics use this concept to determine balance scorecard, it is the management techniques for example, Lab schools Project which determined the related perspective and the success of the operations four sides 1) Student Perspective 2) Internal Process Perspective 3) Learning and Growth Perspective 4) Budget and Resource Perspective from this four perspectives can determine the strategic objectives that brought to success which consider about comprehensiveness and balance and brought strategic objectives to determine measures, targets and strategy initiatives as figure 4

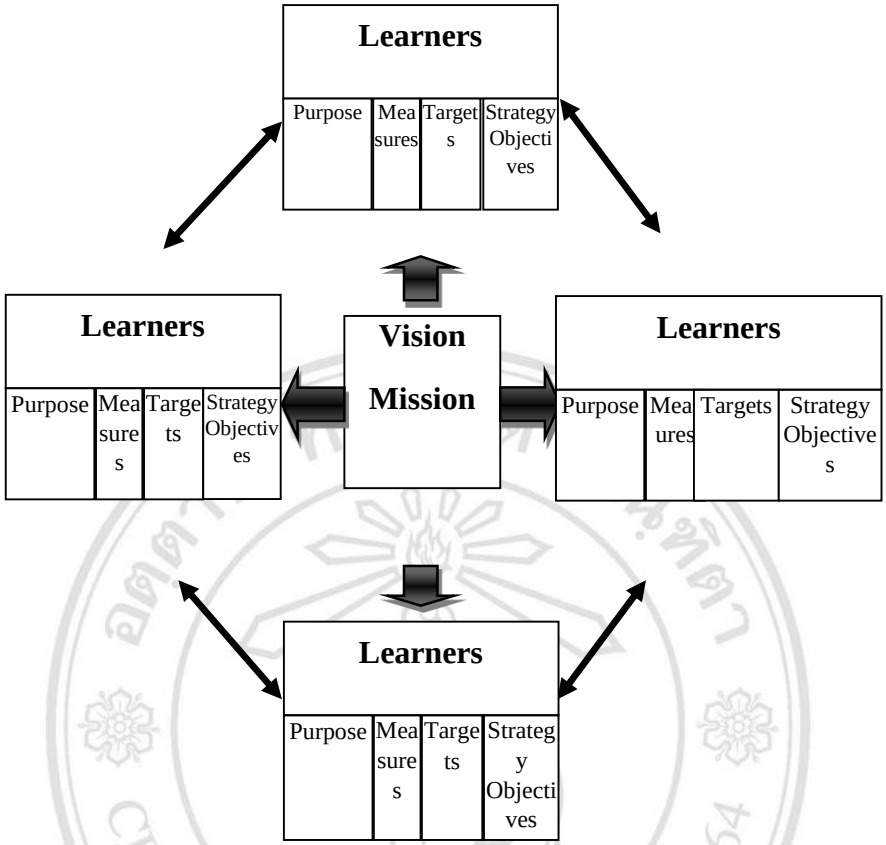


Figure 2.4 Balance Scorecard Concept

Source: Bureau of Academic Affairs and Educational Standards (2003, p.11)

5. Check and revise quality of education

Check and revise quality in academy is to follow up and check quality of academy. The academy should form working group in order to planning about the follow up and gather information/projects of the operation throughout the academy year, use the education standards as a framework for follow up and check.

6. The educational quality evaluation according to the standards determined

The educational quality evaluation according to the standards determined by internal educational quality assurance commission.

7. Annual report about quality of education

Annual report about quality of education is responsible by the academy, specified in the National Education Act of B.E. 2542 (1999) Section 48 that the

academy must make an annual report to present to the original agency and expose to the public. Also, this is to reassure the external quality.

1. Continuous development of education

To make a sustainable education quality, schools should regularly check and revise their process according to their projects/ activities. Projects/ activities must be worthy and beneficial for learners. Projects/ activities that will be used should be considered according following aspects

1. If it is a good project, it should be continued.

2. If it is a good project, but not successful due to some mistakes, it should be continued if the problem can be fixed.

3. If it is a project that is continuously growing, it should be continuously developed.

4. If there is a situation that presupposes to have problems, we must find ways to prevent them by creating new projects.

To make qualitative education continuously develop, educational places must consider the following aspects:

1) Create conscious mindsets for everyone in educational places.

2) Set up work policies that are systemic. Also, set goals in working, work as a team, and continuously make it happen.

3) Develop educational places to become learning organizations. To make schools become learning organizations, we must make all employees become learning individuals, which is by knowing how to develop themselves, eager to learn, always sharing ideas. This will create many experts in different fields that are acceptable to relevant workers. Advertising and sharing information of other organizations will make it a learning organization that has continuous development of the quality of education.

4.) The relations between the inside educational quality insurance and the outside educational quality insurance of early childhood education

According to the section 48 of the National Education Act of B.E.(the 2nd),1999 which states ‘Agencies and schools must have the quality-insurance system in places of education and the inside insurance must be a part of the process of the educational administration which has to be continuously launched ’ while the section 49 of the same edition states ‘The Office of National Education Standards and Quality Assessment

must be a public organization that develops criterions, methods of the outside quality assessment and evaluates the educational management for that school's quality check.' Consequently, the relation between the inside quality insurance and the outside quality insurance is needed.

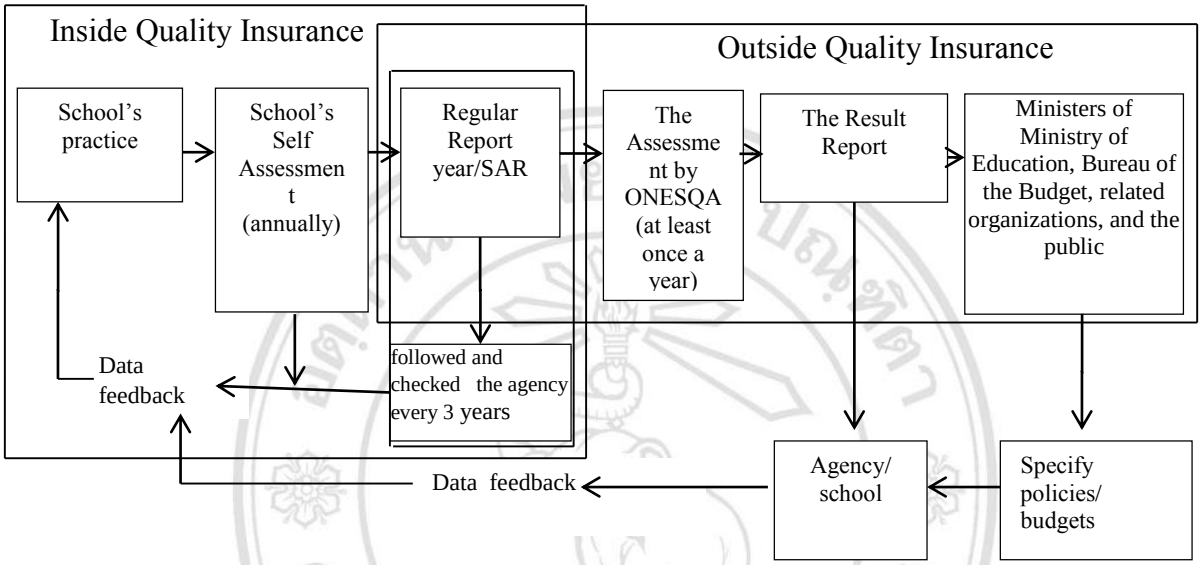


Figure 2.5 The connections between the inside quality insurance and the outside quality assessment.

Souce : from The Office of National Education Standards and Quality Assessment (2554, page 4)

According to the photo numbered 2.5, it is needed to make the annual report which is the inside quality assessment when schools have processed the inside assessment. It is resulted from the inside quality insurance or it is called 'the report of self-assessment' to propose to the school's committees, agencies, and related organizations, and to reveal to the public.

The mentioned document will be the related document between the inside quality insurance, the agencies' follow and check, and the outside assessment by ONESQA. Schools, therefore, need to launch the self-assessment, which shows the real pictures of schools in every element of the quality.

The result of the synthesis of the elements of the inside quality insurance pattern

The result of the synthesis consisting of the researches of Saowandee Panmeung (2001), Sujittra Pahongsa (2001), Tipawan Lekwanna (2008), Maitree Boonrod (2011), Wassana Sangkam (1999), Mongkol Chaitongrat (2006), Chonchakorn wonin (2006), Tep Chitwong(2008) combined with the idea of Dale (1994), Murgatroyd & Morgan (1994), and Thai office of the basic education commission (2011) found that the elements of the quality insurance pattern consist of 1) goal of the inside guality insruance pattern 2) standard and critrior of the inside quality insurance 3) the operation of the inside quality insurance following the standard and criterior including the person who is in charge of the methods of quality control, quality check, quality assesment, and the criterior of the evaluating.

Reporting and Determining the Development's guidelines

The details of the synthesis are shown in the table numbered 2.1.

Table 2.1 The results from the synthesis of the inside quality insurance pattern

Elements	Saowandee Panmeung (2001)	Sujittra Pahongsa (2001)	Tippawan Lekwanna (2008)	Maitree Boonrod (2011)	Wassana Sangkam (1999)	Mongkol Chaitongrat ()	Chonchakorn Woin (2006)	Suthep Chitwong (2008)	Thai office of the basic education commission (2011)	Dale (1994)	Murgatroyd & Morgan (1994)
inside quality insurance goal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
standard and criterior	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
methods of insurance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1. Quality control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• determine the person in charge	✓	✓	✓	✓		✓	✓		✓	✓	
• staffs' preparation	✓	✓				✓	✓	✓	✓	✓	
• launch the development's plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• Plan and collect information	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Table 2.1 (Continued)

Elements	Saowandee Panmeung (2001)	Sujittra Pahongsa (2001)	Tippawan Lekwanna (2008)	Maitree Boonrod (2011)	Wassana Sangkam (1999)	Mongkol Chaitongrat ()	Chonchakorn Woin (2006)	Suthep Chitwong (2008)	Thai office of the basic education commission (2011)	Dale (1994)	Murgatroyd & Morgan (1994)
2. Follow and check	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• determine te person in chargeh	✓	✓	✓	✓		✓	✓		✓	✓	
• standardized development (PDCA)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• inside checking by school	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• improve from results							✓	✓	✓		
• make the progress's assessment report	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3. Quality assessment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• determune the person in charge	✓	✓	✓	✓		✓	✓		✓	✓	
• assess the operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• report the results	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
4. Reporting and Determining the Development's guidelines	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• plubicize the self assessment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• review the quality	✓		✓	✓		✓	✓	✓	✓	✓	

According from the table numbered 2.1, it is found that the quality insurance pattern consists of 2 elements including 1) goals of quality insurance pattern 2) standard and criterion of the inside educational quality insurance 3) the operation of

the inside educational quality insurance based on the standard and the criterion including the person in charge, quality control methods, quality check methods, and quality assessment methods and the criterion of assessment 4) reporting and publicizing the self assessment

6) The synthesis results about educational assessment

The researcher has synthesized 153 researches about educational insurance from the database called Thaiis, operated and finished during 1999-2012. Most of them are the researches during 2007-2009(39.2%) which are from Thailand's educational 46 institutes.

Most of the works are from Mahasarakam University (9.2%) and Chiangmai University (6.5%) and 7 of them (4.6%) are the researches of Doctor of Philosophy level, and 146 of them (95.4%) are the researches of the Master level. Most of them are to study problems, the operation's results, and the school's educational quality insurance development guidelines (62.0%) followed by studying patterns and inside educational quality indicators (7.2%). Most of the researches are descriptive researches (83.7%) followed by operation researches (5.9%), and followed by research and development (3.9%). Most of the researches are about basic-level education management (83.0%), followed by vocational education or technological education management (11.1%), and followed by early childhood education (2.6%).

The target groups are teachers and executives (47.1), followed by only-teacher group (12.4%) and followed by only-executive group (8.5%). Tools used in the researches are questionnaires (7.1%), questionnaires and interviews (9.8%). Tools' average reliability is 9.31.

Various kinds of statistic analysis methods are used including using frequency, percentage, mean, standard deviation together (17.6%) and using statistic frequency, percentage, mean, standard deviation, t-test and Analysis of Variance together (12.4%).

The synthesis results of the inside educational insurance problems are reported in 188 researches. The researcher synthesized the problematic issues and ordered them by basing on problems' frequency, the most to the least. The summary as follows.

