Causal factors and consequences of parent involvement growth: the second-order latent growth curve model

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Abstract

The purposes of this research were to 1) assess the training needs of teachers and parents in parent involvement and 3M principle roles (M1: moral supporter, M2: monitor, and M3: mentor), 2) investigate the results of the school-based training on the teachers' skills, and 3) examine the effects of causal factors and the consequences of the parent involvement growth on the student achievement growth. Participants were 25 teachers and 564 parents of 1-6 grade students at Watpairongwua school. Data were collected via 3 sets of 5 rating scales questionnaire. The mean difference method, the content analysis, and the second-order latent growth curve analysis were the major analytic tools. Results indicated that volunteering dimension was the need of teachers and parents in parent involvement. However, the dimensions that need to improve their mind set were the collaborating with community, the learning at home, and the decision-making. As for the 3M principle roles, it was found that the dimension that needed the development was M1 (moral supporter); the inspiration by general rewards and inspired learning rewards. After the school-based training, teachers obtained research skills, designing and planning the activities that promoted parent involvement, and the effective implementation of activities in accordance with the goals of the development of students. The teachers also learn techniques of coordinating with parents of various groups and could get to know students individually indeed. The implementation of the activities that promoted the involvement of parents enhanced the relationship between teachers and parents. Teachers could gain the wisdom from parents for the development of students. It also created the close relationship between parents and children, which promoted the learning of students accordingly. Furthermore, results showed that the factors that had influences on the parent involvement growth significantly at 0.01 level were the parents' life context and the teachers' skills. Considering the influences of the parent involvement growth on student achievement growth, it was found that the latent slope variable of parent involvement had influences on the latent level variable of student achievement significantly at 0.05 level.

Keywords: School-based training, Teacher skills, Parent involvement, Student achievement, Second-order latent growth curve model

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Introduction

The concepts of partnership and collaboration encouragement among the groups involved, especially family, school and community are considered useful resources for the development of students with different backgrounds (Barbour, Barbour & Scully, 2005). Epstein (1995, cited in Sheldon and Epstein , 2005), suggested a framework that can enhance collaboration in schools through parent involvement. The framework is composed of 6 elements: parenting, communicating, volunteering, learning at home, decision making, and collaborating with the community. It helps schools to create activities that can promote parent involvement in their children's education. The chosen activities must correspond with goals, and effective operations must be planned.

Although parent involvement is important for the quality of education and functions as an important tool in preparing children to live in today's rapidly changing society, the role of parents in education in Thailand is still mostly limited to the traditional school framework, such as attending parent-teacher conferences and receiving information from schools. The research study conducted by Wongwanich et al (2006) revealed that teachers and parents desire to improve their skills so that they can have greater involvement in their children's education. Teachers need to receive training in how to implement activities that can encourage parent involvement and that can create learning opportunities for their students. Parents need to enhance their power of learning, teaching and decision making so that they can help the schools to improve their children (Gordon, 2004). In addition, teachers and parents must follow the 3M roles developed by Wongwanich et al (2006). Under this principle, each party plays an appropriate role to achieve the goal of parent involvement in school activities. The 3M principles include M1 (moral support), M2 (monitor), and M3 (mentor). Therefore, an effort to promote parent involvement includes the development of both teachers and parents so that they work collaboratively to help their learners or their children.

For professional development, training, especially the school-based training concept, is viewed as a basic method to enhance trainees' power (Gordon, 2004). The core of this principle is to help trainees and trainers gain mutual understanding of the goal of training processes and their roles (Wongwanich, 2005). This study, therefore, focused on school-based training, considering it a method that provides teachers with the skills to create activities that encourage parent involvement in their children's education, and that works with the parents to improve learners, which is the ultimate educational goal. This study also studied the changes or the growth of parent involvement in terms of causes and subsequent consequences by using the second-order latent growth curve model. The model has been proved to be a more effective way of measuring change or growth.

Theoretical Concepts

1. Concepts concerning parent involvement

Epstein (1995 cited in Sheldon & Epstein, 2005) classified parent involvement into 6 types: (1) parenting – the family's involvement in creating surroundings that support their children, (2) communicating – two-way-communications about school programs and children's improvement, (3) volunteering – recruitment and system setting to encourage parents to assist their children's schools, families or other places, (4) learning at home – preparation of information and concepts regarding how families can assist their children with their homework and regarding materials used in the programs, (5) decision making – opportunities to invite parents from all backgrounds to be representatives and leaders in the

school board of committee, and (6) collaborating with community – identification and integration of resources and community services to enhance the capability of the school programs and the schools themselves.

Hoover-Dempsey and Sandler (1995, 1997) proposed a theoretical model of parent involvement to explain how it positively affected children's performance. The model revealed factors affecting parent involvement behaviors and mechanisms of the influence of parent involvement that led to children's achievements through their perceptions and characteristics. Hoover-Dempsey and Sandler (2005) used the findings in their study to modify the proposed model, which showed that parents' decisions to be involved in their children's education were mainly based on parent's motivational beliefs, parents' life context, and invitations from the school and children. Perceiving their parents' involvement through their encouragement, reinforcement, modeling and instructions, children gain academic self-efficacy, intrinsic motivation and self-regulation. These finally lead to achievement.

