การศึกษาผลของการใช้แผนการช่วยเหลือทางการเรียน
และพฤติกรรมในโรงเรียนเรียนรวม

Effects of Function-Based Academic
and Behavior Intervention Plan in Thai Inclusive School

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บทคัดย่อ

    ในต่างประเทศ งานวิจัยที่มีหลักฐานเชิงประจักษ์ยืนยันว่าการช่วยเหลือทางการเรียนและพฤติกรรมตามแนวทาง
การรวบรวมข้อมูลและวิเคราะห์หน้าที่ของพฤติกรรมเป็นหนึ่งในแนวทางการช่วยเหลือผู้เรียนที่สามารถช่วยลดพฤติกรรม
ที่เป็นปัญหาและเพิ่มพฤติกรรมที่พึงประสงค์ของผู้เรียนมีภาวะเสี่ยงต่อปัญหาการเรียนรู้ได้จริง ทั้งนี้การศึกษาผลของ
แนวทางการช่วยเหลือดังกล่าวในประเทศไทยค่อนข้างมีความซับซ้อน เนื่องจากปัญหาอุปสรรคหลายประการในระดับการ
ปฏิบัติ จึงจำเป็นต้องมีการศึกษาผลของการช่วยเหลือดังกล่าวที่มีต่อพฤติกรรมในชั้นเรียนและผลกระทบในการนำไปปฏิบัติ
การศึกษาครั้งนี้ใช้รูปแบบ combined single-subject design เพื่อศึกษาพฤติกรรมของผู้เรียนที่มีภาวะเสี่ยงต่อปัญหา
การเรียนรู้ จำนวน 3 คน ในระดับชั้นประถมศึกษาในสถานศึกษาต้นแบบการเรียนรวม สังกัดสำนักงานคณะกรรมการ
การศึกษาขั้นพื้นฐาน วัตถุประสงค์ของการวิจัย ได้แก่ 1) ศึกษาผลของการใช้แผนการช่วยเหลือทางการเรียนและพฤติกรรม
ที่มีต่อพฤติกรรมที่เป็นปัญหาและพฤติกรรมที่พึงประสงค์ของผู้เรียนที่มีภาวะเสี่ยงต่อปัญหาการเรียนรู้ 2) ศึกษาความ
คงทนของการเปลี่ยนแปลงพฤติกรรม และ 3) การยอมรับของทีมช่วยเหลือประกอบด้วยผู้บริหาร ครูประจำชั้น ครูการศึกษา
พิเศษ ผู้ปกครอง และที่ปรึกษาด้านพฤติกรรม ในด้านเป้าหมาย กระบวนการ และผลของการช่วยเหลือ เครื่องมือวิจัยใช้
กระบวนการรวบรวมข้อมูลและวิเคราะห์หน้าที่ของพฤติกรรม มีการตัดสินใจวางแผนช่วยเหลือเป็นทีม และบูรณาการเทคนิค
วิธีการหลายรูปแบบสำหรับผู้เรียนแต่ละคน ผลของการวิจัยพบว่า 1) แผนการช่วยเหลือมีแนวโน้มที่จะใช้ลดปัญหาพฤติกรรม
ที่เป็นปัญหาและเพิ่มพฤติกรรมที่พึงประสงค์ได้ 2) การเปลี่ยนแปลงพฤติกรรมมีแนวโน้มที่ค่อนข้างคงทน และ 3) การ
ประเมินการยอมรับของทีมช่วยเหลือพบว่าทีมมีความเห็นว่าแผนการช่วยเหลือเป็นที่ยอมรับได้ในระดับสูง บทความนี้ยังได้
นำเสนอข้อเสนอแนะในการนำผลไปใช้และในการวิจัยครั้งต่อไป และอภิปรายผลที่เกี่ยวข้องกับการนำแผนการช่วยเหลือ
ทางการเรียนและพฤติกรรมไปใช้เพื่อเป็นแนวทางจุดประกายความหวังในการส่งเสริมการจัดการศึกษาแบบเรียนรวม
อย่างแท้จริง

คำสำคัญ: ผู้เรียนที่มีภาวะเสี่ยง การช่วยเหลือทางการเรียนและพฤติกรรม ความคงทนของพฤติกรรม การยอมรับของผู้ใช้
        การจัดการศึกษาแบบเรียนรวม