Table 2.2 The results of the problems analysis of the inside educational quality insurance researches

List	Frequency	Percentage
1. Schools ignore communities since they are afraid of chaos and difficulties/ lack of communities' cooperation	14	11.86
2. Operation's problems (lack of the exact determining of guidelines, do not follow every step of quality insurance process)	11	9.32
3. Lack of budgets	8	6.78
4. Schools lack of various kinds of assessing tools.	6	5.08
5. Problems about reporting (Students and parents can rarely access to self assessment information)	5	4.24
6. Schools do not offer document or quality insurance operation manual to staffs.	5	4.24
7. Strategy determining and annual work plan are not matched. Leadership of the small or medium schools' executives is more problematic than big schools'.	4	3.39
8. Educational standard development problem is about the person in charge lacks of knowledge or understanding about the quality development.	3	2.54
9. Making the educational quality development problem ,is about the related persons and staffs lack of knowledge .cooperation, and ploblems and causes systematic analysis	3	2.54
10. educational quality report problem is about the .staffs lack of th skill of writing reports	3	2.54
11. Maintaining educational quality insurance problem is about not being checkeked for maintaining educational quality insurance bythe audit committee of the zone.	3	2.54
12. Problems about reporting (Students and parents can rarely access to self assessment information)	5	4.24

Table 2.2 (Continued)

List	Frequency	Percentage
13. Schools do not offer document or quality insurance operation manual to staffs.	5	4.24
14. Strategy determining and annual work plan are not matched. Leadership of the small or medium schools' executives is more problematic than big schools'.	4	3.39
15. Educational standard development problem is about the person in charge lacks of knowledge or understanding about the quality development.	3	2.54
16. Making the educational quality development problem is about the related persons and staffs lack of knowledge, cooperation, and ploblems and causes .systematic analysis	3	2.54
17. problem is about the educational quality report .staffs lack of th skill of writing reports	3	2.54
18. Maintaining educational quality insurance problem is about not being checkeked for maintaining educational quality insurance bythe audit committee of the zone.	3	2.54
19. Preparation problem (Staffs lack of knowledge, understanding, the importance of the inside quality insurance realization. Also, there is no explaining meeting, appropriate delegation, exact determination duration, plan, and sequence)	39	33.05
20. Administration management and information problems are about the lack of staffs, inappropriate works and staffs, incomplete information, incomprehensive schools' roles, not up to date, no information check, no information assessment, no continuity and systematization of the information.	14	11.86
Total	**118**	**100**

The results of the strategies synthesis of the inside educational quality insurance can be summarized as follows 1) project/activities creation strategy 2) teamwork strategy 3) self assessment comprehend strategy 4) the person in charge indicating strategy 5) planning and directing strategy 6) participation strategy 7) consulting related persons strategy 8) tour meeting with community strategy 9) workshop strategy 10) comparing strategy 11) creative participating meeting strategy 12) information study strategy

The guideline analysis results of the inside educational insurance system development suggest that there are 12 guidelines including 1) hold the meeting or explain and gain the Supprealization of the importance of the inside quality insuracnce of the staffs, the organization and the related persons 2) promote the staffs to participate the quality insurance planing 3) systematically follow and check the operation, continously evaluate strategic plans and annual operation's plan by the PDCA cycle, and use various kinds of tools to assess 4) allocate the enough budgets and enough needed equipment for school to process the quality insurance for both inside school and outside school or with community 5) strengthen the community to play the important roles which include developing and take caring students, developing parents' participation pattern toward educational management 6) develop teachers' techniques using technology to manage students' learning, variously evaluate, and have classes' researches 7) indicate to operate the counterpart project and continuously evaluate 8) systematically create school's database system 9) promote the incorporation to cooperate between schools and help the small schools which have inside quality insurance 10) The projects or activities have to be according and covering the standard and the indicators. In one project, there have to be various kinds of activities, which belong to the same category. There should not be too many of them, so it will be easy to follow evaluate the project. 11) check and review the educational quality and really apply the results 12) develop the inside quality insurance pattern and the manual to be more appropriate for the organization and the staffs

2.1.2 Education's standard

1) Meaning Indicators Criterior

The researcher has studied the meaning of the word 'Education's standard' and found these meanings.

The National Education Act of B.E. (2542) states that "standard" means a thing that is widely guaranteed.

Rattanabuason (2550, page 31) means the word "standard" as a condition or a quality level which everything should be and it is widely accepted among persons who are related in that field.

Bureau of Academic Affairs and Educational Standards and the Officer of the Education Commission, Ministry of Education (2549, page 16) states that 'Educational Standards ' means it is a requirement about the desirable traits or qualities, which are used to be the principal to compare for promoting, taking care, checking, evaluating, and educational insurance.

Office for National Education Standards and Quality Assessment (2553, page 71) means the word "educational standards" as a requirement to manage schools, to be a standard to direct, supervise, check, evaluate, and ensure the educational quality. It, also, is a guideline for schools to operate, and it is an important mechanism of the educational quality insurance to be more effective and successful.

In conclusion, Educational Standards means the requirement or the quality level of the educational management, which is about traits and desirable qualities to be the criterion of the educational quality insurance and assessment.

The researcher has studied the meanings of the words " criterion " and "indicator" and found that many meanings are defined.

According to the dictionary of the Royal Academy (2542, page 23) Provides the meaning of the word "criteria" that it is the determined principal.

In English, it is "criteria". In the Collins Dictionary (1994, p. 336) suggests that it is a standard to decide or evaluate a thing.

Rattanabuason (2550, p. 80) once stated that " Criteria" means a thing that we use to decide the result's quality or performance, which may show in an accepted behavior level.

SirichaiKanjanawasri (2550, p.82) once stated that " Criteria " means a trait or a qualified level, success or resource's suitability, operation o result.

In conclusion, Criteria mean a determined principal, which is used to decide thing's quality.

For the word “Indicator”, Oxford Dictionary (2005, p. 850) suggests that indicator means a thing that exactly indicates another thing.

Johnstone (1981, p. 2-3 sourced in Kiatsudasrisuk, 2545, page 40) stated that indicator is a fact or information that indicates a clear and exact condition but it will show the successful ways. An indicator widely indicates the interesting state.

Sirichai Kanjanawasri (2550, p. 82) suggested that an indicator means element, variable or noticable fee, which is used to indicate status or reflect the resource trait, opration or result.

In conclusion, indicator means fact or information that indictes the exact condition of the operstion in both way, quality aang auanyity. It alsoreflect the successful ways.

Rattana buason (2550, p. 203) mentioned about the relation between the standard and indicator that they have the relation in the way that indicators are minor elements of the standard. More clearly, a single standard is consisted of at least 1 indicator. An indicator will indicate that standard’s success. Therefore, in the process of standard developing, the indicators are needed to process together. If there is no exact indicator, the determined standards will be useless since the standard is too wide and abstract. Assessment for indicating standard’s success needs have the exactly determined indicators.

Important traits of an indicator

SirichaiKanjanawasri (2544, p. 36) mentioned about the qualification of a good indicator as follwing

1. Validity

A good indicator has to exactly indicate the wanted triats, which has these impotant quality.

1.1 Relevance

An indicator has to relevantly and directly indicate the related issues or directly related to the measuring aimed features, for example, GPA is an indicator of the generally educational success.

1.2 Representativeness

An indicator has to have representativeness which is aimed to measure, or have the aspects that covers all the important elements of the quality. For instance, body's temperature is an indocator of patient's fever stage.

2. Reliability

A good indicator has to reliably indicate the aimed-measuring quality or invariably indicate when measure repeatedly in the same period of time. The important qualities are following.

2.1 Objectivity

An indicator must be able to objectively indicate. The decision about the indicator's value should be based on the stage of existing or qualification rather than feelings.

2.2 Minimum Error

An indicator has to indicate with minimum error and the result should be from the raliable sources.

3. Neutrality

A good indicator has to indicate without bias and does not take any sides. It must not indicate only success or only failure or unfairness.

4. Sensitivity

A good indicator has to be sensitive to the aimed-measuring quality. It must be able to obviously show the changes or the differences between analysis units. The indicator has to have the precise-enough measure units or meter.

5. Practicality

A good indicator should provide the convenience while being used. The important qualities are listed below.

5.1 Availability

A good indicator has to be conveniently used, conveniently keep the information, easily collect the data from checking, counting, and measuring, to be easily noticeable.

5.2 Interpretability

A good indicator should provide the measurement with the minimum point and the maximum point. It has to be easily understood and easy to make the criteria.

In conclusion, the qualities of a good indicator are that it has to directly indicate, has aimed-measuring representativeness or aspect that covers the qualities' important elements, reliable indicate the measuring aimed features, objectively indicate, indicate with minimum errors, indicate without bias, be sensitive to the aimed-measuring quality, be able to show the changes and the differences between analysis units, be conveniently used, conveniently keep the information, and have easy meanings.

A good indicator has to be precise in developing. It can be proved as appeared.

Types of Indicators

Indicators can be divided into many types based on the division's criteria such as creating methods, measurement's meters, or systematic analysis criteria etc. In our issue, we have 7 types and each one includes different kinds of indicators as listed below. **(**Johnstone, 1981: 15-22 Office for Educational Reform. 2545: 21-26 Aeumpon Linjareon.2547: 16-17 **mentioned in Rattana Buason p.204-208)**

1. Based-on-method division including 3 types of indicators

1.1 Representative indicators

It was widely used in the previous period of researching, administration, and planning. This type uses only 1 variable to indicate or reflect the educational system such as the ratio of the educational admission, the national percentage of the product for education payment, and ratio of the educated populations etc. However, this kind of indicators is not recently used since it provides accuracy problem. A single indicator cannot exactly reflect or indicate that thing.

1.2 Disaggreative indicators

This kind of indicators uses the free indicator definition and each one indicates one aspect of the feature that is to be studied. To use these variables to indicate something has to use these grouped minor variables to indicate that thing. Therefore, the analysis and the presentation of this kind of indicators is quite difficult since there are many minor variable. In addition, to define these minor variables has a problem about

defining the variables that are not free or separated. It will create reiteration in indicating a thing.

1.3 Composit indicators

It is a combination of the educational variables to indicate an issue of the educational state. This combination is based on the weight of the true importance of those variables. These indicators will be interpreted in the average. These indicators are widely used recently because of the high level of the accuracy. It also provides the useful information in educational planning, directing, and evaluating.

2. Based on the indicator's value interpreting

It is considered by the indicator's value interpreting the specific educational system, can be divided into 3 types.

2.1 Norm-referenced indicators mean the indicators in the an educational system that is interpreted by being compare with the educational system of the same period of time.

2.2 Self-referenced indicators mean the indiccators in the same educational system that is interpreted by being compared in the different period of time.

2.3 Criterion-referenced indicator means the indicators that are interpreted by being compared with the criteria or the determined attitude goals.

3. Based on the indicators' quality definition

Because quality definition is different, the indicators can be devided into 2 kinds.

3.1 Subjective Indicators

It is the unclearly defined indicators because of the lack of study and knowledge. To define the indicators, therefore, is to define a specific education to directly communictae that topic. It is needed to be careful while using this kind if indicators.

3.2 Objective Indicators

It is an indicator that is already defined and it is usually national, which is about comparing, other countries' educational system following.

4. Based on indicators' value, divided in

4.1 Absolute Indicators the indicators whose value show the true quantity and hvae their own meaning such as schools amount, students or amount etc.

4.2 Relative or Ratio Indicators mean the the indicator whose value is correlated with orther values such as students amount per a teacher or a lecturer. It is

obvoius that these indicators are theabsolute indicators of the 2 correlated things to indicate a specifice feature. For instance, students amonut per ateacher is an indicator that is used to indicate the suitability of the official teacher rate.

5. Based on the Variable that Creates the indicators

This kind can be divided into 3 major kinds and each one can be seperated into minor kinds as listed below.

5.1 Based on Variable Measurment

There are 4 kinds of these indicators 1) Nominal indicators 2) Ordinal indicators 3) Interval indicators and 4) Ratio indicators. Normally, variable measurement indicators that are widely used are class interval indicator, ratio indicator, and sorted out indicator.

5.2 Based on types of vaiable including 1) Stock indicators mean the indicator that indicatea thing's state or quantity(such as educational system) at the specific time 2) Flows indicators mean the indicators that indicate a thing's state or quantity in a dynamic way at a specific time.

5.3 Based on the variable's statistic

The indicators can be separated into 2 kinds including 1) Distribute Indicators mean the indicators that show the distribution statistic such as Distribution coefficient or range. 2) Non-distribute Indicators include the indicators that show the stable statistic such as the average, mean, medain, or percentage etc.

6. Based on system theory

This type on indicator consists of

6.1 Input indicators include the indicators about the resources of a operation such as the educational operation and the indicator is the percentage of the students whose parents are farmers or the percentage of the the school's budget for utilities etc.

6.2 Process indicators are the indicators that indicate the activities or the methods of the process such as the cummunity's participation in the educational management, and the educational conference holding.

6.3 Output indicators are the indicators that show the operation's success, which include the results and the impacts such as high-educational school's percentage of the students' educational success, and the satisfaction of the community and parents toward school.