2. Concepts concerning School-Based Training (SBT)

There are 10 significant principles underlying school-based training: (1) the training that is based on the actual problems and the needs of schools and trainees, (2) the training of school teachers or teachers in the community under the supervision of the school, (3) the training of teachers by a group of teachers with expertise and experience in learning reform and in teacher development through the use of school-based training, (4) the training that involves teachers who voluntarily take part in the training, (5) the collaboration between trainers and trainees in conceptualizing problems, planning, and developing activities, (6) the training that provides hands-on-experience, (7) continuous training through a variety of methods, (8) the training that uses the PDCA process, namely Planning, Doing, Checking and Action to make their operations a cycle of continuous development, (9) the training that is supervised, monitored and evaluated based on the "Kallyanamitra" processes, and (10) the training that is considered teachers' regular functioning with the purpose of raising the quality and the standard of the teaching profession, as well as the quality of learners (Pruet Siribanpitak and Aurapan Pornsima, 2003, cited in Office of the Education Council, 2004)

Objectives of the Research

The purposes of this research were to 1) assess the training needs of teachers and parents in parent involvement and 3M principle roles, 2) investigate the results of the school-based training on the teachers' skills, and 3) examine the effects of causal factors and the consequences of the parent involvement growth on the student achievement growth.

The Conceptual Framework of the Research

The research framework of parental involvement growth used in the study was based on the school-based training, and the study of causal factors and influences of parent development growth, which included 3 variables: (1) parent's motivational beliefs (2) parents' life context, and (3) invitations from schools and children, proposed in the model of parent involvement process by Hoover-Dempsey and Sandler (2005). However, the last variable, invitations from schools and children, was changed to teachers' invitation skills. This reflects the invitation skills of teachers resulting from the school-based training they received. Previous studies on the consequences of parent involvement on learners' achievement revealed that the variables were separately measured only once. In fact, parent involvement should be dynamic, which means it can change in the same way as learners'

achievement can. Due to the limitations of the studies in the past, the researchers were interested in studying the causal factors and consequences of parent involvement in their children's education in terms of change or growth. The consequences of the development were considered from the development of learners' achievement, which was measured by their life skills and learning behavior. To analyze the data, the researchers used the second-order latent growth model to study the causal factors and consequences of parent involvement growth. The conceptual research framework and model is presented in Diagram 1.

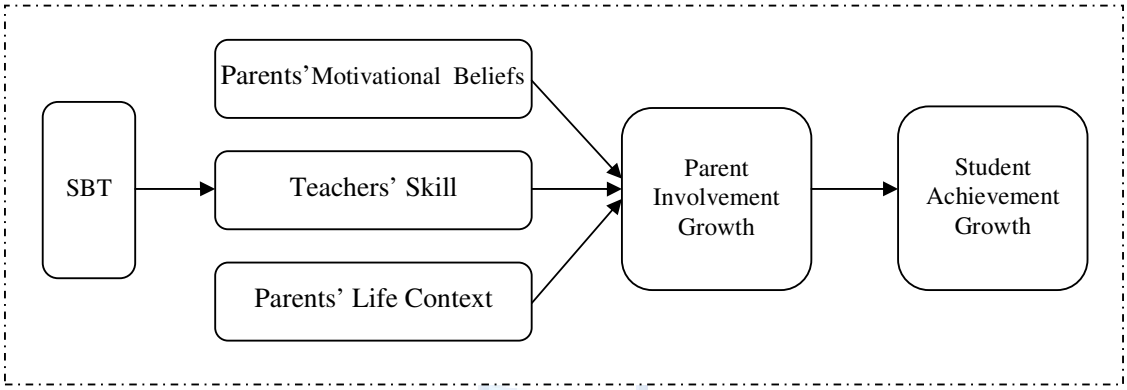

Diagram 1: Research Framework Model

Research Methodology

This research study involved 3 main phases. The first phase, *research phase* (August – September 2006), focused on the needs analysis of teachers and parents concerning parent involvement and the 3M roles. The levels of needs were analyzed by comparing the school's implementation of activities that promoted parent involvement and the 3M roles at present to what was expected. The second phase, *teacher development* (September – October 2006), consisted of 2 periods of training: one which took place during 14 – 15 October 2006, and the other during 30-31 October 2006. There were 5 steps of teacher training: (1) searching for new knowledge (2) demonstrating and practicing (3) reflecting and reviewing (4) practicing independently, and (5) exchanging knowledge. Lastly, the third phase, *parent development* (December 2006 – February 2007), involved 2 steps: (1) parent training, and (2) teachers' implementation of activities that promoted parent collaboration

The population included 25 teachers and 564 parents of the students at Wat Pai Rong Wua School, under the jurisdiction of the Suphanburi Educational Service Area 2. The subjects were divided into 2 groups: (1) the subjects that participated in the needs analysis stage in which the needs of activities to promote parent involvement were assessed. There were 25 teachers and 322 parents of Pratom 1 – 6 students engaging in this stage. Stratified random sampling technique was used to group them. (2) The subjects that participated in the development of parent involvement behavior stage, which consisted of 25 teachers and 564 parents. However, the data analysis by the second-order latent growth curve model could only be carried out using the data provided by 493 subjects since the rest did not provide the researchers with complete information.

