

***The Impact of The 101s Storybook Intervention Program on Executive Function,
The 101s Social-Emotional skills, and School Achievement in Preschoolers***

Duangporn Jinnatanapong, Mahidol University, Thailand
Vasunun Chumchua, Mahidol University, Thailand
Nuanchan Chutabhakdikul, Mahidol University, Thailand
Panadda Thanasetkorn, Mahidol University, Thailand

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Abstract

Multidisciplinary research in child development has underlined the significance of executive function (EF) development to children's school and life success. Previous research in the 101s positive discipline training program; the U.S. national winning-award program for training parents, teachers, and early childhood educators to promote children's social-emotional and cognitive skills, have showed the positive impact on the parenting practices and children's EF skills in Thailand for years. The current research attempted to further study the impact of the 101s children's training on their EF development. Therefore, this research aimed to investigate the impact of the 101s Storybook program on EF and 101s social-emotional skills, and the correlations among EF, 101s social-emotional skills, and school achievement. A quasi-experimental, pre-posttest control group was designed. The sample was 4-year-old children in two classrooms in an elementary school. One classroom (n = 20) was intervention group where the children received the 101s Storybook program, and the other classroom (n = 20) was control group where the children received no intervention. Before and after the program implementation, the teachers of the children were asked to rate the behavior rating inventory of executive function® and the 101s social-emotional checklist. A series of MANCOVA was employed to evaluate the different mean scores of the dependent variables. A bivariate correlation was also performed to evaluate the correlations among the dependent variables. The results showed the positive impact of the 101s Storybook program on children's EF, 101s social-emotional skills, and school achievement. The discussions, limitations, implications and suggestions are discussed.

Keywords: Executive Function, 101s, Storybook, School Achievement

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Introduction

In the 21st century era, children need to master a wide range of academic and life skills in order to succeed in school, career and life. In response to the global changes and needs, the Ministry of Education in Thailand has announced a national education policy aiming to support the students' psychological growth, critical thinking development, and life-long learning. The education in Thailand is reformed in all academic levels, especially preschool level, since it is the critical period for child development. In recent years, there has been growing interest among researchers in early childhood education and development and neuropsychology in the significance of executive function (EF) development in children's cognitive and social functioning.

EF is higher mental processes that work coordinately in the brain's frontal lobe to help a person to attain a specific goal (Moriguchi & Hiraki, 2013). It is the most important function of the prefrontal cortex in regulating emotions, thoughts, and behaviors through the activation and inhibition of other brain areas (Knight & Stuss, 2002, Shallice, 2002). The processes of the EF begin across childhood and increase in more complexity through middle and high school. There are specific aspects of the EF, including Inhibit, Shift, Emotional Control, Working Memory, and Plan/Organize (Kok et al., 2014). When children enter a new classroom, they need EF skills to operate their thoughts and behaviors to effectively balance their own needs and classroom demands. They have to hold their desires while listening to teachers and working on their own assignments and exhibit when appropriate (inhibit). They have to flexibly switch their thoughts and behaviors when the classroom conditions and activities are changed (shift).

They are required to regulate their emotions and behaviors to interact with the others positively, and completely finish assigned tasks (emotional control). They also need to keep the teachers' directions and classroom' rules in mind (working memory), and find ways to work on assigned tasks accordingly (plan/organize). EF skills validate developmental changes in children's performance over the school years and predict emergent literacy, vocabulary, and math skills (McClelland et al, 2004), and social-emotional, cognitive and academic outcomes later in adolescents (Ellis, Rothbart, & Posner, 2004). Children with poor EF skills are at risk for unsuccessful adaptations to the demands of environments, causing lasting difficulties in social-emotional, cognitive and academic development (Biederman et al, 2004). Although pertinent research indicated that EF skills appear to play an important role in children's social-emotional skills, higher-order thinking processes, and academic achievement across childhood, preschool teachers in Thailand received little instruction in how to promote preschoolers' EF skills.

A series of studies in Thailand came out in attempt to improve main caregivers' practice skills in order to promote children's social-emotional and cognitive skills. The studies indicated that the 101s positive discipline training program; the U.S. national winning-award program for training parents, teachers, and early childhood educators to promote children's social-emotional and cognitive skills, have showed the positive impact on the teaching practices and children's EF skills (Sutipan, Chumchua, Chutabhakdikul, & Thanasetkorn, 2012, Thanasetkorn, Chumchua, & Chutabhakdikul 2015).