7. Based on the usage

To use the indicators for the advantages in the operating can be listed in 2 features including using for describing or illustrating the recent state or system of that thing, and using for predicting a thing's phenomenon. If it is the 1st case, it will be called Expressive Indicators. The other one is called Predictive Indicators.

In conclusion, to group the indiccators has no exact criteria. It is based on the propose and the measurment usage pattern.

2) Standard and Indicator Development

Rattana Buason (2550, p.208-218) summarized the indicator development process that it is devided into 3 major steps including 1. the stage of indicator creation 2. the stage of indicator's quality check 3. the stage of text organizing and presenting. Each stepconsist of minor steps including (Johnstone, 1981: 71, Blank, 1993: 65-80. Bottari and Walberg, 1994: 2984-2989. Office for Educational Reform. 2545: 37-52 and Aeumpon Linjareon. 2547: 20-35)

1. The steps of the indicator's creation process include 5 steps as listed below.

1.1 Determine the propose before creating any indicators

The researcher has to know in the beginning that what this indicator is used for and how it will be used. Especially, the educational indicators are usually used in the educational system's state describing, the educational system change's trends illustration, and the educational system comparing and the comparing between educational systems. Using indicators in the different proposes makes the features of the indicator that will be created different too. To illustrate, if an indictor is used to evaluate the national education development plan, it should be the self-referenced indicator. Also, the specific information at the specific time should be provided. If an indicator is used to group the educational system of many countries, it should be the group-referenced indicator that has high neutrality. Each country, therefore, can use it to compare one another.

1.2 Defining an indicator

Defining or giving meanings to an indicator is similar to defining any words in researches. There are generally 3 types as listed below.

1) Theoretical definition

Theoretical defining uses theory and information while the researcher or the indicator's creator does not use personal experience or opinion to define. Theoretical defining begins with using theory and research document to select minor indicator by basing on formula or creation model and creation of following developed indicator.

2) Empirical definition

This kind of definition is similar to the 1st kind. To illustrate, the difinition has to use thoery and research duccument as the basis to define which minor vaiables are used by the indicator and the combination of the variables to be an indicator is the same. The difference is that the weight determining of each variable that is going to be an indicator may use the information empirical analysis. This kind of difinition is widely used.

3) Pragmatic definition

This kind of definition is used when there is a collection of information of minor variables and an indicator, there is a database, or when the sum of the variables that are consisted of these variables are made and combined. It indicates by basing on the indicator's creator's discretion. This definition is not widely used since it has too many weaknesses. However, if it is needed to use this kind of definition, it is better to select minor variables by basing on the checking between variables' relation.

1.3 The variables selection is an important element.In this step, it is needed to begin with obvouis determining of the attributes of the aimed study based on the researches' ducument and related theory. Then, it is when to select all the related variables or the variables that cover all the aimed study's attributes to be the elements or the indocators of that thing. The thing that should be awared of is that selecting many variables that highly have the relation between one another or the variables that measures the same attribute. If the situation happens, do not select more than 1 variable and the one has to be more related with the aimed study. Then, other variables that less related with the aimed study are to be selected. For the better understanding, see the figure 2.6

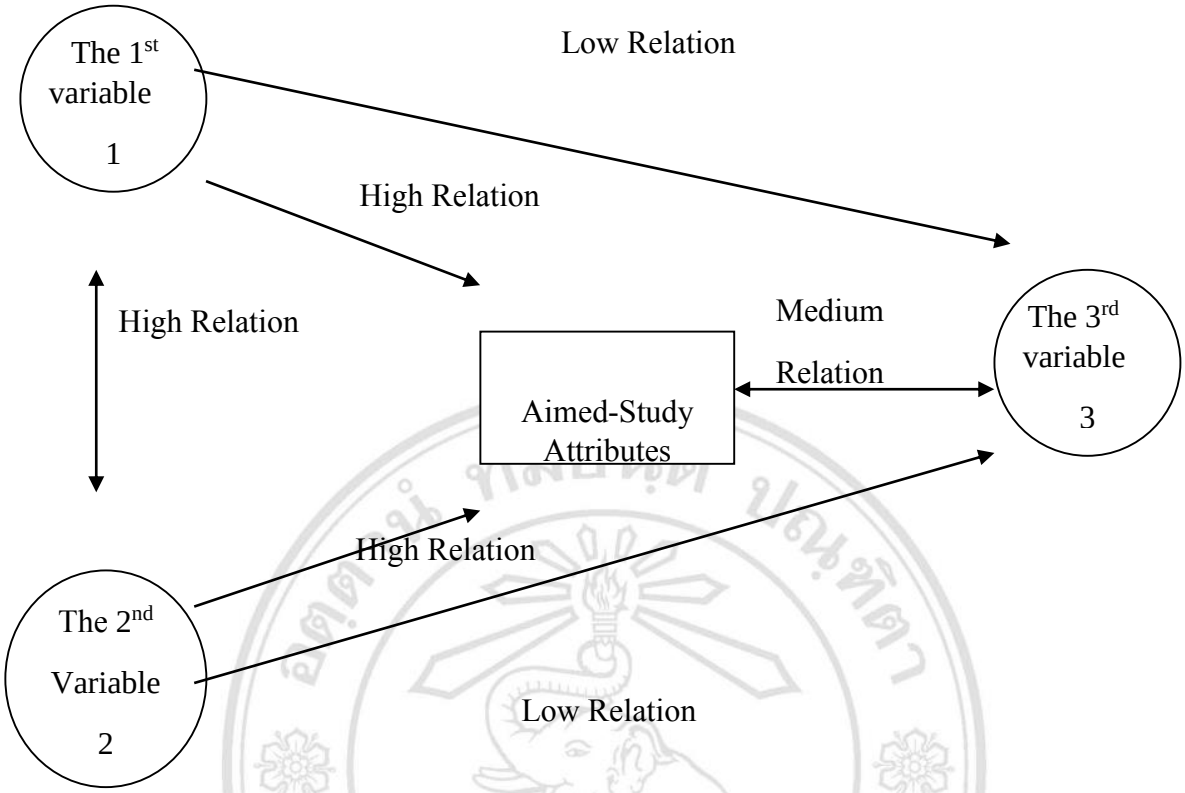


Figure 2.6 The inside relations between 3 variables with the aime-study attributes
Source: Johnstone , 1981 p. 73 metioned in Rattana Buason (2550, p.165)

According to the picture, it can be seen that the 1st and the 2nd variables have both high relation to each other and and high relation to the aimed-study thing. The 1st variable or the 2nd variable, therefore, should be chosen to be made to be the indicator of the aimed-study topic. Then, the 3rd variable, which has low relations to the 1st and the 2nd while having medium relation towards the aimed-study topic, will be chosen to be another indicator. In conclusion, the suitable variables that will be selected to be the indicators are the 1st variable (or the 2nd) and the 3rd variable. There, hence, are 2 suitable variables that are selected to be the indicators. To decide whether to select the 1st one or the 2nd one should be based on the value of the relation between the aimed-study topic (one with the higher value should be selected) or the value of the dislocations (one with the lower value should be selected)

The important cause of selecting the varibale that is highly related with another to be the indicator is that it will save the usage of many variables and lessen the complications of the aimed-study topic interpreting.

1.4 Variables Combination Method Determining

There are 2 methods that are used to combine the variables or the elements to create the indicator include additive and multiplicative. The 2 methods have different details as listed below. (Johnstone, 1981: p. 73-78)

1.4.1 additive algebra combination

This combination can happen when every variable has the same weight of importance, be able to represent one another and do not make the indicating value changed. If the variable V_1 has low value, the variable V_2 (that has high value) can be used instead without making the indicating value changed. For example, the case 1, V_1= 20,V_2 = 20 equals the case 2 when V_1 = 5, V_2 = 35. The indicators that are created by V_1 and V_2 combination will be as

$I = V_1 + V_2$ .....(Johnstone, 1981: 74)

when

I is the indicator

V_1 is the value of the 1st variable

V_2 is the value of the 2nd variable

The additive algebra combination is for comparing more than 2 systems about how many different units of the study exist.

1.4.2 Multiplicative Combination

The important beginning rule of this kind of combination is that the change of a variable is based on another variable while the two variables cannot be the representative of each other. To illustrate, the developed indicator can have high value when all of the variables have high value and each one has to support one another. For example, from the example case in 1.4.1, case 1's indicators equal 400 from $V_1 \cdot V_2(20 \times 20)$. Case 2's indicators equal 175 from $V_1 \cdot V_2(5 \times 35)$. It can be seen that V_1 has low value in case 2, and cannot be represented by V_2 . Multiplicative combination, therefore, will be like this.

$I = V_1 \times V_2$ .....(Johnstone, 1981: 74)

This kind of combination is used when it is needed to compare more than 2 systems to show how many more times of the indicator's value in a system than in another system, or how many percentages.

Because of the diffderences between 2 kinds methods of variables combination, the indicators' development that is to find the average differs in 2 features as shown below.

1) Arithmetic mean has 2 ways of calculating.

Case 1

When the variable has the same weight of the importance, the average of the indicator is from

$$I = \frac{V_1 + V_2 + ...V_n}{n}$$

Case 2

When the variable has the different weight of the importance, the average of the indicator is from

$$I = \frac{W_1 + W_1 + W_3 + V_3 + ...W_n V_n}{\Sigma n}$$

(Johnstone.1981: 75)

When n is variable numbers

Wi is weight of the importance at i

$\sum W_i$ is the amount of the weight of importance of n variables

2) geometric mean has 2 ways of calculating

case 1 When the variable has the same weight of the importance, the average of the indicator is calculated from

$$I = \sqrt[n]{V_1 \cdot V_2 \cdot V_3 ... V_n}$$

Case2 When the variable has the different weight of the importance, the average of the indicator is calculated from

$$I = \sqrt[n]{V_1^{W_1} \cdot V_2^{W_2} \cdot V_3^{W_3} .. V_n^{W_n}}$$

(Johnstone.1981: 75)

The mentioned variables combinations are the raw scores' combination, which will be problematic with the different organizations' comparing.

To solve this problem, (Johnstone. 1981: 82) suggested that the raw score should be changed to be the average scores before using these scores to weigh each variable's elements to create the indicators. The Z-score is widely used.

$$Z = \frac{X - \overline{X}}{S.D}$$

when Z is Z-score

X is raw score

$\overline{X}$ is arithmetic mean

S.D is Standard deviation

Therefore, the additively created indicators in the case that the weight of the variables importance will be

$$I = W_1 Z_1 + W_2 Z_2 + ... W_n Z_n$$

When I is the total indicators of n variables

W_n is the weight of n variable

Z_n is the standard score of N variable

1.5 Determination of the significant weight of variables

We can determine the significant weight of variables in two ways; equal weight and differential weight, which the determination of differential weight can be considered from the significance of the variable. Time taken and relevant cost of the variable can be the criterion to consider or we might use other ways

1.5.1 Making decisions by a group of expert judges which is involved with the study.

On the topic that we wanted to study, we represent the weight of each variable freely, then we find the terminate weight by different methods. For example, by finding the average weight of a variable or finding the percentage of respondents that agrees with the significant weight of each variable from responding the questionnaire or from the agreement of experts.

1.5.2 Measurement effort required: This method is used to find the significant weight of a variable by considering time and cost that must be used for any activity that is involved with that variable. In other words, if a variable uses time and cost more or

less than the other, the significant weight will be more or less than that variable. However, everything depends on the context of what we study.

1.5.3 Empirical data

This method will use statistics to analyze the data to determine the significant weight of each variable. For example, by using factor analysis, multiple regression analysis, discriminant analysis, and canonical correlation analysis. However, Johnston (1981: 36) promotes us to use factor analysis. Johnstone and Sorbom (Uaumporn Lincharoen. 2547: 29) mentioned in Joreskog and Sorbom 1989) suggest using exploratory factor analysis to analyze the method of determining the weight of each variable that was presented, there is no method that is the best or most suitable. However, it depends on many conditions that should be used to consider, including; natural or feature of a variable that will be used. This includes natural or feature of a variable that will be used as an indicator, natural or feature of an indicator that will be developed, period of time in developing an indicator, and the use of indicator for future usage.

2. Steps of verifying quality of indicator

Verifying quality of indicator is assumed to be important in order to create confidence for information users about indicators that are developed to have good characteristics, especially validation of indicator. Moreover, if it is an indicator of education, there should be a 4 quality verification including; firstly, modernization, suitability of using in present and future situations, meaning that the indicator must be usable at all time. Second, it reaches the target use. The different goal usage inevitably needs different features of indicators. For example, if you to set education policies and education scenes, the indicators must be different. Third, it has qualifications that meet the measuring standard. For example, it has accuracy and objective. Lastly, it has a measuring rule that is neutral, not one-sided.