This research study dealt with 2 types of variables: (1) the variables that were the causes of parent involvement growth, which consisted of 3 observed variables, namely parent's motivational beliefs, parents' life context and teachers' invitation skills, and (2) the endogenous latent variables and a group of observed variables, which were sub-divided into (2.1) parent involvement growth that was assessed 3 times by the endogenous latent variable

called “parent involvement”, which was further evaluated by 6 variables, namely parenting, communicating, volunteering, learning at home, decision making, and collaboration in the community; (2.2) development of learners’ achievement that was measured 3 times by the learners’ achievement endogenous latent variable, which was, then, evaluated by 2 observed variables: life skills and learning behavior.

The research study used 5 sets of 5-rating-scale instruments. The first set was a questionnaire inquiring into activities promoting parent involvement in their children’s education. This questionnaire contained 2 types of questions. The second set was a questionnaire inquiring into parent involvement in their children’s education. The third set was the evaluation form of learners’ achievement. Cronbach’s Alpha was used to measure the reliability of each set of instruments. The reliability values were between .72-.97. The investigation of the construct validity by Confirmatory Factor Analysis showed positive results confirming that the variables had construct validity that can be measured by observed variables or the indicators in each model.

Data analysis consisted of 2 parts. The first part concerned the basic data analysis of subjects’ background and the basic statistical analysis of variables in the model by using SPSS for Windows. The second part dealt with the data analysis of responses to the research questions. For the data analysis of the levels of needs in training, SPSS for Windows was used. Regarding the analysis of the consequences of training on teachers’ skills, content analysis and analysis induction were used. Lastly, the second-order latent growth curve model in LISREL program was used to analyze the causal factors and consequences of parent involvement growth

Results of the Study

1. The use of Mean Difference Method (MDF) to analyze the needs of teachers and parents in parent involvement training to promote parent involvement showed volunteering was the most needed aspect, followed by collaboration in the community, decision making, and learning at home, respectively. Communicating was the least needed. However, according to the data gained from the parents, collaboration in the community was the most needed while volunteering, decision making and learning at home were listed as less needed. Also, the less needed skill was communicating. The analysis of the 3M roles revealed that both teachers and parents would like to be moral supporters the most, followed by monitors and mentors in that order. The comparison between the ideal value and what was expected concerning parent involvement revealed that the value of expectation of the teachers was close to the ideal value whereas the difference in the level of expectation of parents and ideal value was more than 1. This implied that there should be developments in belief in volunteering and decision making. The comparison of the ideal value and the expectation of the 3M roles showed that there was a difference in the teachers’ level of expectation and ideal value at the level of more than 1. This meant development in the belief in the roles of giving moral support and being a mentor were needed. Table 1 shows the needs to develop beliefs in parents’ moral support.

Table 1 The level of needs in implementing activities to promote parent involvement and self-development based on the 3M roles

Dimension	Teachers (n=25)				Parents (n=322)			
	What is	What should be	Training Need	Need to improve mind set	What is	What should be	Training Need	Need to improve mind set
Parent Involvement								
1. Parenting	**3.25**	**4.56**	**1.31**	**0.44**	**3.52**	**4.17**	**0.65**	**0.83**
- giving knowledge	3.18	4.63	1.45	0.37	3.53	4.24	0.72	0.76
- gathering information	2.80	4.32	1.52	0.68	3.41	4.13	0.71	0.87
- creating opportunity	3.76	4.72	0.96	0.28	3.63	4.15	0.53	0.85
2. Communicating	**3.86**	**4.63**	**0.76**	**0.37**	**3.79**	**4.27**	**0.49**	**0.73**
- giving knowledge	3.96	4.64	0.68	0.36	3.76	4.31	0.54	0.69
- gathering information	3.82	4.62	0.80	0.38	3.86	4.28	0.42	0.72
- creating opportunity	3.81	4.63	0.81	0.37	3.73	4.23	0.50	0.77
3. Volunteering	**2.12**	**4.31**	**2.19**	**0.69**	**3.04**	**3.82**	**0.78**	**1.18**
- giving knowledge	2.24	4.28	2.04	0.72	2.99	3.72	0.74	1.28
- gathering information	2.00	4.36	2.36	0.64	3.05	3.85	0.80	1.15
- creating opportunity	2.12	4.29	2.17	0.71	3.09	3.89	0.80	1.11
4. Learning at home	**3.02**	**4.43**	**1.41**	**0.57**	**3.42**	**4.12**	**0.70**	**0.88**
- giving knowledge	3.14	4.66	1.52	0.34	3.46	4.19	0.73	0.81
- gathering information	2.88	4.32	1.44	0.68	3.41	4.14	0.73	0.86
- creating opportunity	3.04	4.30	1.26	0.70	3.39	4.03	0.64	0.97
5. Decision making	**2.92**	**4.34**	**1.41**	**0.66**	**3.22**	**3.94**	**0.72**	**1.06**
- giving knowledge	3.08	4.32	1.24	0.68	3.17	3.92	0.76	1.08
- gathering information	2.44	4.28	1.84	0.72	3.23	3.93	0.70	1.07
- creating opportunity	3.25	4.41	1.16	0.59	3.27	3.98	0.71	1.02
6. Collaborating with community	**2.65**	**4.48**	**1.83**	**0.52**	**3.25**	**4.09**	**0.84**	**0.91**
- giving knowledge	2.64	4.48	1.84	0.52	3.30	4.07	0.77	0.93
- gathering information	2.48	4.52	2.04	0.48	3.10	4.06	0.95	0.94
- creating opportunity	2.84	4.44	1.60	0.56	3.35	4.15	0.80	0.85
3M roles								
Moral supporter	**2.71**	**3.94**	**1.23**	**1.06**	**3.13**	**3.85**	**0.72**	**1.15**
- providing verbal support	3.42	4.17	0.75	0.83	3.61	4.11	0.50	0.89
- giving general rewards	2.67	3.75	1.08	1.25	2.84	3.64	0.80	1.36
- giving rewards that promote learning	2.04	3.92	1.88	1.08	2.93	3.79	0.86	1.21
Monitor	**2.83**	**4.21**	**1.38**	**0.79**	**3.40**	**4.11**	**0.71**	**0.89**
- awareness of what to monitor	3.04	4.38	1.33	0.63	3.37	4.02	0.65	0.98
- follow up of working behavior	2.83	4.21	1.38	0.79	3.44	4.17	0.73	0.83
- assessment of performance	2.63	4.04	1.42	0.96	3.39	4.14	0.75	0.86
Mentor	**2.29**	**3.97**	**1.68**	**1.03**	**3.42**	**4.15**	**0.73**	**0.85**
- setting an appropriate learning goal	2.33	3.92	1.58	1.08	3.38	4.13	0.75	0.88
- promoting and seeking learning opportunity	2.38	4.00	1.63	1.00	3.41	4.13	0.72	0.88
- developing oneself to be a good source of learning	2.17	4.00	1.83	1.00	3.48	4.19	0.72	0.81