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ABSTRACT

The academic and behavior intervention plan based on the Functional Behavior Assessment (FBA) technology has been among the student support approaches with the strongest international empirical research support. The research has well documented the impacts of function-based intervention in reducing problem behavior and increasing desired behavior for students at-risk for learning problems. In Thailand, to document such effects in schools has been complex due to numbers of impediments found at the practice level. More studies are required to investigate the extent to which the approach impacts students' classroom behaviors as well as the school implementation. This study employs a combined single-subject design to study behaviors of third primary graders at-risk for learning problem outcomes in a model inclusive school under the Office of the Basic Education Commission. The study purposes were to study (a) the effects of the function-based academic and behavior intervention on problem behavior and desired behavior of the at-risk students, (b) the maintenance of the behavioral changes as a result of using the plan, and (c) how the team including the administrator, the general education teachers, the special education teachers, the parents, and the behavior consultant accept the use of the plan in the aspects of goals, procedures, and effects. The intervention plan was designed to include the FBA data, team-based decision-making, and multicomponent intervention strategies. The results indicate that (a) the intervention plans have a potential to reduce problem behaviors and increase desired behaviors for all students, (b) the behavioral changes are somewhat promising, and (c) the team members accepted the intervention plans at a high level. Implications for practices and future research are described. The findings about how the function-based academic and behavior intervention plan come to be a promising approach to promote more meaningful inclusive outcomes are discussed.

Keywords: At-risk students, Function-based Academic and Behavior Intervention, Behavior maintenance, acceptability, Inclusive education

Introduction

For decades, the educational system in Thailand has been reorganized to incorporate a series of equity-based initiatives and to promote the country's commitment to improve "Education for All" (UNESCO, 2000). The Thai government has passed a series of national legislation requiring the provision of quality and equitable education for all, including students with disabilities. With the forces driven by international movements, Thailand has moved educational policies and implementations in a more inclusive direction during the subsequent years. In 1999, the Thai government started to mainstream students with

disabilities in general education schools and by 2011 there were almost twenty-thousand integrated schools across the nation serving approximately 250,000 students with disabilities (Bureau of Special Education Administration, 2011). The Thai Ministry of Education also promoted 445 schools across the country as "model inclusive schools". After 2015, the model schools have been increased in numbers and the Ministry of Education has provided student support services (SSS) and has conducted professional development in necessary skills through these model schools. Currently, general education schools are

serving approximately 400,000 students with special needs, consisting of more than 300,000 students with learning disabilities (Bureau of Special Education Administration, 2017).

Inclusive education is defined as an educational provision that goes beyond mainstreaming or integrated placement of students with disabilities in general education classrooms so that they reach their full potential and better life quality (Bureau of Special Education Administration, 2011). To achieve inclusive practices in schools, research has maintained the needs for effective and scientific strategies to manage behaviors in classrooms (Reinke, Herman, & Stormont, 2013), particularly, for students who have potential to fail academically (Cook et al., 2012). These students do not response adequately to classroom requirement, have a tendency to engage in off-task behaviors, and tend to fall further behind their peers for most classroom activities (Apichatabutra, 2009; Ingram, Lewis-Palmer, & Sugai, 2005). Extensive studies have found that problem behaviors in the classroom not only threaten the overall school environment but also highly predict academic challenges among the students who have these problem behaviors, even less complex ones (Strickland-Cohen & Horner, 2015).

Despite the movements toward more inclusive pedagogies, critical implementation challenges remain due to several reasons. First, research found disparate discourses underlying the inclusive education concept as well as misinterpretations of the procedural components among practitioners (Agbenyega & Klibthong, 2014). Inclusion movement is mostly characterized as a primary concern for students with disabilities, given that policy authorities pay attention to supports for students who are formally diagnosed by professionals (Woodcock & Hardy, 2017). Extra support services are often not available for those who are identified as at-risk for behavior or academic problems without any disability labels. Second, various studies noted that a majority of general education teachers had negative perception towards inclusive education and their self-efficacy owning to limited knowledge, skills and strategies for identifying at-risk students, developing positive teacher-child and family relationships, and planning for instructional intervention supports. (Agbenyega & Klibthong, 2014; Chinchai, 2010; Reinke et al., 2013). Third, specific attempts to address academic difficulties students receive less academic instruction and are and behavioral challenges in general education classrooms have not been successful due to the lack of connection between policy and practices (Vorapanya & Dunlap, 2012). Forth, the relative lack of collaboration among relevant stakeholders (e.g., administrators, teachers, or families) has prevented the "inclusion concept" from being completely realized (Kantavong, 2012; Opartkiattikul, Arthur-Kelly, & Dempsey, 2016).

As a part of bringing inclusive education into active practices, academic and behavior interventions in classroom are vital (Dunlap, Sailor, Horner, & Sugai, 2009). Worldwide, the effects of functional assessment-based support plans have been evidenced in the literature as effective to produce meaningful changes in the behaviors of students who are at-risk for academic and behavior challenges (Apichatabutra, 2009; Bruni et al., 2017; Cook et al., 2012; Ingram et al., 2005; Sugai & Horner, 2006; Strickland-Cohen & Horner, 2015; Trussell, Lewis, & Raynor, 2016). Compared to traditional approaches to discipline in which interventions were selected to

match the type of behavior or disabilities, a function based approach to behavior support rather builds a multicomponent intervention that addresses antecedent or consequence variables controlling students' problem behaviors. In Thai classrooms, however, the effects of functional assessment-based support plans in reduction in problem behaviors and increasing in desired behavior need to be explored.