The verification of indicator is to verify about 1. The variable and variable selection whether or not that variable stands in the theory or research documents. The definition of variable is clear and comprehensive in studying or not. 2. The addition of variables use a proper method that is relevant to the agreement or condition of the variables or not. Also, whether it is relevant to the features that we want to study or not. 3. Determination of significant weight of variables in verifying whether the method of

getting each weight of variables are reasonable or not and also relevant to the goal of using the indicator.

3. Steps of managing in context and presenting reports. After verifying the quality of indicators, researchers or the indicator creators must analyze the proper value of indicators to meet the context in order to be used. For example, if it is an educational indicator, you can analyze, distinguish and interpret the meaning of indicators according to the level of education, area of education, school, or distinguish according to the types of educational personnel. Moreover, being able to analyze and interpret in macro level. After that, we will make a report to present the value of indicators to the people involved or people who use indicators so that it can be beneficial in the future.

Techniques of developing indicators and factor analyzing

Rattana Buason (2550, page 118-125) has presented a technique for methods of tracing back in order to receive information to use for developing indicators. The steps of creating and verifying the quality of indicators can be divided into 3 types, including; 1. Qualitative technique 2. Quantitative technique 3. Mixed technique, which is briefly described as;

1. Qualitative technique

Qualitative techniques that are adaptable for developing indicators include;

1.1 Documentary survey: We will survey and synthesize the documents in the steps of defining, distinguishing and selecting the variable for making indicators. The documents that should be used to survey and synthesize are books, text books, or documents about theories. Qualitative synthesis will be used for different concepts that are relevant to the study or the variables that are relevant to the study, moreover, the research of a department or personal research that is relevant to the variable or the aim of study. This is done by determining and distinguishing into issues that will synthesize. Then, we will read the analysis and synthesis according to the issues that are determined. The result of the survey and synthesizing documents will help select a reasonable variable. This will be done by having supporting evidence to help select variables as followed:

1.2 Field study: field study can be used for developing indicators in 2 ways

It can be used for selecting and searching additional variables. Also, it is used for verifying the quality of empirical indicators, which consists the phenomenon of what

we are currently studying. For example, the management of education in a university or a village that has the process of the 1 village, 1 million baht fund project. According to the first example, researchers need to create indicators that are relevant to good management or good governance of a university, while the two example cases need to create indicators relevant to the success of the village fund project. Both example cases are needed for researchers to study in order to understand the whole phenomenon that has happened and relevant to each other whether which indicators appear from the real state under the context of that phenomenon. The result of the study will make searching and selecting variables in a careful and covered way that will be most relevant to the goal of study.

We will verify the quality of indicators by using the method of field study after creating the indicators. Also, we need to make empirical verifications with the phenomenon that we are aimed to study whether how covered can the mentioned indicator can describe the characteristics of the phenomenon. As seen in the previous example case, when the researcher finds a proper indicator for universities or a specific or many villages; depending on the research plan that is used.) The indicator is the framework of the studying and comprehending that phenomenon whether the created indicator can clearly explain about the real phenomenon or not. If the result states that it is not clear enough, it will lead to the adjustment of the next indicator.

1.3 Focus group discussion

Focus group discussion is another technique for qualitative research to keep information about having feelings, giving reasons, making decisions, and behavior of a group of people who react towards different questions that researchers have planned before to make the respondents become natural. If the respondents are only the people who have be chosen by researchers to join the group discussion and answer questions that the researchers have planned (Rattana Buason, 2541: 15) From the mentioned feature of conversation, we can use it to develop the indicator that will be selected as a variable that is relevant in selecting variables to make an indicator for studying. This is done by having the members of the group discussion expressing their thoughts, debating about the issues that are relevant to the study topic. The details of techniques and methods of processing a group discussion can be further studied from the document list of reference at the end of this chapter.

1.4 Criticism and connoisseurship: This technique can be used when we need to verify a variable that will be created as an indicator. Moreover, it can also verify the created indicator by having experts to come and exchange criticisms, along with giving comments to adjust or develop indicators to become more complete.

2. Quantitative technique

2.1 Delphi technique: This technique is used to find answers that are consensus of a group of people on a specific topic which has been selected as experts of that topic. This group of people does not need to face each other, but they have to answer through questionnaires that are made for each study purpose. The result of answering the first questionnaire will be analyzed by statistics methods (median and range between quartile) to show the group's answer and ideas of the expert. After that, we will send the questionnaire together with the result of the research back to each expert so that they can comment on each question again to confirm or change the answer for each group. We will continuously do this until most of the answers of experts are relevant to each other. Normally, we will do it about 2-4 times by consisting about 13 or more experts.

2.2 Factor analysis: Factor analysis is a statistics method to find the similar features of many variables and to find how many types or groups there are. (This will be called factor) However, when there is a similarity of variables, we will decrease the variables by using the factor as representative of the study. For example, variables about income, occupation, debt, owned assets. When factor analysis is done, these variables may stay in the same group, which we might call this as factors of economic. However, apart from using it to analyze for finding factors or decreasing variables, factor analysis may also be used to verify the quality of measuring tools for construct validity.

Nowadays, factor analysis can be divided into 2 major groups according to their analysis, which include; exploratory factor analysis and confirmatory factor analysis. Exploratory analysis is commonly used to study the feature of staying in groups or used for searching the factors of variables when the researcher does not have adequate evidence or theory to determine the precise variable. Confirmatory factor analysis is commonly used to analyze for determining variables by relying on theory or other evidences. According to the technique of factor analysis mentioned above, you can see that we can use it to develop the indicator from the step of creating indicator that is by gathering variables and verifying the quality of empirical indicator. In the case of

gathering variables, exploratory factor analysis or confirmatory factor analysis can both be used, depending on the theory and other documents as basics. However, in the case of verifying the quality of indicator, using exploratory factor analysis would be more suitable. This type of analysis can be used by SPSS for window program to analyze.

2.3 Discriminant analysis: when we want to distinguish variables that are about a feature of a specific thing (for example, features of a person) whether how many groups can distinguished. This is done by using group distinguishing equation which consists of efficient value or distinguishing weight and that variable's measuring value as the group distinguisher. Moreover, the technique used for analyzing is discriminant analysis. According to the features of this type of analysis, you can see that we can use it to find variables for creating indicators that we aim to study. For example, if we want indicators about good management of education or good governance in education management, which can be used to create indicators as the mentioned feature. If we use discriminant analysis, we will get the proper variable for using it as indicators.

1.4 Multiple regression analysis

Multiple regression analysis is a technique which uses statistics methods to search about which primary variable (commonly known as predictable variable) can predict the following variable. Also, which one can give the best prediction by using regression equation that consists of weight prediction value and the measuring value of that variable will be the predicting the following variable. As you can see, the basic concept of multiple regression analysis and discriminant analysis has similar features; finding variables that shows the change of another variable by using equations. However, both methods have different basic assumptions of the information of variable that are used to analyze. Therefore, according to the mentioned feature, we can use multiple regression analysis for selecting variables to create indicators as well. However, we must consider the aspect of information that is the measuring value of that variable to the basic agreement of the analysis by the following method:

3. Mixed technique

Apart from using just qualitative technique or quantitative technique to develop indicators, we can also use both techniques to develop indicators. This can be done by using the qualitative technique as the starter for studying the phenomenon in the field. After that, we will select and define the variable, then measure it and analyze it with

statistics methods to confirm it and create it as indicators. Then, we will verify the quality of indicator from using empirical analysis by researching in the study field that appears the phenomenon that we are studying.

In conclusion, there are many techniques in developing indicators. However, it depends on the aim and context of the research and the suitability of the researcher. For this research, the researcher has chosen the quantitative technique and confirmatory factor analysis to synthesize the standard and indicator. This is due to the standard and indicator has been studied and used in each sector. The standard and indicator in guaranteeing the internal quality for bilingual schools in early childhood education has been synthesized by the following sources; standard and indicator from 10 countries that has the highest score in PISA 2009, including; Finland, Korea, Shanghai, China, Hong Kong China, Singapore, Canada, New Zealand, Japan, Australia, Netherlands. The standard in managing bilingual schools from UNESCO bilingual school and World Class bilingual school consist of 13 standards, 80 indicators.

3) Synthesis of the result of standards and indicators of internal educational quality assurance for Bilingual Schools in Early Childhood Education Level.

Researcher synthesized standards and indicators for Internal educational assurance in Early Childhood Education Level for Bilingual Schools from 10 country with possession of Top score on PISA'2009 including Finland, Korea, Shanghai China, Hong Kong China, Singapore, Canada, New Zealand, Japan, Australia and Netherlands. With UNESCO bilingual school and World Class bilingual school. The synthesis result 13 standards and 80 indicators as followings.

Table 2.3 Synthesis of the result of standards of internal educational quality assurance for Bilingual Schools in Early Childhood Education Level (1)

QA1	Educational program and practice
QA2	Children's health and safety
QA3	Relationships with children
QA4	Child's learning and development
QA5	Staffing arrangements
QA6	Physical environment
QA7	Educational Service
QA8	Self-assessment and quality improvement
QA9	Collaborative partnerships with families and communities
QA10	Leadership and service management
QA11	Fostering a positive learning climate
QA12	Educational Resource
QA13	Research monitoring

Table 2.4 Synthesis of the result of standards of internal educational quality assurance for Bilingual Schools in Early Childhood Education Level (2)

Standards	UNESCO	Australian	Singapore	Canada	Netherland	Finland	Japan	Korea	Shianghai	Hong kong	New Zealand	Wold class
1. Educational program and practice	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
2. Children's health and safety	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
3. Relationships with children	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
4. Child's learning and development	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5. Staffing arrangements and quality of instruction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Physical environment	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
7. Educational Service	✓	✓	✓	✓				✓	✓	✓		✓
8. Self-assessment and quality improvement		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9. Collaborative partnerships with families and communities and learning network	✓	✓	✓									✓
10. Leadership and service management		✓	✓									✓
11. Fostering a positive learning climate		✓	✓	✓					✓			✓
12. Educational Resource	✓	✓	✓	✓		✓	✓	✓		✓	✓	
13. Research monitoring		✓		✓		✓	✓				✓	

Table 2.5 Synthesis of the result of indicators of internal educational quality assurance for Bilingual Schools in Early Childhood Education Level

No.	Indicators
1.	An approved learning framework informs the development of a curriculum that enhances each child's learning and development.
2.	Curriculum decision making contributes to each child's learning and development outcomes in relation to their identity, connection with community, wellbeing, confidence as learners and effectiveness as communicators.:
3.	Each child's current knowledge, ideas, culture, abilities and interests are the foundation of the program.
4.	The program, including routines, is organised in ways that maximise opportunities for each child's learning.
5.	The documentation about each child's program and progress is available to families.
6.	Every child is supported to participate in the program.
7.	Each child's agency is promoted, enabling them to make choices and decisions and influence events and their world.
8.	Educators and co-ordinators are focused, active and reflective in designing and delivering the program for each child.
9.	Each child's learning and development is assessed as part of an ongoing cycle of planning, documenting and evaluation.
10.	Educators respond to children's ideas and play and use intentional teaching to scaffold and extend each child's learning.
11.	Critical reflection on children's learning and development, both as individuals and in groups, is regularly used to implement the program.
12.	Each child is trained to get educational progress
13.	Each child's health is promoted.
14.	Each child's health needs are supported.
15.	Each child's comfort is provided for and there are appropriate opportunities to meet each child's need for sleep, rest and relaxation.

Table 2.5 (Continued)

No.	Indicators
16.	Effective hygiene practices are promoted and implemented.
17.	Steps are taken to control the spread of infectious diseases and to manage injuries and illness, in accordance with 56 racticed 56 guidelines.
18.	Healthy eating and physical activity are embedded in the program for children.
19.	Healthy eating is promoted and food and drinks provided by the service are nutritious and appropriate for each child.
20.	Physical activity is promoted through planned and spontaneous experiences and is appropriate for each child.
21.	Each child is protected.
22.	Children are adequately supervised at all times.
23.	Every reasonable precaution is taken to protect children from harm and any hazard likely to cause injury.
24.	Plans to effectively manage incidents and emergencies are developed in consultation with relevant authorities, 56racticed and implemented.
25.	Educators, co-ordinators and staff members are aware of their roles and responsibilities to respond to every child at risk of abuse or neglect.
26.	The design and location of the premises is appropriate for the operation of a service.
27.	Outdoor and indoor spaces, buildings, furniture, equipment, facilities and resources are suitable for their purpose.
28.	Premises, furniture and equipment are safe, clean and well maintained.
29.	Facilities are designed or adapted to ensure access and participation by every child in the service and to allow flexible use, and interaction between indoor and outdoor space.
30.	The environment is inclusive, promotes competence, independent exploration and learning through play.
31.	Outdoor and indoor spaces are designed and organized to engage every child in quality experiences in both built and natural environments.