2. The development of the training program used in this research was based on the school-based training framework, which consisted of 4 processes: step 1 – preparation before training, step 2 – training, step 3 – implementation, and step 4 – exchanging knowledge. Using the information obtained from the evaluation of the needs for training, the researchers designed a training program that was relevant to the actual problems and the needs of the school and the participants in the program. The training focused on giving the participants hands-on-experience through collaboration in brainstorming, planning, and problem solving processes. In addition, observations, meetings, knowledge exchanges, analyzes, criticism as well as group and individual consultation were also emphasized to improve the quality of the implementation, and make it appropriate for learner development. "Kallayanamitra" follow up processes and a full cycle of evaluation based on the PDCA process were included. Moreover, the use of persuasive techniques to encourage teachers to participate in the training and implementation of activities that promoted parent involvement by encouraging teachers to write up the results of the implementation as their action research projects was also highlighted. Based on the information gained from the evaluation of needs, related literature, and direct experience of the researchers and the teachers concerning previous training, the development of the training curriculum was processed with collaboration among the researchers and teachers in Watpairongwua School. The training involved 7 processes: (1) determining goals/aims, (2) creating the content of the program, (3) determining methods of training, (4) determining materials and equipment used in the training, (5) writing a training plan, (6) implementing the training, and (7) evaluation of the training shown in Diagram 2.

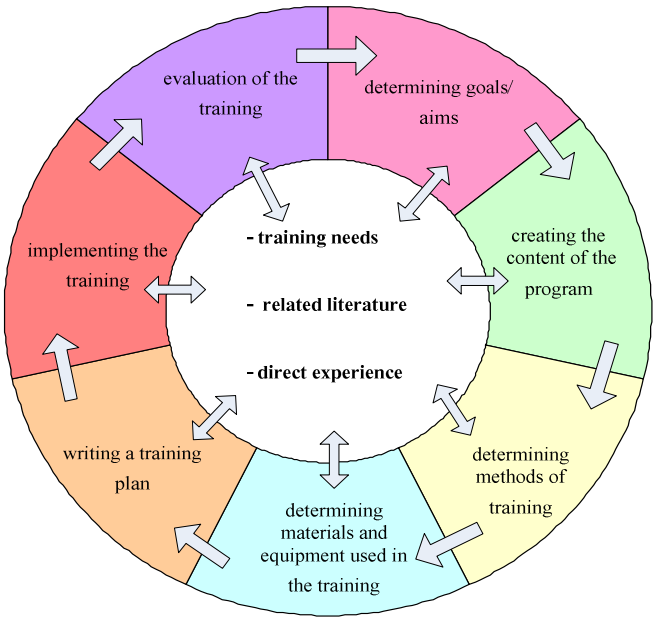

Diagram 2: Training Model
Source: Developed from the Needs-Centered Training Model (Beebe, Mottel & Roach, 2004)

The results of the training showed all 25 teachers attended the program, paid attention to what was trained, and showed responsibility for their duties. They were satisfied with the friendly learning atmosphere between the trainer and the trainees, and among the trainees themselves. The teachers were satisfied with the trainer, the method and the content of training. It was found that after the training, most teachers were more enthusiastic in doing their job, and perceived the value of working collaboratively with parents in developing the learners. The results from the teacher training consisted of 14 research proposals of the teachers, 14 activities that promote parent involvement and the 3M roles, and the activity implementation plans that would be conducted during school semesters. The results of the training were presented in Diagram 3.