The 101s positive discipline training program provides techniques for interacting with children with care and warmth. The main objectives of the 101s positive discipline techniques are to respond to a child's psychological needs and to teach and train social-emotional and cognitive skills required to succeed in relationships with others and academic performance (Masterson, 2008, Thanasetkorn et al., 2015). The 101s positive discipline techniques are divided into 2 categories. First category consists of techniques for emotional support. For example, Validate Principle is used to validate a child's feeling. When using this technique, the child feels that their feeling is heard and mattered to the teacher, and at the same time they also learn the names of their emotions, how to deal with their inner conflict and manage their behaviors accordingly to the classroom expectations. Second category consists of the techniques for behavioral direction.

For example, Choice Principle is used when the teacher wants a child to conduct expected behaviors by offering two acceptable choices to the child. The teacher may say, "Would you like to play 1 minute or 2 minutes before we go to have lunch?" Either the child chooses 1 or 2 minutes, he has to finally conduct the expected behavior (Thanasetkorn, Suttho, Chumchua, & Chutabhakdikul, 2015). Previous research study in the U.S. on the impact of the 101s positive discipline teacher training on teachers' interaction practices and children's prosocial skills found that the teachers in the training group who received the 101s positive discipline teacher training significantly had higher scores on positive interaction practices and their children also significantly had higher scores on prosocial skills, when comparing to the teachers and children in the control group. The findings indicated that after the trained teachers acquired the 101s positive discipline techniques and observed the change in child behavior outcomes, they had more willingness to use positive/responsive interaction approaches (Masterson, 2008).

In Thailand, Thanasetkorn (2009a) conducted a research study with 20 teachers and 164 three- to four-year-old children in two preschools to investigate the impact of the 101s positive discipline teacher training on teachers' interaction practices, teacher-child relationships, children's school adjustment skills, and school achievement. One preschool was assigned to be an intervention group in which the teachers in 3 to 4-year-old classrooms participated in the 101s positive discipline teacher training. The other preschool was assigned to be a control group in which the teachers in 3 to 4-year-old classrooms did not participate in the 101s positive discipline training.

The results showed that the teachers in the intervention group significantly had higher scores on positive interaction practices and lower scores on negative interaction practices, comparing to the teachers in the control group. The results also showed that the teachers in the intervention group rated themselves as having higher scores on positive teacher-child relationships and lower scores on negative teacher-child relationships, comparing to the teachers in the control group. Moreover, the results showed that the children in the intervention group significantly had higher scores on school adjustment skills and school achievement, comparing to the children in the control group. The findings indicated that the 101s positive discipline teacher training significantly had positive impact on the changes in the teachers' interaction practices, the quality of teacher-child relationships, children's school adjustment skills and school achievement (Thanasetkorn, 2009a).

In the same year, Piyavalee Thanasetkorn (2009) conducted a research study on the impact of the 101s positive discipline parent training on parents' interaction practices, the quality of parent-child relationships, children's school adjustment skills, and school achievement with 164 parents and their 164 three-to four-year-old children. The results also showed that the 101s positive parent training had statistically significant impacts on the positive changes in higher positive parents' interaction practices, positive parent-child relationships, and children's school adjustment skills and school achievement. The findings of the research studies suggested that even though this research showed the positive changes in teachers' practices, parents' interaction practices, and children's development, replications of research studies with large sample size and sample in different school districts across the nation were needed for future research (Thanasetkorn, 2009a, Thanasetkorn, 2009b).

In 2012, findings from the research, conducted by Thanasetkorn and colleagues with 11 teachers and 45 three- to five-year-old-children in two preschools to investigate the impact of the 101s positive discipline teacher training on teachers' interaction practices, children's self-regulation and EF skills, showed that the teachers in the 101s training group had significantly higher scores on positive interaction practices and significantly lower scores on negative interaction practices, comparing to the teachers in the control group. The results also showed that the children in the 101s training group had significantly better mean scores on self-regulation skills (Pichitkusalachai, et al. 2012) comparing to children in the control group.

Moreover, in the same study, the researchers also found that the children in the 101s training group significantly had better mean scores on also skills (Thanasetkorn et al., 2015). The findings suggested that the 101s positive discipline teacher training had a significant result in the positive changes in the children's self-regulation and EF skills. Likewise, Suthipan and colleagues (2012) found the consistent results in their research study with 7 teachers and 60 four-to five-year-old children on the impact of the 101s positive discipline teacher training on teachers' interaction practices and children's EF skills. The results showed that the 101s teacher training had a positive impact on the teacher interaction practices and preschoolers' EF skills. The 101s training also resulted in significant correlations between positive teacher interactions and preschoolers' EF skills. The findings from the previous research suggested that the 101s positive discipline teacher training had a positive impact in teacher interaction practices and EF skills in children in various ages and in different districts (Suthipan et al., 2012).