Conceptual Framework

Based on the inclusion movement and Applied Behavior Analysis (ABA) theoretical framework (Baer, Wolf, & Risley, 1968) in which behavioral principles have emerged from scientific experiments of organisms to explain how certain human behaviors are regulated in the environment, Positive Behavior Support (PBS) applies functions of applied behavioral principles to improve life quality of individuals as well as efficacy of classroom and school systems (Carr et al., 2002; Dunlap et al., 2009). PBS approach posits that human behaviors are socially learned and can be changed by controlling the environments in which the behaviors occur. Therefore, a behavior support intervention plan for a learner is linked directly to the information of behavior function acquired from a systematic behavior assessment technology called functional behavior assessment (FBA). The summary of the behavior or hypothesis is used to make decision among the team members who are relevant persons in the learner's life. Once a hypothesis has been developed, a multicomponent behavior intervention plan is designed based on the maintaining function to decrease the challenging behavior and increase positive and prosocial behavior (Gann, Jolenea, Ferro, Umbreit, & Liaupson, 2014). Evaluation of social validity is also emphasized

to see how the behavior and academic intervention is accepted by the implementers or user acceptability (Umbreit, Ferro, Liaupsin, & Lane, 2007). Research indicated that when the social validly is addressed, the behavior support team is more likely to implement the intervention with integrity (Lane et al., 2009), which in turns increases the possibility that the behavioral changes will be maintained over time (McIntosh, Kim, Mercer, Strickland-Cohen, & Horner, 2015).

Purposes of Research

1. To study the effects of the function-based academic and behavior intervention on reducing problem behaviors and increasing desired behaviors of the students who are at-risk for learning problem outcomes

2. To study the maintenance of the behavioral changes as a result of the function-based academic and behavior intervention

3. To study the acceptability of the behavior support team towards the use of the function-based academic and behavior intervention in the aspect of goals, procedures, and outcomes

Research Methodology

Setting. The study was conducted in a 4th grade general education classroom of 28 students with 2 classroom teachers. The site was a small 300-student public elementary school in a suburban area of Bangkok which was selected as a model inclusive school by the Ministry of Education due to its previous successful integration practices for students with special needs.

Participants. Three male students, Saran (S1), Bulin (S2), and Patra (S3), in a 4th grade general education classroom were selected with the teachers'

nomination and the parents' consents. The primary investigator, served as behavioral consultant, verified their targeted behaviors using the FBA components. According to the FBA information obtained, the participants exhibited a variety of problem behaviors in the classroom. For S1 and S2, their behaviors were maintained by task avoidance. For S3, the behaviors were maintained by attention. Demographic and screening data of the participants are depicted in Table 1.

Procedures. Data were collected using the FBA strategy including interviews with the participants and the teachers, and direct observations of the classroom behaviors. The antecedents and consequences that maintained the behaviors were identified. The behavior support plans for all participants were developed based on the recommendation of the team comprising of 6 people: a schools' administrator, 2 classroom teachers, a special education teacher, a parent, and a behavioral consultant. During the meetings for each behavior support plan, the behavior consultant shared FBA information with the team including antecedent contexts and behavioral functions for the 3 participants. Data was collected during one academic year including a 3-month school break before the maintenance phase.

Table 1. Demographic and screening data for the student participants.

Students	Academic Concerns	Antecedent Contexts	Problem Behaviors	Functions	Desired Behaviors
Saran (S1)	Reading and math at frustration level	- Unstructured and inexplicit instruction - Inattentive teachers - Hard task	Ignore class activities, distracted from task, get out of seat, play with materials, talk to peers	Avoid task	On task, academic achievement
Bulin (S2)	Reading and math at frustration level	- Unstructured and inexplicit instruction - Inattentive teachers - Hard task	Ignore class activities, look out and away from task, play with materials, get off seat, use impolite language to tease peers	Avoid task	On task, academic achievement
Patra (S3)	Attention problems	- Inattentive teachers - Get disappointed - Changes in plan	Destroy and throw stuff in classroom, yell and talk out, disrupt classroom activities, draw pictures	Seek attention	On task, Respect others

During the baseline phase, all students received general education lessons from the general education teachers. During intervention phase, the interventions were implemented, and monitored by the team. As part of the intervention, S1 and S2 received explicit small group lessons in a resource classroom from a special education teacher who adapted the curriculum content to match their instructional level. As part of S3 intervention, the team let him keep "a good behavior notebook" for daily behavior rated by his teachers and parents. S3 was also taught to talk to his closed family members when he got frustrated. After 3-month school break, the interventions reconvened in the maintenance phase. For S1 and S2, the team recommended that they continued receiving supports in the resource classroom especially in Mathematics and Thai subjects by the special education teacher. The team agreed to adjust the plan for S3 to include the use of an emotional control strategy, the emotional memo based on the Four sublime states of mind "Brahma-vihara Si" principles. The strategy was initiated and implemented by the administrator who had worked closely with the behavior consultant.