Table 2.5 (Continued)

No.	Indicators
32.	Resources, materials and equipment are sufficient in number, organized in ways that ensure appropriate and effective implementation of the program and allow for multiple uses.
33.	Fostering a positive learning climate
34.	The service takes an active role in caring for its environment and contributes to a sustainable future.
35.	Sustainable practices are embedded in service operations.
36.	Children are supported to become environmentally responsible and show respect for the environment.
37.	Staffing arrangements and provision to ensure a suitable qualified and experience education to enhance children's learning and development and ensure their safety and wellbeing.
38.	Educator-to-child ratios and qualification requirements are maintained at all times.
39.	Educators, co-ordinators and staff members are respectful and ethical.
40.	Professional standards guide practice, interactions and relationships.
41.	Educators, co-ordinators and staff members work collaboratively and affirm, challenge, support and learn from each other to further develop their skills, to improve practice and relationships.
42.	Interactions convey mutual respect, equity and recognition of each other's strengths and skills.
43.	Staff are trained in multicultural
44.	Respectful, equitable relationships and respectful in multicultural are developed and maintained with each child.
45.	Interactions with each child are warm, responsive and build trusting relationships.
46.	Every child is able to engage with educators in meaningful, open interactions that support the acquisition of skills for life and learning.
47.	Each child is supported to feel secure, confident and included.

Table 2.5 (Continued)

No.	Indicators
48.	Each child is supported to build and maintain sensitive and responsive relationships with other children and adults.
49.	Each child is supported to work with, learn from and help others through collaborative learning opportunities.
50.	Each child is supported to manage their own behaviour, respond appropriately to the behaviour of others and communicate effectively to resolve conflicts.
51.	The dignity and rights of every child are maintained at all times.
52.	Respectful supportive relationships with families are developed and maintained.
53.	There is an effective enrolment and orientation process for families.
54.	Families have opportunities to be involved in the service and contribute to service decisions.
55.	Current information about the service is available to families.
56.	Families are supported in their parenting role and their values and beliefs about child rearing are respected.
57.	The expertise of families is recognised and they share in decision making about their child's learning and wellbeing.
58.	Current information is available to families about community services and resources to support parenting and family wellbeing.
59.	The service collaborates with other organizations and service providers to enhance children's learning and wellbeing.
60.	Links with relevant community and support agencies are established and maintained.
61.	Continuity of learning and transitions for each child are supported by sharing relevant information and clarifying responsibilities.
62.	Access to inclusion and support assistance and education resource is facilitated.
63.	The service builds relationships and engages with their local community to be learning network.

Table 2.5 (Continued)

No.	Indicators
64.	Effective leadership promotes a positive organizational culture and builds a professional learning community.
65.	Appropriate governance arrangements are in place to manage the service.
66.	The induction of educators, co-ordinators and staff members is comprehensive.
67.	Every effort is made to promote continuity of educators and co-ordinators at the service.
68.	Provision is made to ensure a suitably qualified and experienced educator or co-ordinator leads the development of the curriculum and ensures the establishment of clear goals and expectations for teaching and learning.
70.	Adults working with children and those engaged in management of the service or residing on the premises are fit and proper.
71.	A statement of philosophy is developed and guides all aspects of the service's operations.
72.	The performance of educators, co-ordinators and staff members is evaluated and individual development plans are in place to support performance improvement.
73.	An effective self-assessment and quality improvement process is in place.
74.	Administrative systems enable the effective management of a quality service.
75.	Records and information are stored appropriately to ensure confidentiality, are available from the service and are maintained in accordance with legislative requirements.
76.	Administrative systems are established and maintained to ensure the effective operation of the service.
77.	The Regulatory Authority is notified of any relevant changes to the operation of the service, of serious incidents and any complaints which allege a breach of legislation.
78.	Processes are in place to ensure that all grievances and complaints are addressed, investigated fairly and documented in a timely manner.

Table 2.5 (Continued)

No.	Indicators
79.	The trying to build learning management
80.	Research monitoring and a stable framework and long-term agenda for research and evaluation.
81.	Self-assessment and quality improvement

2.2 Research and developing evaluation contexts

2.2.1 Definition of research and development

Rattana Buason (2552) has defined that it is the development of innovation (or sometimes called product) by using the process of research as a tool in developing each step. However, the important aim of research and development is to get the innovation (or product) as a prototype to solve real problems. Research and development consist of 5 important steps including; first step, analyzing, synthesizing, and observing present situation, problem or demand. The second step is, designing, creating and evaluating innovation (or product.) The third step is, testing the innovation (product.) The forth step is, evaluating, and adjusting innovation (product.) The fifth step is, publicizing innovation (product)

Somsak Phuwipadawat (2554) has defined that it is a research that aims to apply the development to have efficient products that can be used in schools. R&D does not aim to test theories or determine theories, but to develop to have the most efficient result that can be used in schools. Some results from R&D include; materials for using to training teachers, materials for learning, sets of aim of workshops, media for teaching, and managing system of teaching. The effort of R&D focuses on the aim of each person and the time used for completeness. Also, the result is developed to be related to specific demand. Although this kind of research requires a lot of money since it can be developed several times and steps, the result will have good quality and relevant to the study.

Narin Sungraksa (2555) has defined that it is the process of education, study and inventing. This aims for the findings of new knowledge and techniques that are reasonable and systematic. Also, it aims to change and adjust the findings to become better and better.

To conclude, research and development is an educational process that searches information to find new innovations for solving and developing many things. It has a systematic process and it tests the created innovation to develop more and it may develop several times so that it can have the best quality innovation.

Steps of research and development

Many people has presented the cycle of Research and Development or R&D in many models. Rattana Buason (2552) has presented that the steps of research and development consists of 5 major steps including; 1. Analyzing, synthesizing, and observing present situation, problems or demand 2. Designing, creating and evaluating innovation (or product) 3. Test ing the innovation (product) 4. Evaluating and adjusting innovation (product) 5. Publi cizing innovation (product) as seen in figure 2.7

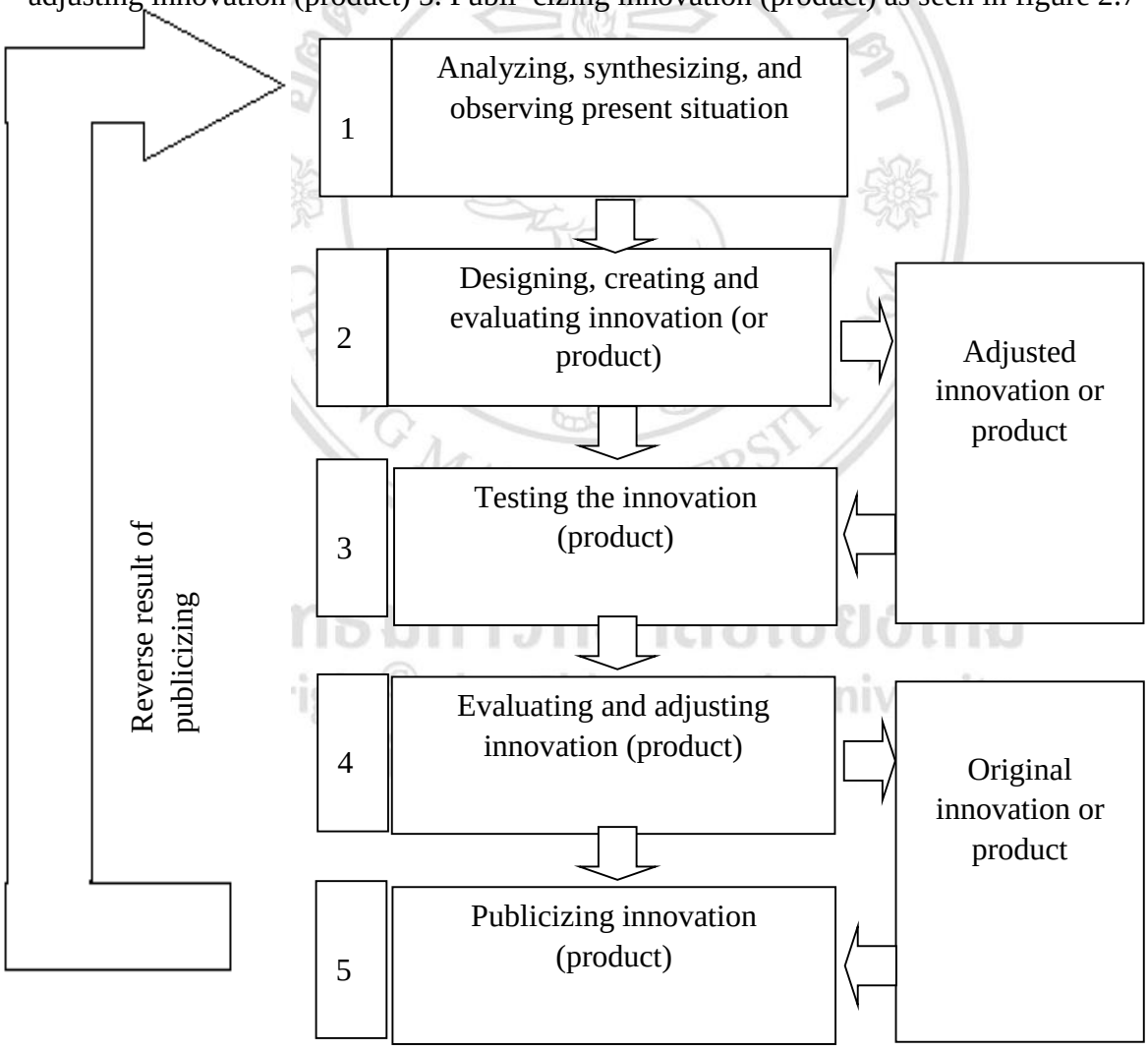


Figure 2.7 Steps of Research and Development

Source: Rattana Buason (2552, page 14)

The cycle of Research and Development “The Borg Model” claimed by Danai Thienput, 2554 consists of 10 steps

1. Research and Data Gathering: revising literature, observing in classrooms, and preparing reports

2. Planning: defining tasks and goals, determining levels of subjects and testing possibilities in small scales.

3. Developing preliminary form of product: the third step of the model is the preparation of teaching methods and learning context, manuals and materials for evaluation.

4. Preliminary field test: Researchers do research R&D in 1-3 schools. They use 6-12 small group examples, collecting data by using questionnaires, observations, and interviews.

5. Main product review: reviewing main products of this step from suggestions in the result that is tested from field studies.

6. Main field test: researchers set up personal research within 5-15 schools, using 30-100 teachers to collect before and after quantitative information, teachers’ work, recording and comparing results with goals.

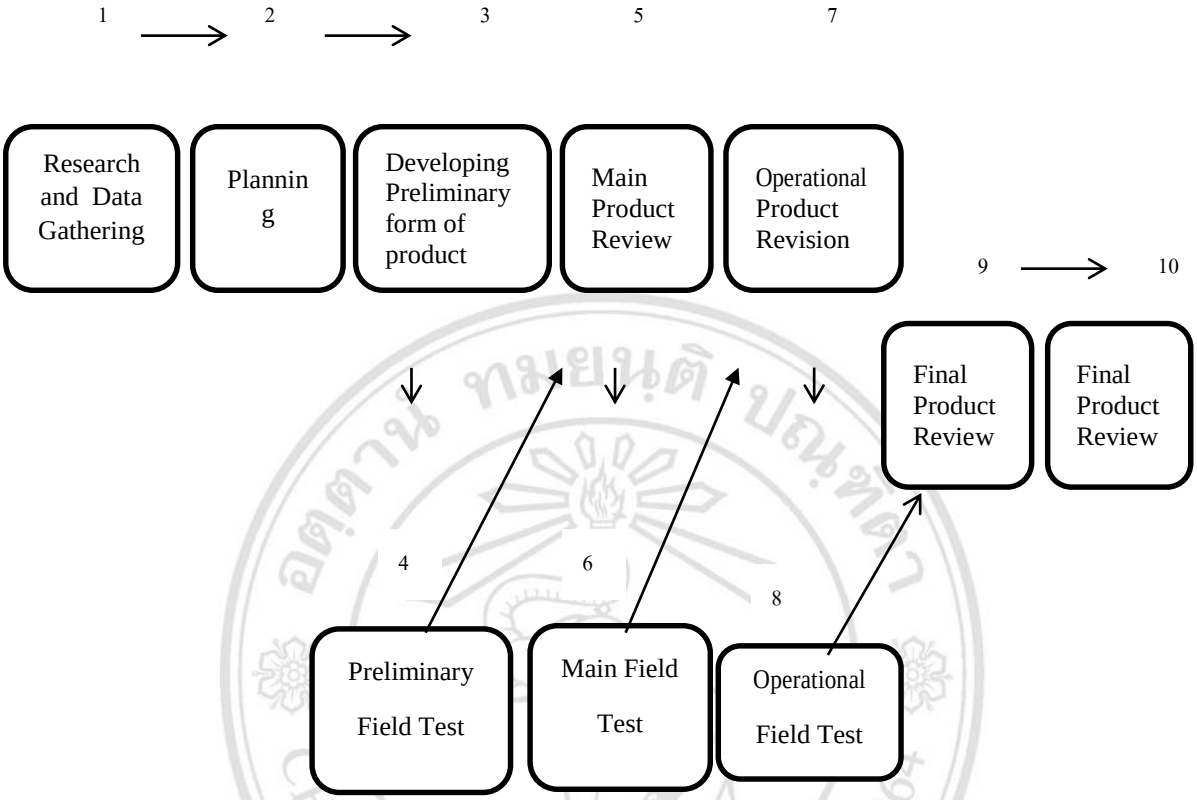
7. Operational product test: this is the product revision from suggestions of the main test result from field studies.