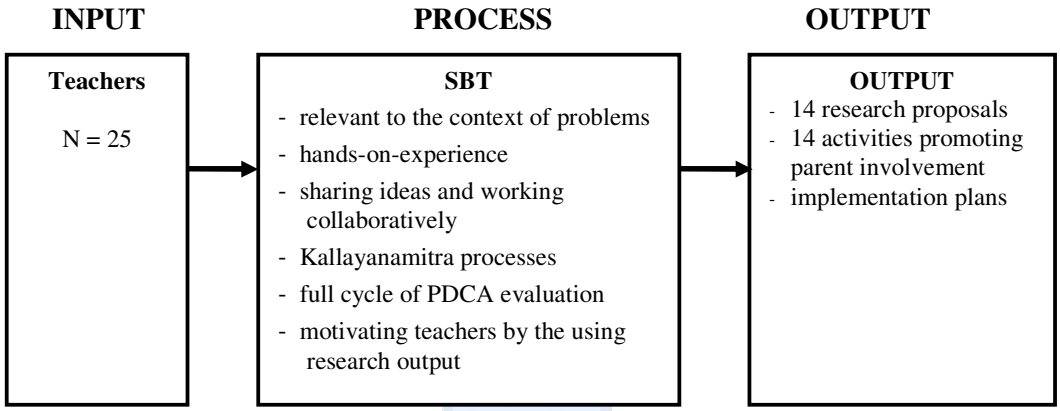

Diagram 3: The Results of the Training by Using School-based Training (SBT)

The implementation of the activities to increase parent involvement in their children's education as mentioned earlier included 2 main activities: (1) activities promoting parent involvement by creating awareness and knowledge concerning their involvement and the 3M roles. The training was divided into 3 parts. The first part was ice-breaking activities. The second part was a Walk Rally activity. And the last was a meeting between teachers and parents to set up their roles in helping each other develop learners. The results of the parent training showed that parents attentively participated in the activities. They planned their work together. They had fun participating in each activity, and gained knowledge from the discussion they exchanged. Parents could determine how they would take part in developing their children by following the activities the teacher created. After the activities, teachers learned how to communicate with parents from a variety of backgrounds. Teachers learned more about the individual learner. Not only did the activities improve the relationships between teachers and parents, but they also built closer relationships between parents and their children. In addition, teachers gained information regarding parents' knowledge and abilities. They, therefore, could invite these parents to be speakers to share their knowledge with the students in the school. The results of parent involvement development were shown in Diagram 4.

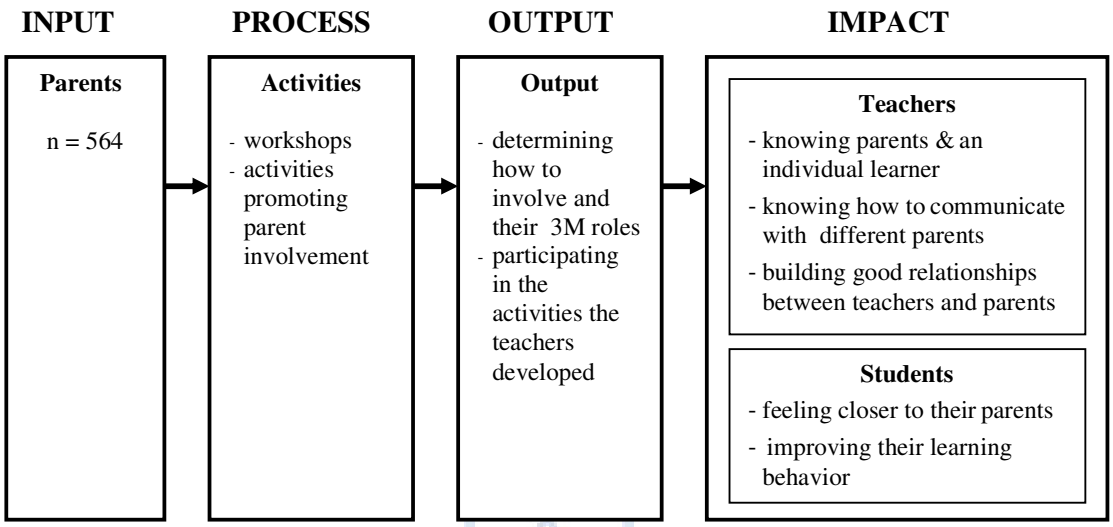

Diagram 4: The Results of Parent Involvement Development

3. The results of the analysis of parent involvement growth showed a linear development model corresponding with the empirical data in both parent involvement and development in learners' achievement more than other variables. According to the study of the causal factors and the influences of parent involvement growth, the proposed model matched the empirical data. (Chi-square value = 150.05, p value = .079 degree of freedom = 127, NNFI index = .998, and RMSEA value = .019) The reliability coefficient values of the observed variables in the model were between .130-.902. The variable that gained the highest reliability coefficient value was from the third measurement of learning at home. The variable that had the lowest reliability coefficient value was from the third measurement of learning behavior. The variables in the model could explain the variance in the latent variable of parent involvement growth, the latent slope variable of parent involvement development, the latent variable of learners' achievement development, and the latent slope variable learners' achievement development at the level of 45.60%, 27.30%, 29.63%, and 19.40 %, respectively

When the variables in the model were considered, it was found that the variables that significantly influenced parent involvement growth at the level of .01 were parents' life context and teachers' skills. When considering the influence of parent involvement growth on learners' achievement, the researchers found that the latent slope variable of parent involvement significantly influenced learners' achievement at the level of .05, but had no significant influence on the latent slope variable of learners' achievement at the level of .05 as shown in Table 2 - 3 and Diagram 5.