Intervention Materials. The academic and behavior intervention plans consisted of three main components: (a) functional behavior assessment information, (b) interventions based on team decision making, and (c) multicomponent interventions. The behavior support team participated in at least two formal meeting sessions to plan intervention for each student. All school personnel who were the team members participated in the 2-day training session provided by the behavior consultant on how to conduct a behavior support plan. Informal consultation sessions among the school personnel, parents and the behavior consultant were held recurrently during the intervention phases and the maintenance phases. The behavior support plans were evaluated by 5 experts in the relevant fields namely special education, educational psychology, and educational measurement.

Measures. Problem behaviors were identified using FBA strategy including: off-task, class disruption, peer provoking, and aggression. Direct observations were conducted on all three participant students. The primary dependent variable was the percentage of the intervals with problem behaviors. During baseline phase, the data were collected on student behaviors during 15-min of 10-s partial interval paper and pencil recording system, 2-3 days per week during baseline phase. During intervention phase, the same measure was utilized by two graduate students trained to a 95% interobserver agreement during training sessions and at least 85% agreement during all observation sessions. Evaluation of the team members' acceptability instrument identified varying perspectives on intervention implementation regarding acceptability of the goals, the implementation procedures, and the effects. The research employed questionnaire questions and follow-up structured interviews with the team members. The rating report was recorded on 26 evaluation items in a Likert-type scale from 1 to 5 with 5 indicating the highest agreement. The instrument was evaluated for treatment reliability and achieved 0.92 and also evaluated by 5 experts in the relevant fields.

Design and Data Analysis. A combined single-subject design was utilized to examine the effects of the intervention. Due to the extraneous variables in natural classroom settings, the design was augmented to include multiple baseline design and A-B-A-B design analysis. The data were analyzed

using visual analysis from the plotted graph, mean, and range to interpret data outcomes in the aspects of level, trend, variability, immediacy of the effect, overlap, and consistency of data (Kratochwill et al., 2013). The data for acceptability questionnaire was analyzed by mean and standard deviation and content analysis was used for the follow up interview with the team members.

Results

Effects of Academic and Behavior Plan on Classroom Behaviors

Baseline. S1's data revealed average 76% (range 30-100%) of problem behaviors showing an increasing slope and high variability of data pattern. S2's data displayed 51% (range 13-96%), high variability but no established trend. During baseline 2, the data showed average 86% (range 84-88%) for S1 and 88% (range 73-100%) for S2. A high level problem behaviors with high variability of data pattern and no established trend were observed for S3 (M = 70%, range 2-100%) during the baseline phase. The average percentage of intervals with desired behaviors for all participants was almost a reflection of the percentage of intervals with problem behaviors (see Table 2 and Figure 1).

Intervention Phase. Data of S1 and S2 indicated a low variability of data pattern in both Intervention Phase 1 (range 0-4% and 4-10% respectively) and Phase 2 (range 0-2%). S3's data showed overlapping data points with data points for the baseline phase. A decreasing trend for the percentage of problem behaviors and an increasing trend for the percentage of intervals with desired behaviors were established for S3.

Table 2. Means and ranges for classroom behaviors during baseline, intervention, and maintenance phases.

Students	Percentage Intervals with Problem Behaviors and Desired Behaviors									
	Baseline Phase 1		Intervention Phase 1		Baseline Phase 2		Intervention Phase 2		Maintenance Phase	
	M	Range	M	Range	M	Range	M	Range	M	Range
Saran (S1)										
Problem	76%	30-100%	2%	0-4%	86%	84-88%	1%	0-2%	25%	0-82%
Desired	27%	0-79%	98%	95-100%	14%	12-15%	99%	98-100%	77%	17-100%
Bulin (S2)										
Problem	51%	13-96%	7%	4-10%	88%	73-100%	1%	0-2%	36%	0-100%
Desired	50%	3-90%	93%	90-95%	12%	0-27%	99%	98-100%	66%	0-100%
Patra (S3)										
Problem	70%	2-100%	32%	0-80%	-	-	-	-	11%	0-64%
Desired	35%	0-81%	72%	31-100%	-	-	-	-	91%	39-100%

In figure 1, a functional relation in the combined design is defined by at least three demonstrations of the effects at three different points in time. Based on criteria cited in Kratochwill et al. (2013), functional relations between the use of the intervention plans and changes in behaviors were documented for all participants.