8. Operational field test: researchers do this in 10-30 schools, using 40-200 teachers, collecting data and analyzing interviews, observing and having questionnaires.

9. Final product revision: this is the product revision from the suggestions from result, also the test of field workshop.

10. Dissemination and distribution: the final step of research, researchers report in the profession meeting, in articles, contact publishers, and control the quality.

R&D Cycle: The Major Steps in the BORG Model Development Cycle



Figture 2.8 The cycle of research and development (R&D Cycle of Borg, claimed by Danai Thienput, 2554)

The cycle of research and development or R&D by Rungrod Kaewurai consists a total of 10 steps

1. To determine products and collect information of educational products, we must determine (1) general feature (2) detail of use and (3) aim of use by having 4 standards in determining educational products that will do research on and develop

1.1 Whether it meets the demand

1.2 Whether it has enough academic progress to develop determined products

1.3 Whether the current staffs have needed tasks, knowledge and experience for the research and development

1.4 Whether the product can be developed within the appropriate time

2. Planning research and development consists of;

2.1 setting aims of using the product

2.2 estimating costs

2.3 setting manpower

2.4 Setting period of time to study possibilities

2.5 Considering the result of research and development is the step that researchers can predict whether this research will be possible or succeed within the planned time or not

3. The development of steps in this production part is about designing and making educational products. For example, if it is a short period of workshop of research and development project, we have to prepare materials, manuals for trainers that are relevant to the set goals.

4. Experimenting or testing the basic product: In this step, we will take the product prepared from step 3 to test to prove the basic quality of the product. This is done within 1-3 schools, using small example groups of 6-12 people, evaluating the result by questionnaires, observing, and interview. Then, we will collect all the information to analyze.

5. Taking the information and result of experimenting to adjust the product for the first time. In this step, we will take the information and result of experimenting from step 4 to adjust to product in step 1.

6. Experimenting or testing product for the second time. In this step, we will take the product that has been adjusted to test the quality of the product according to the aim by using about 5-15 schools, 30-100 group examples to evaluate in a quantitative way by giving pre-tests and post-tests. We will compare the result to the aim of using the product. Controlling group can be set up if needed.

7. Taking information and result of experiment to adjust in product for the second time. In this step, we will take the information and result of experiment from the evaluation to adjust in the product for the second time.

8. Experimenting or testing product for the third time. In this step, we will take the product that has been adjusted to test the quality of the product according to the aim. This is done by using about 10-30 schools, 40-200 group examples to evaluate by doing questionnaires, observing, and interviewing. Then, we will collect information to analyze.

9. Taking information and result of experiment to adjust in products for the third time. In this step, we will take information and result of experiment that we have to adjust and publicize.

10. Publicizing: we will present about the result of research and development of product in the academic seminar or profession to publicize in academic journals. Also, we will contact educational departments to make educational products and publicize in different schools or contact companies to manufacture these products.

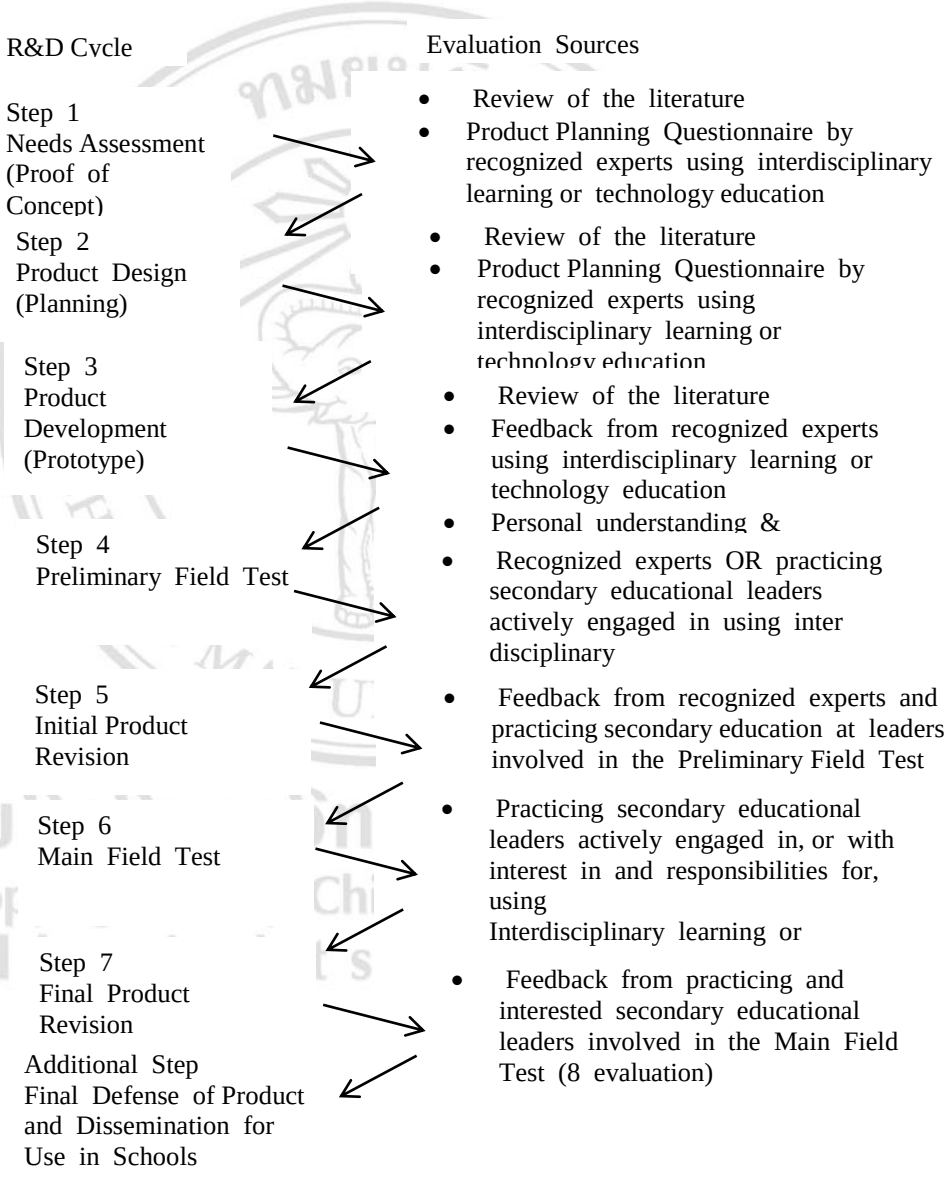


Figure 2.9 The cycle of research and development of innovation (R&D cycle by Rungrod Kaewurai, 2554)

Narin Sungraksa (2555) presented a process of how to do research in class which is divided in to 5 steps as follows:

First step: Research (R1) ; The study of problems and needs of stakeholders, for instance ,executives, teachers, students, the basic education commission and parents.

Second step: Development (D1) ; Researchers must determine methods to solve problems, the following methods are called “innovation”. Furthermore, tools used for collecting data are also created to prove that the academic studies are reliable.

Third step: Research (R2) ; The methods or innovation are used to apply.

Fourth step: Development (D2) ; In this step, the evaluation of applied methods or innovation in the third step takes place.

Fifth step: Movements (M) ; The final proof of the innovation which will lead to the conclusion of research and the report is written.

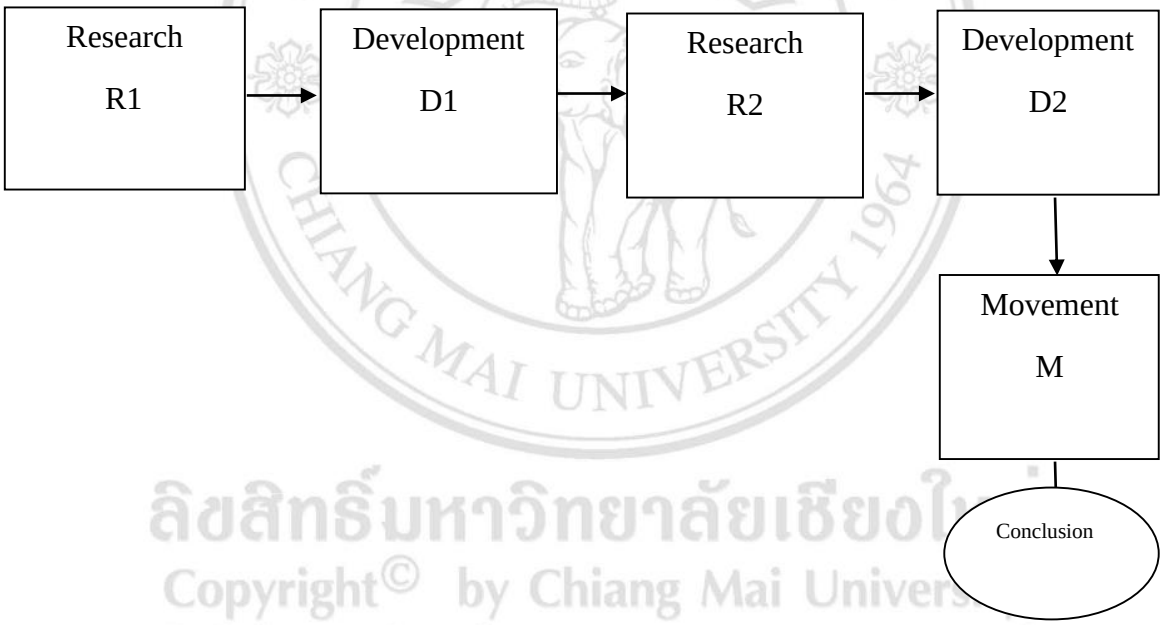


Figure 2.10 The step of classroom research by Research and development concept

We can conclude that the cycle of Research and Development (R&D) is the study process searching for innovation which is used to develop the quality of education rather than searching for knowledge. This might require repetition of the development, in order to get the best innovation for developing the quality of education. According to the study of overall concepts, the researcher has applied knowledge on developing the quality assurance in early childhood education within a bilingual school. This includes the following procedures;

First step: Study the problems, problems in researching field means answers to any doubts that we want to find out for Research and Development of education.

Second step: Create and develop innovation.

Third step: Innovation are tested for the quality and improved for the highest efficiency and effectiveness. This step is also called "Try out"

Fourth step: Evaluation takes place after innovation were tested and improved. We should evaluate the result after utilizing innovation, for instance, satisfaction and opinions.

Fifth step: Disseminate the research results. This is the final step after the evaluation. We have to conclude the discussion, write a report and disseminate research to public for the better education as a consequence.

2.2.3 Concepts and process of improving models

According to the study of definition of model, there are people who define model as follows;

Sirichai Kanchanawasee (2550, page 46) said that model is divided into three types.

1) Descriptive model: This type of model is represented by using description to indicate concepts, principles or variables and has explanation for any phenomenon indicating those concepts, principles or variables.

2) Illustrated model: This type of model is represented by using pictures or symbols to show concepts, principles or variables. We also draw lines to show the relations between those concepts, principles or variables as well.

3) Mathematical model: This type of model is represented by using symbols to show concepts, principles or variables. We also use mathematical functions to show relations between those concepts and principles as well.

Rattana Buason (2550, page 25) said that model is a duplicate of the theory of evaluation which shows the systematic relations between parts or things that are related to the evaluation. Thus, the model of evaluation is not the complete detail of the evaluation but the model will help us understanding the evaluation systematically.

Narin Sungraksa (2555, page 52) said that model is an outline of things we want to study which shows structure of thoughts, compositions and relations of those compositions. It is a short imitation of the relations or facts of a phenomenon that

occurs. It shortens the time and makes it appropriate for us to understand the mentioned phenomenon more easily.

In conclusion, the model of evaluation means structure of relations between concepts, principles and the process of evaluation which will become our guideline for the evaluation.

The process of developing models

The development of models is one of the Research and Development process which is used in a research for creating products or new processes. It is a research study searching for ways to improve the quality of education cogently, create innovation or models which will then be tested in the fieldwork and develop those innovation or models into complete ones. These processes will be repeated until we get the information which indicates that those innovation or models has achieved the behavioral objective.