Table 2 Path Analysis of the Model of Causal Factors and Consequences of Parent Involvement Growth

Variable	PI_L			PI_S			ACH_L			ACH_S		
	TE	**IE**	**DE**	**TE**	**IE**	**DE**	**TE**	**IE**	**DE**	**TE**	**IE**	**DE**
MBL	0.004 (0.003)	-	0.004 (0.003)	-0.394 (0.045)	-	-0.394 (0.045)	-0.095 (0.037)	-0.095 (0.037)	-	0.008 (0.006)	0.008 (0.006)	
LCT	-0.001 (0.002)	-	-0.001 (0.002)	0.350** (0.036)	-	0.350** (0.036)	0.087 (0.034)	0.087 (0.034)	-	-0.004 (0.004)	-0.004 (0.004)	
TSK	0.002 (0.002)	-	0.002 (0.002)	0.132** (0.026)	-	0.132** (0.026)	0.035 (0.015)	0.035 (0.015)	-	0.001 (0.002)	0.001 (0.002)	
PI_L							1.000	-	1.000	1.000	-	1.000
PI_S							0.252* (0.097)	-	0.252* (0.097)	-0.008 (0.013)	-	-0.008 (0.013)

$\chi^2 = 150.055$ df = 127 p = 0.079 NNFI = 0.998 RMSEA = 0.01

Variable	PARt1	COMt1	VOLt1	LRNt1	DCSt1	COLt1	PARt2	COMt2	VOLt2	LRNt2	DCSt2	COLt2
Reliability	0.427	0.451	0.354	0.874	0.456	0.437	0.406	0.436	0.322	0.907	0.414	0.395
Variable	PARt3	COMt3	VOLt3	LRNt3	DCSt3	COLt3	LSt1	LBt1	LSt2	LBt2	LSt3	LBt3
Reliability	0.442	0.447	0.338	0.902	0.441	0.418	0.505	0.530	0.361	0.408	0.352	0.130

SEM	PI_L	PI_S	ACH_L	ACH_S
R^2	0.456	0.273	0.296	0.194

Table 3 Correlation Matrix between the Latent Variables

Latent Variables	PI_L	PI_S	PI1	PI2	PI3	ACH_L	ACH_S	ACH1	ACH2	ACH3	MBL	LCT	TSK
PI_L	1.000												
PI_S	0.336	1.000											
PI1	0.749	0.583	1.000										
PI2	0.854	0.671	0.912	1.000									
PI3	0.901	0.732	0.857	0.955	1.000								
ACH_L	0.207	0.151	0.073	0.081	0.080	1.000							
ACH_S	0.419	0.718	0.012	-0.014	-0.034	0.300	1.000						
ACH1	0.249	-0.283	0.048	0.054	0.048	0.776	0.457	1.000					
ACH2	0.362	-0.473	0.052	0.040	0.875	0.724	0.793	0.042	1.000				
ACH3	0.389	0.047	0.033	0.037	0.031	0.792	0.820	0.758	0.172	1.000			
MBL	0.561	0.552	0.486	0.482	0.608	0.693	-0.019	0.025	0.021	0.013	1.000		
LCT	0.621	0.522	0.530	0.666	0.757	0.050	-0.006	0.034	0.033	0.027	0.918	1.000	
TSK	0.407	0.323	0.343	0.428	0.484	0.038	0.015	0.030	0.035	0.032	0.865	0.594	1.000