Table 3. Compared changes in mean of the percentage intervals with problem behaviors and desired behaviors

| Students | Percentage Intervals with Problem Behaviors and Desired Behaviors | | | | |
| | Intervention Phase 2 | | Maintenance Phase | | |
	M	Range	M	Range	Average Mean Change
Saran (S1)					
Problem	1%	0-2%	25%	0-82%	+24
Desired	99%	98-100%	77%	17-100%	-22
Bulin (S2)					
Problem	1%	0-2%	36%	0-100%	+35
Desired	99%	98-100%	66%	0-100%	-33
Patra (S3)					
Problem	32%	0-80%	11%	0-64%	-21
Desired	72%	31-100%	91%	39-100%	+19

Maintenance of the Behavioral Changes

Maintenance Phase. The average percentage of intervals with problem behaviors was 25% (range 0-82%) for S1 and 36%(range 0-100%) for S2 suggesting increasing in problem behavior data after 3 months school break. S3, however, displayed lower level of problem behaviors with lower trend. However, the last data points of S1's problem behaviors suggested consistency and low variable decreasing trend. Table 3 shows the compared changes in mean of the percentage intervals with problem behaviors and desired behaviors during the intervention phases and the maintenance phases. Increasing mean change was found for the percentage intervals with problem of S1 and S2 while significant mean changes were found for S3's problem behaviors. These data pattern across 3 participants suggested that the behavioral changes as a result of the intervention plan are not inclusive but somewhat promising.
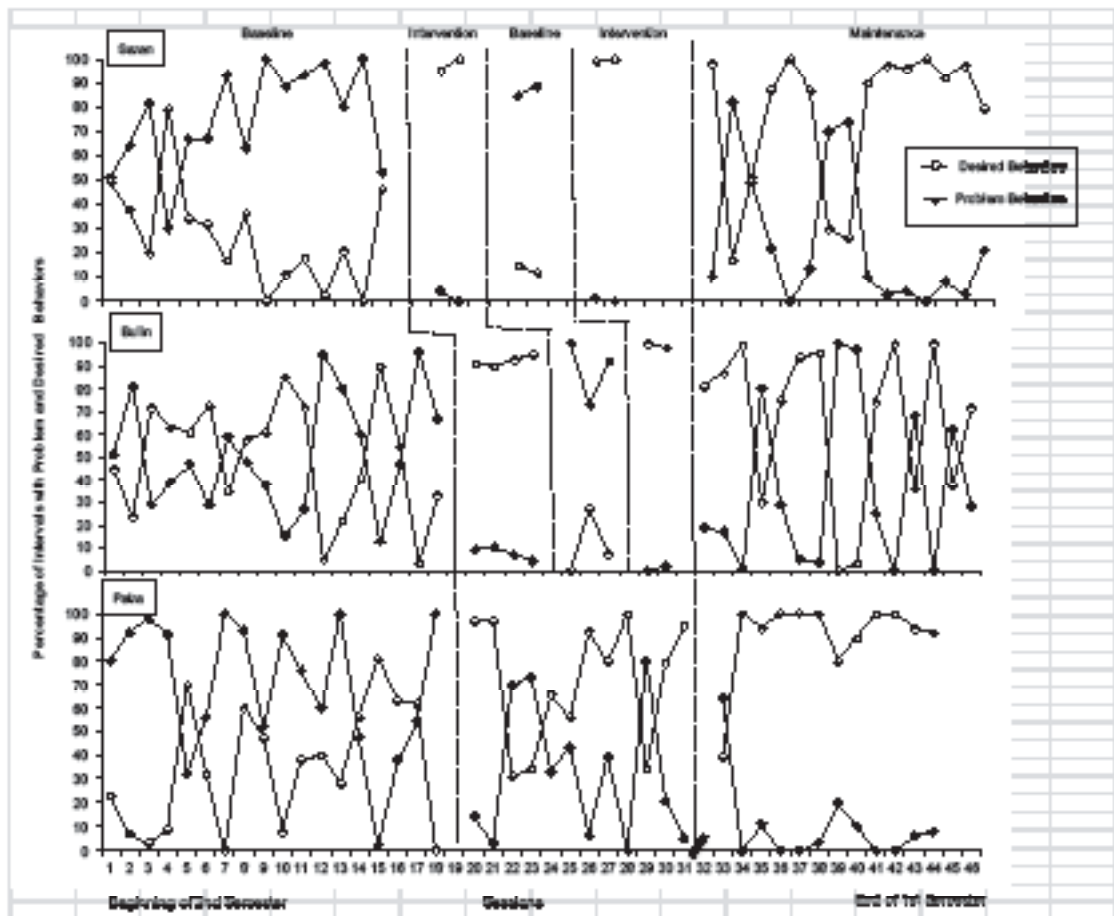
Figure 1. Effect of function-based intervention on classroom behaviors during baseline, intervention, and maintenance phase.