Creating models

Keeves, P.John(1888, reference: Narin Sungraksa) said that creating models is the determination of concepts which are systematically related to each other to show what the models represent, how they represent, what benefit we will get and what phenomenon the things we get can explain which will consequently lead to new discovery. We can summarize all procedures of creating models by this diagram.

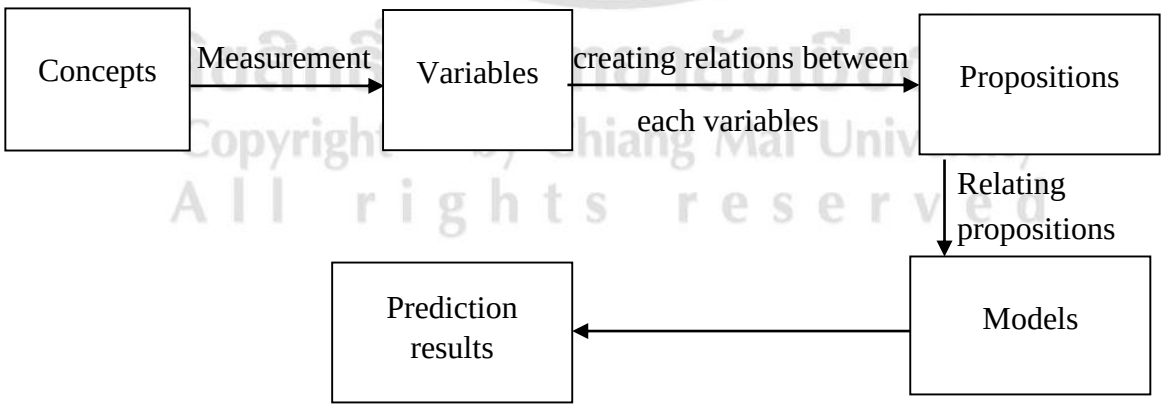


Figure 2.11 The step to construct the model

2.2.4 The result of the synthesis of the evaluation model compositions

The result of the synthesis of the model compositions from 45 research about creating the model evaluation, finding out that the main compositions of the evaluation model are;

1) The evaluation objectives: For the development and for value judging.

2) The evaluation roles: The role in evaluating the conclusion and the progress.

3) The things involved in the evaluation: Compositions, indicators and contents.

4) The evaluators: People who are involved in the evaluation must be specifically qualified for each job.

5) The evaluation procedures: Consist of 3 steps as follows;

5.1 The preparation for each aspect (places, environment and personnel), understanding those who are involved in the evaluation, the creation and the evaluation plan.

5.2 Progressing the evaluation which consists of the evaluation methods, tools, standard and period.

5.3 Summarizing and reporting the evaluation which consists of the overview summary and each issue or individuals.

6) The information or feedback

7) The improvement and development or the value judging

Finding out that the top three synthesized research compositions which has determined the creation of the evaluation model are the composition in the aspect of things involved in the evaluation with the amount of 38 research which is calculated as 84.44% , the composition in the aspect of the evaluation standard with the amount of 28 research which is calculated as 62.22% and the composition in the aspect of the evaluation objectives with the amount of 27 research which is calculated as 60.00%.

Summarizing from the concepts and the result of the synthesis of the compositions for the development of the evaluation model, the researcher has applied the mentioned concepts as the standard for developing the internal quality assurance which uses the evaluation concept as the standard. This has every 7 compositions as mentioned above.

5. The evaluation model and the result of the synthesis of the evaluation model quality

The standards that are used in evaluating the program or the developed models, they are also used to determine the quality of those program or the models related to education. These standards are developed by the national education standards and quality assessment commission which has Staffer beam as the president. The commission determines 4 aspects of the consideration standards (reference: Boonsong Nilkaew 2542, page 42) as follows;

The standard in the aspect of the utilization

The standard in the aspect of the utilization aims to assure that the models will provide information which can respond to the needs of the utilizers. This includes the following details;

1. Indicating the stakeholders: The program must indicate people who are involved or who receive the evaluation result.

2. The reliability of the evaluators: Those who use the evaluation program must be trustworthy and have the ability to use the evaluation form so that the evaluation becomes reliable and acceptable.

3. The boundary determination of information and information selecting: We should gather information that covers and is relevant to the questions from the evaluation program. The information should respond to needs and interests of the target group and the stakeholders.

4. The value indicating: We should indicate perspectives, the evaluating methods and explain the reasons that are used in interpreting information we get. The interpretation must be written carefully so that we can use it as the standard to judge the value clearly.

5. Reporting the result clearly: Reporting the evaluation result must be written clearly. This includes from starting using the program, studying the context, the evaluation objectives, the methods and the evaluation discovery so that we can represent the essential information and understand it easily.

6. Reporting and disseminating the result in time: The discovery and the evaluation report should be disseminated to the target group for the utilizing within the due date.

7. The impact from the evaluation: We should have plan, guideline for the utilization and the report which is used to help the stakeholders for the evaluation. This will increase the utilization of the evaluation result.

The standard in the aspect of the possibility

The standard in the aspect of the possibility aims to assure that the evaluation program is cautious, economical and related to the reality.

1. The determined methods can really be used to apply: The evaluation methods should not be too complicated to use.

2. Being possible in the policy level: The evaluation program must be planned and used with the consideration of the differences between the variety of groups for the unity to accomplish the evaluation and for decreasing the limitation of the program usage or the inappropriate usage.

3. Worth the price: the evaluation must be efficient, worthy and the process of getting information must be valuable.

The standard in the aspect of the preciseness

The standard in the aspect of the preciseness must be constant and aims to assure that the evaluation will lead to the methods which give clear information that distinguish errors or advantages of the created program.

1. The report document of the program: The evaluation program must be explained and reported precisely and clearly.

2. The context analyzing: The usage of the program in each context should be tested adequately in details.

3. The explanation of the objectives and methods: The objectives and methods of the evaluation must be tested, monitored and explained adequately in details for information to be able to prove and evaluate.

4. The explanation of the source of information: The source of information which is used in the evaluation program must be explained adequately in details for the correct evaluation,

5. Precise information: Gathered information must be selected and used properly to ensure that the interpretation will lead to the cogent utilization.

6. Reliable information: Gathered information must be selected and used properly to ensure that the interpretation will lead to the reliability and be constant.

7. Managing information: Gathered information includes the process and report. It should be analyzed systematically and revised for errors.

The standard in the aspect of the correctness

The standard in the aspect of the correctness, we must be sure that the evaluation is proceeding morally.

The result of the synthesis of the model quality evaluation

The result of the research synthesis about creating the evaluation model that was published between 2527-2554 B.E. with the amount of 45 research, finding out that evaluating the evaluation model quality can be classified into the following main issues; the consideration by searching for the evaluation model efficiency and effectiveness, the relevance between the evaluation model and the empirical information, the examination on the relations of the evaluation results from different sources, the consideration of the relevance of the opinions about the evaluation model by comparing to the determined standard and evaluating the evaluation model quality in the aspects of the possibility, appropriateness, correctness, utility, fairness and coverage which has both pre-evaluation and post-evaluation on using the evaluation model. After the researcher has classified each issue, the researcher gives priority to the following 4 issues; the propriety, feasibility, accuracy and utility respectively. Therefore, the researcher has proceeded the evaluation of the quality assurance in early childhood education in the bilingual school according to Stufflebeam's concept which aims to evaluate models in 4 standard aspects including the propriety, feasibility, accuracy and utility.

2.2.5 The development of the data evaluation supporting program by the models and the evaluation manual.

The system development life cycle; every information system has the same life cycle from birth until death. This cycle is the process which is arranged in order from the beginning until it is completed. It is the usable system which the analyst must know what and how to do in each step. There are 7 procedures of developing the system (Aumpai Prasertsakul, 2537) as follows;

1. Problem recognition
2. Feasibility study
3. Analysis
4. Designs

5. Construction

6. Conversion

7. Maintenance

The system development life cycle that the researcher used to develop the program and manual consists of 7 procedures which are 1) Recognizing the problem(Realizing that there is the problem in the system, collecting data) 2) Studying the feasibility(Estimating the expenses, comparing for the decision in changing the system) 3) Analyzing(Studying the old system, determining the needs of the system, writing the diagram and create the testing system) 4) Creating(Creating input, output, files and database) 5) Developing(Writing the program, testing the program and creating manuals) 6) Using to apply in reality(Inputting information and starting to use the new system) 7) Maintaining (Fixing the problems in the program, documents and manuals). For this research, the researcher will proceed the development of the program with 5 procedures which the first and second steps are skipped because the developed program aims to use in supporting the evaluation of the model which is new innovation.

2.3 The bilingual school

2.3.1 The background of the bilingual school

The bilingual school is the school that teaches according to the basic education curriculum 2554 B.E. and uses English in classes to develop the potential in the aspects of knowledge, capability and language skills of the students. Moreover, the school has to consider the basic language skills of the students before teaching, mention about morals and ethic in classes and integrate Thai with the international traditions. The school has 2 patterns of teaching which are English program (EP) and Mini English program (MEP). The differences between these two programs are that EP uses English to teach in every subjects, except for Thai and Social studies (For the topics that are related to Thai traditions , Thai laws and Thai cultures) and MEP teaches not more than 50% of the entire teaching hours per week**.** However, the school can collect the additional tuition fee from the normal school. Basically, the researcher will choose the primary and secondary schools in the area that English is needed for the communication as follows (Bureau of educational innovation development, 2555, http://www.moe.go.th/5TypeSchool/school_eng.htm)

2.3.2 The objectives and the patterns of teaching in the bilingual school in early childhood education

The quantitative and qualitative objectives

1. The quantitative objective: The schools which belong to the department of general education accept not more than 30 students for each class, the schools which belong to the office of the national primary education accept not more than 35 students for each class that is allowed to teach.

2. The quality objective: improve the English communication skills of the students and for the students to get used to English.

The patterns and standards of the bilingual school

1. The English program schools are the schools that have the preparedness and 1 English teacher for each class according to the standards.

2. The mini English program schools

2.1 Every classes that are included in the bilingual school project must have both Thai and English teachers as teaching team.

2.2 The tuition fee collection from the students in the project must not be more than the half of EP which EP can collect not more than 35,000 baht for each student in each semester. Thus, the MEP can collect not more than 17,500 in each semester.

2.3 Having buildings which have readiness and having adequate classes which will be used to proceed the project.

The support from the ministry of education

1. Establishing the recruitment center (Bureau of international cooperation, the ministry of education, 2537) including both Thai teachers and foreign teachers.

2. The schools hire both Thai and foreign teachers.

3. Recruiting foreign teachers by the coordination of the embassy of that country and the language institute in each province.

4. Improving the regulation of licensing of work permit to become one stop service.

5. Instructing the teachers with the help of the British council and Chulalongkorn university, instructing teachers that are involved in the EP project for

them to be qualified with the help of Suandusit Rajabhat university and Chulalorngkorn university according to the command of the ministry of education(1065/2554).

6. Creating media and text books with the help of the committee of the center. Department of Curriculum and Instruction Development and The institute for the Promotion of Teaching Science and Technology translate some text books into English version such as science and mathematics.

7. E-learning by providing media and text books which are ordered from the internet.

8. Monitoring and evaluating which include of 2 levels as follows;

8.1 Researching for information that is used to proceed the entire work, predicting that there is guideline to proceed the management, evaluate the quality of the schools and students and create standards and indicators.

8.2 Presenting the result of the research for the summary of the monitored evaluation

9. Providing quota to the children in needs according to the command of the ministry of education (1064/2544). The schools will select the students which have the ability that meet the standard and not collecting any additional fee at least 3% of the amount of the students in the project.

2.3.3 The quality assurance within the bilingual schools nowadays

The quality assurance of the bilingual schools includes the rules, process and patterns of actions like the normal schools do. The result of the synthesis of the research about the bilingual school which is published and disseminated between 2546-2553 with the amount of 53 books. According to the ThaiLIS thesis database (Thai digital collection), there are no direct research about the quality assurance within the bilingual schools. Nevertheless, most research about the bilingual schools aim to study mainly about the nowadays operation condition and factors supporting the marketing needs which according to the synthesis of the study result, finding out that the operation condition of the bilingual schools in the aspect of the education quality assurance nowadays still has several problems as follows; Education which emphasizes the students and the evaluation of education. The main causes of these problems are lacking of qualified foreign teachers that meet the standard which is determined by the ministry of education and teachers who truly understand the curriculum. The result of

the synthesis of the suggestions from research indicates that there should be appropriate patterns in the evaluation of the bilingual education quality, the reflection of the distinctive points and weak points to meet the same standards, the regular examination from the center and the development of the personnel, in order to support the project adequately and appropriately from government and schools. The study of the bilingual schools quality assurance condition by Yaowatiwa Namkun (2555) has the objective to study the problems within the bilingual school which is a qualitative research. The samples that are used in the study are the principals of the project of the bilingual schools who have been operating for at least 10 years for 4 schools. The research tools are the structural interviewing forms and analyzing information by frequency distribution and content analysis. The study finds out that every bilingual schools are encountering troubles about directing, monitoring and evaluating the project, particularly for lacking of the standards and indicators which are appropriate to use in the evaluation of the operation result of the bilingual schools which have different contexts and objectives from the normal curriculum even though they are from the same basic education curriculum.