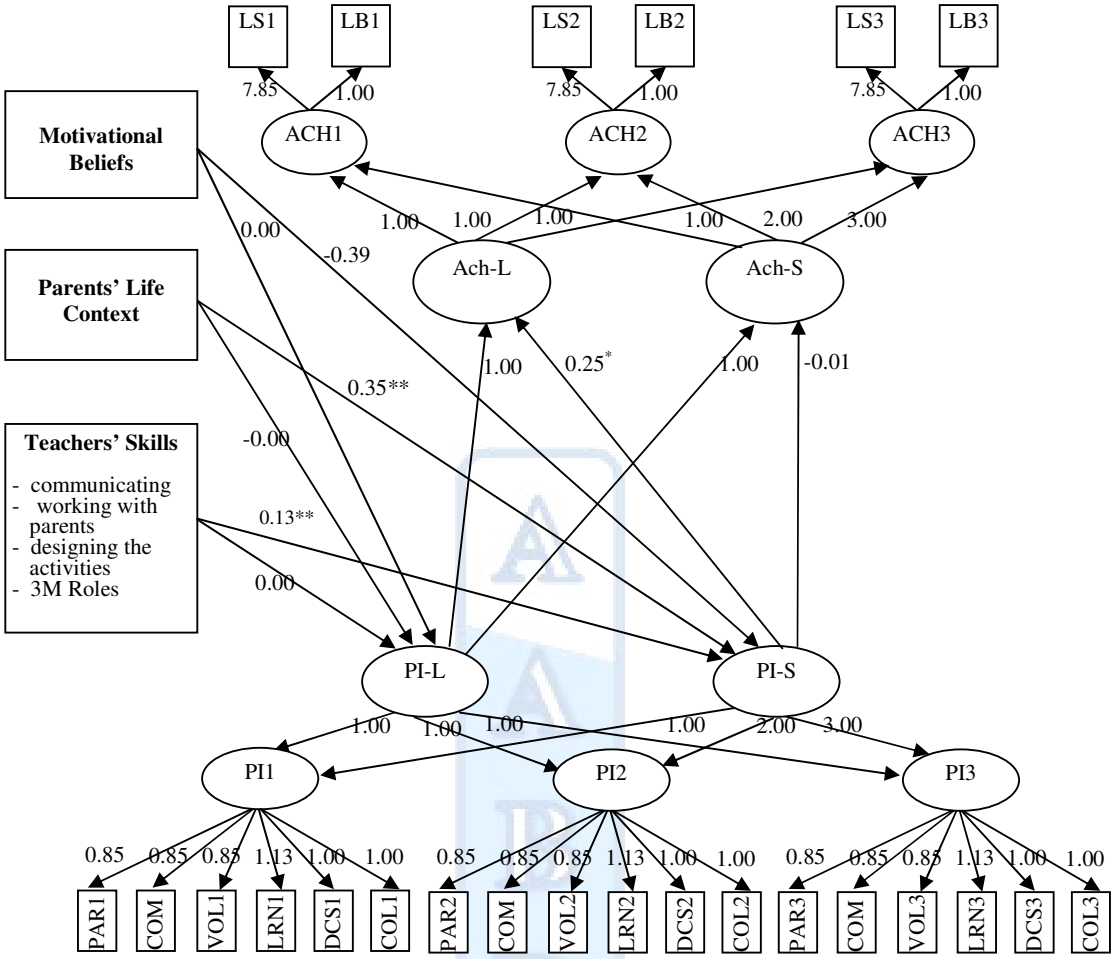

Diagram 5: The Model of Causal Factors and Consequences of Parent Involvement Growth

The model consisted of 3 variable groups: 1) causal variables including; Parents' Motivational Beliefs, Parents' Life Context, and Teachers' Skill; 2) parent involvement growth including parent involvement (PI) from 3 repeated measure. PI was defined by Epstein's 6 types of parent involvement including: Parenting (PAR); Communicating (COM); Volunteering (VOL); Learning at home (LRN); Decision making (DCS); Collaborating with community (COL); 3) achievement growth including achievement (ACH) from 3 repeated measure. Ach was defined by Learning behaviors (LB) and Life skill (LS). The number represented measure time.

Research Discussion

There were 4 main issues derived from the results to be discussed. The first issue was the needs of teachers and parents in parent involvement training. The second was the results of the training on teachers' skills. The third was the causal factor and the consequences of parent involvement growth on learners' achievement, and the fourth was research limitations.

1. The needs of teachers and parents in parent involvement training and the 3M roles

The evaluation of the needs in parent involvement among teachers and parents showed the same direction of needs in parent involvement and the 3M roles. This might be because both groups correspondingly received the information concerning activities implementation of the school. This reflected the school's ability to publicize information and news to parents, and also corresponded to the research finding that showed communication was the least needed when compared to other aspects of parent involvement.

The results of the comparison between the ideal value and the expected picture concerning parent involvement showed that teachers' expectation was similar to the ideal value while for the parents group, the difference in the ideal value and the expected picture values was more than 1 in the aspects of volunteers and decision making. This showed teachers realized the importance of parent involvement in developing learners while parents did not perceive the importance of volunteering and decision making as important. Parents still believed that teachers should be the individuals who played a significant role in developing learners. This might be because after the recent education reform, teachers have gained more insight into how to get parents more involved in education. In addition, from teachers' past experience, parents had significant roles in implementing various activities in the school, especially those that could develop learners' development. This led to the expectation by teachers of more parent involvement in education. Regarding the difference of the ideal value and the expected picture in the 3M roles, the difference of both extremes concerning motivation in the views of both groups was more than 1. This might be because of teachers' and parents' beliefs in taking care of their own responsibilities. For example, parents' responsibility was to nurture and teach their children. Therefore, it was a common practice for both teachers and parents to be responsible for their duties. Both teachers and parents, then, felt that motivation was not important. This also reflected the beliefs of people in the provincial communities. They believed that praising or motivating their children could end up spoiling them. This concurred with Suwimol Wongvanich et al (2006), who also found less of a parents' role in motivating their children.

2. The results of the training on teachers' skills

The developed model of teacher training was based on school-based training. It was composed of 4 stages, namely preparation before training, training, implementing, and exchanging knowledge. These stages corresponded with the process and the operational methods proposed in the school-based training program of UNESCO (1986) and the Office of the Education Council (2004).