Team Members' Acceptability

To investigate the acceptability of the use of the interventions for all participants, the research, research-developed questionnaires and unstructured interviews with the behavior support team members involving 9 people were used. The result showed that the team members highly agreeed on the social significance of the behavior support goals. The team members accepted the intervention procedure as they highly agreeed that the interventions for all participants fit the implementation contexts and the intervention components were practical. The team members also validated that the intervention was constantly put into practice as planned. Finally, they rated high agreement that the intervention produced positive effects on problem and desired behaviors for all three participants. The team members rated all items pertaining to all three aspects high suggesting rather strong social validity for the intervention supports (See Table 4).

Table 4. Summary of the team members' acceptability

Evaluation Items	Acceptability Rating					
	Saran's Team		Bulin's Team		Patra's Team	
	M	SD	M	SD	M	SD
Acceptability of the goals	4.36	0.57	4.48	0.50	4.43	0.37
Acceptability of the implementation procedures	4.10	0.59	4.26	0.40	4.36	0.49
Acceptability of the effects	4.40	0.52	4.42	0.23	4.20	0.71

The follow-up unstructured interview results also showed that all implementers stated their roles and responsibilities accurately as planned. They accepted that the intervention components would reduce problem behaviors in the classroom. The techniques that were listed in the behavior support plan such as the "good behavior notebook" and the "direct and explicit instruction approach" were also mentioned by the team members as easy to do and practical. The administrator maintained that she will be more careful to watch out for the relevant antecedents and consequences of S3's behaviors in the future as he used to engage in attention-maintained behaviors. While most parents had played rather passive roles in which they awaited instructions from other team members, S3's father provided extended perspectives on the plan for his son. He maintained how the self-regulated strategy intervention addressing S3's concern on negative emotions impacted the family. He mentioned that S3's positive behaviors such as higher responsibility towards house chores were observed at home. In the future, the family would expect more supports from the school or behavioral consultants in term of concrete recommendations on solving complex behaviors.

Summary of the Results

1. There are functional relations between a function-based intervention and a decrease in problem behaviors as well as an increase in desired behaviors for all student participants.

2. The maintenance of the behavioral changes is not inclusive but somewhat promising.

3. The team members accepted the intervention goals, the procedures, and the effects at high level.

Discussion

The preliminary findings of this study support the efficacy of function-based interventions in schools that have been well documented worldwide (Bruni et al., 2017). The function-based strategy has a potential contribution to reduce problems because the predictors and the consequences that maintain the behaviors were observed and removed (Ingram et al., 2005). The FBA hypothesis stated that when the participants received unstructured instructions from inattentive adults, problem behaviors occurred. Positive changes of the student behaviors were attributed to the changes of the attitudes and

behaviors of the team members: being more attentive and open-minded (Opartkiattikul et al., 2016). Moreover, the result added to existing literature indicating that increased desired behaviors such as classroom engagement are related to decreased behavior problems (Gann et al., 2014)

The other findings pointed to the curriculum modification including the adjustment in instructional delivery. When the team suggested that the students at-risk for academic learning received academic lessons at their instructional level materials through the direct instruction strategy, their problem behaviors immediately diminished. Previous research also found that when the teachers modified their lessons, the students' behaviors were strongly impacted especially students whose problem behaviors were attention-maintained (Trussell et al., 2016).

The results also suggest that the interventions based on collaboration among the behavioral support teams were effective in contributing changes in individual behaviors as well as changes in the implementers' behaviors. As Carr et al. (2002) and Dunlap et al. (2009) noted that positive behavior support had looked beyond just the behaviors of individuals. The approach now seeks to understand how the behavior supports could potentially benefit key stakeholders and community. The positive changes in S3's desired behaviors may be due to the series of engaged participation between S3 himself and his behavior support team members, especially the deputy principal, the behavior consultant, and his father during the intervention phase to the maintenance period. The deputy principal, in particular, worked

closely with S3 and the behavior consultant. Based on the unstructured interview, it was clear that she had great interest in the behavior support plan and worked devotedly with the team to help this student. Parent involvement in this study was somewhat evidenced. The researcher approached the school and promoted involvement among the people who are relevant to the students especially parents. Several studies also revealed that the behavior support plan of which the implementation is likely to be successful tends to be the one provided by the team members whose awareness is around the context of the students and their families (Apichatabutra, 2009; Opartkiattikul et al., 2016; Walker, Chung, & Bonnet, 2017). Moreover, the results are inconsistent with previous research showing that administrative leadership is important to provide direction and motivation for the sustainability of student support innovation (Coffey & Horner, 2012). Lastly, it is important especially for the students with special needs as previous research suggested that parent's involvement increased efficiency of the behavior support plan as well as sustained practices in schools (Hawken, O'Neill, MacLeod, & Utah, 2011).