2.3.4 The result of the synthesis of the research about the bilingual school education

The researcher has synthesized research about the bilingual school education in Thailand with the amount of 53 books. These are the discovery;

1) The contextual aspect; the result of the synthesis of the context of the bilingual school: finding out that there are 2 patterns of the structure of the work which are 1.1) the departmental structure which the EP curriculum project has its own management structure and 1.2) The management structure is not separated from the normal curriculum because the students are the majority of students in the school. For the operation, there are both Thai and foreign teachers in the project, creating the contract annually, including welfare in the single rated wage and having well prepared buildings and tools. Using only English for education in between 4-8 subjects. The wage has many rates depending on the nationality. There is no welfare while there is the project evaluation by the students and their parents every year.

2) The curriculum evaluative aspect; The result of the synthesis of the curriculum evaluation of the bilingual school: finding out that the education curriculum evaluation

of the bilingual school has the pattern in evaluating 4 aspects which are the contexts, importing factors, process and products. The overall image of the curriculum evaluation is very good to excellent.

3) The school management aspect; The result of the synthesis of the management pattern of the bilingual school: finding out that the bilingual schools have the big difference in values and cultures of the personnel. Thus, the personnel development should be proceeded individually rather than the entire group and should provide knowledge as well as constantly monitor the tutoring of the foreign teachers which emphasizes the students as the center.

4) The tutorial aspect; The result of the synthesis of the tutoring pattern of the bilingual school: finding out that the English tutoring pattern of the bilingual school is excellent, believing in tutoring which emphasizes the students and having the integration in tutoring. The principle of tutoring is for the communication and the objective is the students can use the language to communicate in daily life. The teachers proceed tutoring by using the 3P's principle which are the presentation, practice and production. This includes using English in teaching, emphasizing the several patterns of the practice and evaluating the result of the development of the products by students. The academic management has the obvious action plan. The school curriculum determines that the students in each grade should learn 3 subjects in English. There are regular classes with 34-37 students for each class. Furthermore, the teachers are native speakers and the schools support the creation of instructional documents as well as additional teaching course and providing good English class for the students to be able to use English fluently and be assertive.

5) The guideline for the development; The result of the synthesis of the guideline for the education operation development according to the bilingual curriculum: finding out that the guideline for the education operation development according to the ministry of education curriculum of the bilingual school which has 9 aspects as follows; 5.1) The management structural aspect: should create the management structure of the EP project separately from the management of the normal school and increase the agility of the operation by giving freedom to the organization to become the independent commercial organization which doesn't depend on government, 5.2) The human resources management of Thai and foreign teachers: there should be more coordination, sharing

works among the teachers so the Thai teachers won't have so many tasks and should have the system which provides knowledge in the aspect of the tutorial preparation to foreign teachers adequately and regularly such as instructing or using the system that takes care of foreign teachers, 5.3) The tutorial preparation aspect and the activities developing the students: should take care of the quality of Thai and foreign personnel systematically in both the country level and school level to provide the maximum benefit to the students and the future of Thailand, 5.4) The manager of the project must have knowledge about the EP project and has the ability to manage and should develop the curriculum that relates to the project to reach the world standard and respond to the needs of persons involved. Government should provide the flexibility to the arrangement of the policy and standard curriculum for the improvement. Improving the EP curriculum constantly, in order to catch up the alternation of the Thai society, 5.5) The budgeting aspect: The schools allocate the budget according to the project that is planned before the new education year and proceed according to the government system. There should be the new standards for the public schools that create the EP project for the agility in the operation of the budgeting, 5.6) The project operation evaluation aspect: there should be the specific EP project quality evaluation so the departments involved should hasten the exploration the condition and the project management problems and create the standard specifically for the project to have the same interpretation in managing, 5.7) The learning media aspect: there should be the instruction about the usage of technological media for the teachers, providing the learning media adequately for the number of students and should provide outdoor education to the students, 5.8) The evaluation aspect: there should be the actual evaluation and regular report of the progression of the students and should inform the learning process and the evaluation result to the foreign teachers constantly, 5.9) The academic management: should include ethics and moral in the activities of the school, the appropriate guideline for the management of the bilingual schools is giving priority to the curriculum development because the curriculum is the important factor of the management of the bilingual schools. Thus, the school management should be done by creating the curriculum that focuses on the integration. The managers and teachers should follow the progression of the students each year and use the result of the operation as information for the improvement and the curriculum development to

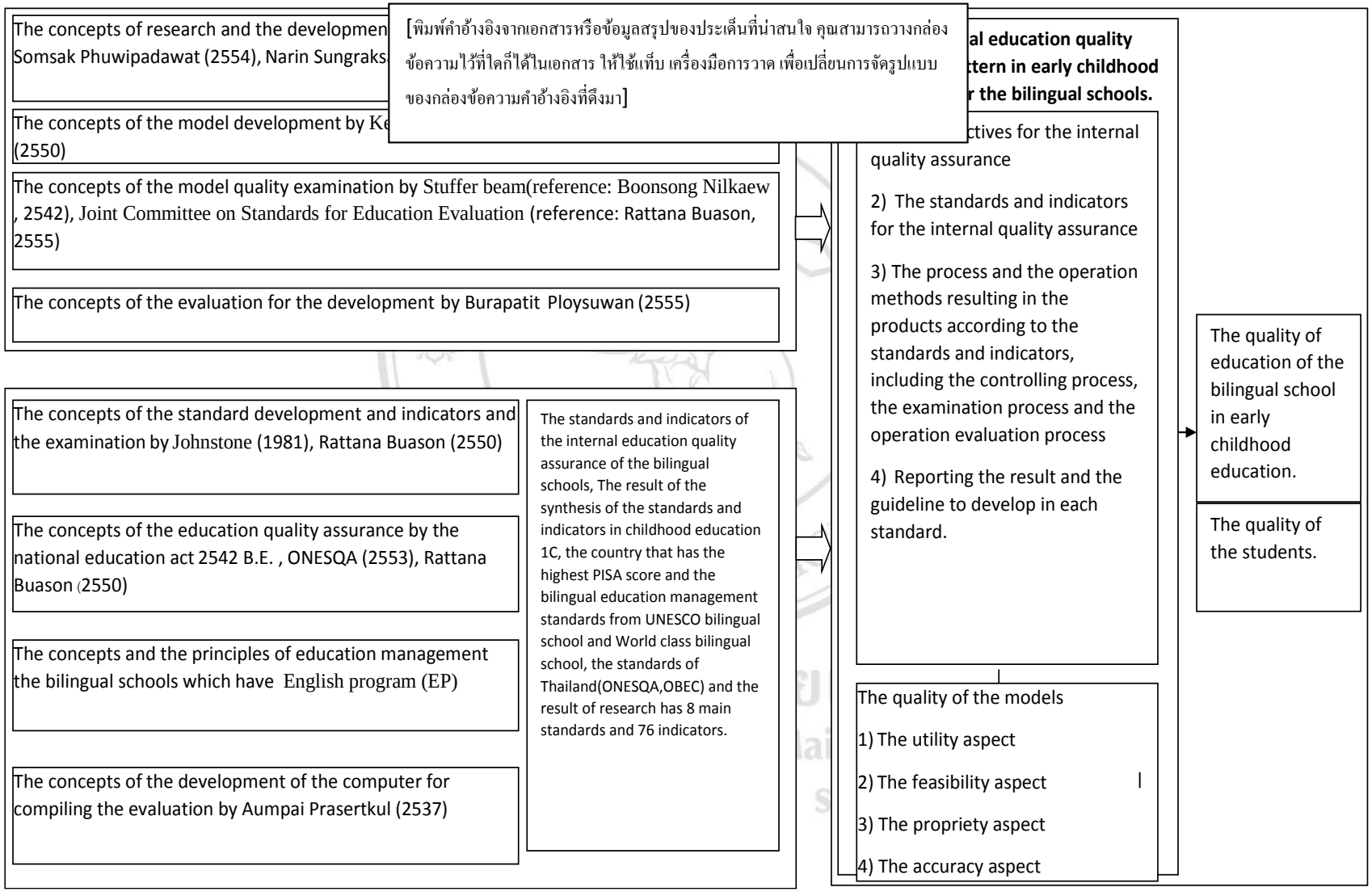
progress in the appropriate position and related to the alternation of the new era of the world.

6) The factors affecting the decision of the parents to send their children to the bilingual schools; The synthesis result of the study of the factors affecting the decision of the parents to send their children to the bilingual schools: finding out that there are 12 factors which include the curriculum aspect, the buildings and environmental aspect, the personnel aspect, the marketing aspect, the tutorial preparation aspect, the educational products aspect, the management aspect, the educational media aspect, the evaluation aspect, the class level aspect, the needs of the parents and the future opportunistic aspect.

7) The problems of the operation of the bilingual curriculum; From the synthesis of 16 research, concluding that there are 18 problems and can be calculated as the percentage and the frequency as follows 1) Lacking of the qualified foreign teachers according to the determination of the ministry of education (15.15%), 2) Lacking of the teachers who truly understand the curriculum (15.5%), 3) Foreign teachers don't develop the tutorial preparation method which is related to the culture and the improvement of the students (7.58%), 4) Lacking of the budget(7.58%), 5) Not having the appropriate pattern for the tutorial preparation evaluation of the foreign teachers which emphasizes the students (6.06%), 6) Thai teachers have too many tasks (6.06%), 7) Not having the obvious pattern for the project evaluation and lacking of the regular project quality examination (6.06%) 8) The students have the different English language skills and the majority of the students have weak English skills(6.06%), 9) Thai teachers lack of English knowledge (4.55%) 10) Not having the media that have the same standards, 11) The foreign teachers were not graduated educationally or from the branches that they teach(4.55%), 12) Lacking of the instruction and the lecturers to provide knowledge for the foreign personnel(4.55%), 13) Not having the same pattern standards for the curriculum evaluation(4.55%) 14) The foreign and Thai teachers don't collaborate(3.03%), 15) The majority of the parents lack of the support for improving the students English skills at home(3.03%), 16)The contents of the English subject are too easy not appropriate for the nowadays competitive examinations(1.52%), 17) Not obeying the contract of the foreign teachers(3.03%), 18) The majority of the teachers are young and are not experienced in teaching(3.03%).

8) The suggestions for the development; The result of the synthesis of the suggestions from research: finding out that there are 12 issues which are arranged by the percentage and frequency as follows 1) There should be the annual project evaluation to examine the operation quality of each schools (14.29%), 2) There should be the improvement or development of the tutorial preparation quality indicators of the English program project for the appropriateness of the contexts which will change in the future(10.71%), 3) There should be the English study of the educational quality assurance according to the curriculum of the ministry of education(10.71), 4) There should be research to find the project operation pattern for the public schools involved in the project(10.71%), 5) Education must emphasizes the students(10.71%), 6) There should be the instruction for Thai teachers to improve their English skills which can decrease the hiring rate of the foreign teachers in the future(7.14%), 7)There should be the regular work evaluation of the teachers which is evaluated by surrounding information(7.14%), 8) Education should be able to compare to the world class standard or to the curriculum project of the international schools or to the neighbor countries(7.14%), 9) There should be the evaluation standard of the students, particularly for the examination should not be too easy specifically English(3.57%), 10) There should be research finding for the methods to help developing the foreign teachers, in order for them to create the activities efficiently. The evaluation and the behavior of the tutorial management which emphasizes the students(3.57%), 11) Every bilingual school collaborates in creating the instructional documents of the English curriculum project to be the central documents which are completely correct according to the basic educational standard determined by the ministry of education(3.57%), 12)Research which follows up the EP curriculum evaluation evaluates the result in the aspect of the achievement of the students to see how successful they are(3.57%), 13) There should be research comparing the tutorial management pattern of the bilingual schools and the normal schools that affect the analyzing and researching skills(3.57%) and 14) There should be the EP project structural management which separates from the management of the normal schools and increase the agility of the operation(3.57%).

The picture no. 2.12: The concepts diagram of research



[พิมพ์คำอ้างอิงจากเอกสารหรือข้อมูลสรุปของประเด็นที่น่าสนใจ คุณสามารถวางกล่องข้อความไว้ที่ใดก็ได้ในเอกสาร ให้ใช้แท็บ เครื่องมือการวาด เพื่อเปลี่ยนการจัดรูปแบบของกล่องข้อความคำอ้างอิงที่ดึงมา]