School-based training focused on collaboration learning between trained teachers and trainers (Suvimol Wongvanich, 2005). Teachers' interest was aroused when the opportunity was given to them to be involved in setting up the curriculum and the training styles that met their needs. Motivating them to write up their research studies also contributed to an increase in their interest. The output of the training in how to design activities and how to plan activities was created by the teachers leading to greater pride in themselves and enthusiasm in preparing, designing instruments, and implementing activities as planned.

After the implementation of parent involvement activities, it was found that the activities that the researchers and the teachers at the school used in the workshop to build awareness and insight into the importance of parent involvement in their children's education, and into the importance of the 3M roles were informative, entertaining, and practical. It conformed to the research study conducted by National Youth Bureau (2002) that

claimed the training style that was suitable for providing families with knowledge was that of workshops.

The results of the synthesis of activities promoting parent involvement and the 3M roles that the teachers developed showed that every activity focused on developing the 3M roles of parents, which were motivating, monitoring, and mentoring. It was found that most activities concentrated on developing parent involvement in the aspects of learning, followed by nurturing and volunteering, decision making, communicating, and collaboration with community, respectively. This was different from the results of the study conducted by Suwimol Wongvanich et al (2006) in which they showed the school organized activities to develop the role of parents in nurturing their children the most. Communicating and collaborating in community, volunteering, learning at home, and decision making were listed next in rank order. The reason behind this was that the teachers set the aim of the development by focusing mostly on the learning aspect. Therefore, activities that teachers developed focused a lot more on learning at home.

3. Causal factor and the consequences of parent involvement growth on learners' achievement

According to the analysis of parent involvement growth, key variables that influenced parent involvement growth were teachers' skills and parents' life context. This meant that teachers possessed an ability to promote parent involvement in their children's education. It showed that school-based training could help the teachers gain the ability to create activities to do so. The teachers exchanged knowledge and made progress in their work based on the framework of school-based training. Lessons that the teachers learned could be concluded and integrated into other aspects of learners' development such as support of local wisdom, development of an individual learner etc. Parents' life context involving spending available time with their children, and the capacity of developing their children influenced parent development in the same way as proposed in the model designed by Hoover-Dempsey and Sandler (2005), and in the research study by Hong and Ho (2005). These groups of researchers found that parent involvement influenced learners' achievements.
In terms of the influence of parent involvement growth on learners' achievement, the latent slope variable of parent involvement had an influence on the latent variable of learners' achievement, but no influence on the latent slope variable of learners' achievement. This was perhaps due to, in the model of parent involvement, developing learners' achievement being influenced by parent involvement via learners' characteristics (Hoover-Dempsey and Sandler, 2005). Eliminating these variables with the hope to reduce the complexity of the model might negatively affect the influence line.

4. Limitations

There were 2 limitations, namely the sample group and the length of time spent in implementing activities that promoted parent involvement. The first limitation concerned the sample group used in the data analysis phase to study parent involvement growth since 21.67% of the parents did not participate in the training on building awareness and understanding in parent involvement, and the 3M roles. This might lead to different levels of parent involvement growth. The researcher, however, did not analyze the data gained from the subjects with different conditions separately. The second limitation was the time spent on each activity. Since the activities that the teachers created required different amounts of time to complete; for example some activities could be done within 1 month while others might take more than 1 month to complete and they, then, started with different levels of

development depending on teachers' readiness. This might also affect the measurement of parent involvement growth.

Suggestions:

1. Suggestions for making use of the results of the study

(1) The training model developed in this study was based on the school-based training that participants needed. Therefore, applying this training model in other situations must be done with caution. Careful consideration on the actual problems and the needs of the school, and of the participants is required. The training focused on providing the participants with actual practice through conceptualization, plans, collaborative work between trainers and trainees in solving problems, knowledge exchanges as well as group and individual consultation. This was to improve their work and make the plan suitable for learners' development. In addition, the Kallayanimitra follow-up and a full cycle of PDCA evaluation process were also included.

(2) The conditions underlying the success of this program were as follows. Firstly, stretching the training periods after the semester ended and before the new semester started allowed the teachers some time to develop their research proposals, and prepare themselves before starting work in the new semester. Secondly, motivation through the use of research output resulted in teachers paying attention to developing and implementing activities promoting parent involvement. Moreover, the administrators' view on the importance of the training was part of the success. The administrators' roles included giving moral support to the teachers, following up with the success of the teachers' success, and accommodating all activities the teachers organized such as providing them with equipment and places to organize activities.

(3) Parents' belief must be further developed since the findings showed limitations in their belief in the importance of their roles on their children's education. The importance of their participation in their children's education must be publicized, or strategies must be used to change their attitudes to make them believe that education management and learner development require collaboration among all individuals involved.

2. Suggestions for future research studies

The effective development of parent involvement should begin with the change in parents' attitudes. Parents still believe that teachers or schools have a dominant role in education management. An effective method of changing their attitudes is needed, especially for the group of parents who do not value their children's education.

The study of the influence of parent involvement growth on learners' achievement showed that parent involvement growth significantly influenced the latent variable of learners' achievement at the level of .05, but had no significant influence on the latent slope variable of learners' achievement. This was perhaps due to the elimination of a mediating variable between parent involvement and learners' achievement in order to reduce the complexity of the model. This might lead to no significant relationship between the variables. Therefore, it is suggested that future research studies include such variables as self efficacy, self regulation, intrinsic motivation, etc.

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