The results address changes in less complex behaviors of the students in which the stake of the problem is not high. Compared to severe and dangerous behaviors such as self-injurious behaviors that may require knowledge and expertise of school psychologist or medical doctors, systematically use of FBA to enhance the match between individual student needs and specific supports that the team can provide along with efficient training related to support for school personnel could be sufficient (Stickland-Cohen & Horner, 2015)

Implications for Practices and Future Research

This study provides recommendations regarding ways to improve caring system for the students who are engaged in behavior problems in school in a collaborative way. Providing behavior supports for at-risk students is challenging but promising to bring upon positive impacts. Present studies suggested evidences that academic and behavior intervention based on positive behavior support (PBS) approach not only improve social behaviors but also promise academic achievement (Gage, Leite, Childs, & Kincaid, 2017)

Teachers need help to conduct classroom behavior management (Simonsen et al., 2017). The results show that teachers reported concerned with disruptive behaviors and they need technical support especially from experts. Future study on the effect of expert-driven comprehensive training on behavior support strategies such as function-based strategy may become more important in the near future for the improvement of the schools in Thailand. The results contribute to the teachers' technique solutions. Teachers could consult with parents and administrators to find out positive approaches instead of aversive ones including corporal punishment, as Opartkiattikul et al. (2016) also mentioned that this was a big issue in many Thai public schools. As inclusive practices are concerned, the component of direct observations in classrooms assists teachers to authenticate actual practices in areas such as assessment, curriculum development, teaching strategies, and source for "best practices".

Finally, the results also emphasized the importance of training on the formation of positive social attitudes towards inclusion as well as the expansion of in-service training to enhance general educators' knowledge and skills in teaching students with special needs (Strickland-Cohen & Horner, 2016). Future research should focus on bottom-up problem solving study in which teachers are encouraged to find out the students' needs and work on problem solving together or with facilitation of school leaders. If the leader shows effort, she becomes a role model for teachers and the teachers will follow along (Coffey & Horner, 2012). Chinchai (2010) found also that the tendency to promote inclusive education in Thailand pinpoints to decreasing the resource classroom while increasing efficiency of general education teachers in handling behavior management as well as academic supports with external resources from the government in terms of accommodations or assistive technology. The format for professional development in function-based including time, group-size, content, experts' expertise, should also be in consideration for further studies. Only training, however, is inadequate to enhance changes in the teachers' behaviors. The results contribute to the literature that comprehensive training with performance feedback and experts in vivo observation support are more effective (Simonsen et al., 2017).

Conclusion

This study contributes to the literature on the effects of function-based intervention on reducing problem behaviors for students at-risk for learning problems in an inclusive school. Changes in the students' behaviors were accounted for PBS elements: function-based, team-based decision making, and multicomponent. However, significant challenges remain in bringing inclusive and equitable educational practices to the students. In Thailand, more effective communication is needed to promote

clear understanding of the concept "inclusive education for all". Implementation challenges are continually present regarding how to effectively structure the delivery of supplemental instruction, train and support staff, and utilize data to improve the performance of at-risk students.

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References

Agbenyega, J. S., & Klibthong, S. (2014). Assessing Thai early childhood teachers' knowledge of inclusive education. *International Journal of Inclusive Education, 18(12),* pp. 1247-1261.

Apichatabutra, C. (2009). The effects of function-based academic and behavior intervention on problem behaviors and reading performance for English language learners in a Thai international elementary school. *Journal of Research Methodology, 22(3),* pp. 331-365.

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1(1)*, pp. 91-97.

Benazzi, L., Horner, R. H., & Good, R. H. (2006). Effects of behavior support team composition on the technical adequacy and contextual fit of behavior support plans. *The Journal of Special Education, 40(3)*, pp. 160-170.

Bruni, T. P., Drevon, D., Hixson, M., Wyse, R., Corcoran, S., & Fursa, S. (2017). The effect of functional behavior assessment on school-based interventions: Meta-analysis of single-case research. *Psychology in the Schools, 54(4)*, pp. 351-369.

Bureau of Special Education Administration (2011). *Guidelines for development of model inclusive schools.* Bangkok: Office of Basic Education Commission.

Bureau of Special Education Administration (2017). *Report of the numbers of students with disabilities in inclusive schools.* Retrieved 1 6 May, 2017 from http://202.29.172.121/specialbasic/download/student_2560_1_classdefromall.pdf

Carr, E. G., Dunlap, G., Horner, R. H., Koegel, R. L., Turnbull, A. P., Sailor, W., et al. (2002). Positive behavior support: evolution of an applied science. *Journal of Positive Behavior Interventions, 4(1),* pp. 4-16.

Chinchai, S. (2010). Development of collaborative inclusion model for students with special needs: A case study of an inclusive school in Chiang Mai province. *Bull Chiang Mai Assoc Med Sci, 43(1),* pp. 51-62.

Coffey, J. H., & Horner, R. H. (2012). The sustainability of schoolwide positive behavior interventions and supports. *Exceptional Children, 78(4)*, pp. 407-422.

Cook, C. R., Mayer, G. R., Wright, D. B., Kraemer, B., Wallace, M. D., Dart, E.,... & Restori, A. (2012). Exploring the link among behavior intervention plans, treatment integrity, and student outcomes under natural educational conditions. *The Journal of Special Education, 46(1)*, pp. 3-16.

Dunlap, G., Sailor, W., Horner, R. H., & Sugai, G. (2009). Overview and history of positive behavior support. In W. Sailor, G. Dunlap, G. Sugai, & R. Horner (Eds.), *Handbook of positive behavior support,* (pp. 3-16). NY: Springer.

Gann, C. J., Ferro, J. B., Umbreit, J., & Liaupsin, C. J. (2014). Effects of a comprehensive function-based intervention applied across multiple educational settings. *Remedial and Special Education, 35(1),* pp. 50-60.

Gage, N. A., Leite, W., Childs, K., & Kincaid, D. (2017). Average Treatment Effect of School-Wide Positive Behavioral Interventions and Supports on School-Level Academic Achievement in Florida. *Journal of Positive Behavior Interventions, 19(3)*, pp. 158-167.

Hawken, L. S., O'Neill, R. E., & MacLeod, K. S. (2011). An investigation of the impact of function of problem behavior on effectiveness of the behavior education program (BEP). *Education and Treatment of Children, 34(4),* pp. 551-574.

Ingram, K., Lewis-Palmer, T., & Sugai, G. (2005). Function-based intervention planning: Comparing the effectiveness of FBA function-based and non-function-based intervention plan. *Journal of Positive Behavior Intervention, 7,* pp. 224-236.

Kantavong, P. (2012). A training model for enhancing the learning capacity of students with special needs in inclusive classrooms in Thailand. In C. Forlin (Ed.), *Future directions for inclusive teacher education: An international perspective.* Hobokenm NJ: Taylor and Francis.

Kratochwill, T. R., Hitchcock, J. H., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2013). Single-case intervention research design standards. *Remedial and Special Education, 34(1),* pp. 26-38.

Lane, K. L., Kalberg, J. R., Bruhn, A. L., Driscoll, S. A., Wehby, J. H., & Elliott, S. N. (2009). Assessing social validity of school-wide positive behavior support plans: Evidence for the reliability and structure of the Primary Intervention Rating Scale. *School Psychology Review, 38(1)*, pp. 135.

McIntosh, K., Kim, J., Mercer, S. H., Strickland-Cohen, M. K., & Horner, R. H. (2015). Variables associated with enhanced sustainability of school-wide positive behavioral interventions and supports. *Assessment for Effective Intervention, 40(3)*, pp. 184-191.

Opartkiattikul, W., Arthur-Kelly, M., Dempsey, I. (2016). Professional development and learning by general teachers implementing functional behavioural assessment in Thai inclusive classrooms. *International Journal of Disability, Development and Education, 63(5),* PP. 545-564.

Reinke, W. M., Herman, K. C., & Stormont, M. (2013). Classroom-level positive behavior supports in schools implementing SW-PBIS: Identifying areas for enhancement. *Journal of Positive Behavior Interventions, 15(1),* pp. 39-50.

Simmons, D.C., Fuchs, L.S., Fuchs, D., Mathes, P., Hodge, J. P. (1995). Effects of explicit teaching and peer tutoring on the reading achievement of learning-disabled and low-performing students in regular classrooms. *The Elementary School Journal, 95(5),* pp. 387-408.

Simonsen, B., Freeman, J., Dooley, K., Maddock, E., Kern, L., & Myers, D. (2017). Effects of targeted professional development on teachers' specific praise rates. *Journal of Positive Behavior Interventions, 19(1)*, pp. 37-47.

Strickland-Cohen, M. K., & Horner, R. H. (2015). Typical school personnel developing and implementing basic behavior support plans. *Journal of Positive Behavior Interventions, 17(2),* pp. 83-94.

Sugai, G., & Horner, R. (2006). A promising approach for expanding and sustaining school-wide positive behavior support. *School Psychology Review, 35(2),* pp. 245-259.

Trussell, R. P., Lewis, T. J., & Raynor, C. (2016). The Impact of Universal Teacher Practices and Function-based Behavior Interventions on the Rates of Problem Behaviors among At-risk Students. *Education and Treatment of Children, 39(3),* pp. 261-282.

Umbreit, J., Ferro, J., Liaupsin, C. J., & Lane, K. L. (2007). *Functional behavioral assessment and function-based intervention: An effective, practical approach.* Upper Saddle River, NJ: Pearson Press.

Vorapanya, S., & Dunlap, D. (2012). Inclusive education in Thailand: practices and challenges. *International Journal of Inclusive Education, 16,* pp. 1-15.

Walker, V. L., Chung, Y. C., & Bonnet, L. K. (2017). Function-based intervention in inclusive school settings: A meta-analysis. *Journal of Positive Behavior Interventions.* DOI: 1098300717718350.

Woodcock, S., & Hardy, I. (2017). Probing and problematizing teacher professional development for inclusion. *International Journal of Educational Research, 83,* pp. 43-54.