Besides the research in the teacher training, later in 2013, Thanasetkorn and colleagues also found consistent results in their research study on the impact of the 101s positive discipline parent training on parents' interaction practices and children's EF with 54 parents and their 3-to 5-year-old children. The findings indicated that the 101s positive discipline parent training significantly had impact on the positive changes in the parents' interaction practices and resulted in the improvement of children's EF skills. Even though the previous research had a limitation in small sample size, the researchers attempted to generalize the findings by carefully conducting the research studies in various schools and in different school districts (Thanasetkorn et al., 2015).

Findings from previous research in the impact of the 101s positive discipline in preschools in Thailand indicated that the 101s positive discipline training could be a new promise for effective practices in early childhood education. A growing body of research in the impact of the 101s positive discipline training viewed teachers and parents as the main factor influencing child development, especially their interaction practices. The 101s positive discipline training equipped the trained teachers and trained parents with techniques to respond to the children psychological needs and teach expected behaviors to the children. As a result, the children practiced regulating their emotions and behaviors with warm and responsive care. However, the 101s positive discipline training program was never developed to directly train children. Therefore, this research attempted to develop the 101s positive discipline training program for children and further investigate the impact of the children training program on children's development.

Pertinent research in early childhood education has suggested that children learned well via a storytelling, a book contained scenes in sequent, languages, and gestures, because it offered vivid stories and tangible experiences that helped children to learn and develop. There was a significant evidence from a research study in Iran that the children learned English vocabulary items in story books and consequently, their English vocabulary scores were significantly enhanced (Soleimani & Akbari, 2013). For social-emotional development, Ding (2009) studied 746 stories told by 227 children aged ranged from 33-75 months to examine the content of the stories and gender differences. The results showed that most stories for children contained prosocial behaviors and only few stories contained positive emotions. The results also showed that the stories for girls contained more positive emotion that did the stories for boys. The research suggested that as children needed to learn prosocial behaviors and positive emotions, caregivers could choose stories in prosocial and emotional support themes to help children develop the skills for coping with their feelings and emotions and interacting with the others (Ding, 2009).

Taking from the findings and suggestions of previous research, the researchers composed short stories that offered conflict situations in school and at home, meaningful dialogues of the 101s techniques, climax, and solutions for children. Thus, this study aimed to examine the impact of the 101s storybook intervention program on EF skills, the 101s social-emotional skills and school achievement in preschoolers. It was hypothesized that children would learn when the 101s techniques were applied in particular situations from the conflict situations of the stories, learn how to use the 101s techniques from the meaningful dialogues of the stories, acquire the 101s social and emotional skills, and gain EF skills.

Methods

Setting and Sample

A quasi-experimental, pre-posttest control group was designed. The sample was 40 four-year-old children in two classrooms in an elementary school. One classroom (n = 20) was intervention group where the children received the 101s Storybook program 3 times a week for 8 weeks. The other classroom (n = 20) was control group where the children received no intervention.

Instruments

Four instruments were used in this study. First, a questionnaire was developed to collect the data of sample background in order to control confounding variables. It contains 2 parts with the total of 16 questions. The first part is the general information of the parent background such as age, ethnicity, status, level of education and income. The second part is the general information of the children background such as gender, age and health.

The second instrument is the 101s social-emotional skills checklist. It was developed by the 101s specialists for teachers to rate the frequency of children's classroom behaviors related to the 8 techniques of the 101s positive discipline and the 6 social-emotional skills. It consists of 30 items with a 5-point likert scale ranging from "Never" to "Always". The 101s social-emotional skills checklist was tested for content validity and reliability. The Cronbach's alpha was 0.789, indicating the acceptable level for use.

The third instrument is the Behavior Rating Inventory of Executive Function-Preschool Version (BRIEF-P). The BRIEF-P is the standardized executive function scale, designed for teachers to rate the child's classroom behaviors related to EF behaviors on a 3-point scale ("Never", "Sometimes", and "Often") in term of how often. The BRIEF-P contains 63 items with five non overlapping theoretically and empirically derived clinical scales that measure different aspects of aspect of executive functioning: Inhibition, Shifting, Emotional Control, Working Memory, and Planning/Organizing. These clinical scales yield three composite indexes: the Inhibitory Self-Control Index (ISCI), Flexibility Index (FI), and Emergent Metacognition Index (EMI). The overall composite index is the Global Executive Composite (GEC). In addition, the BRIEF-P includes two scales designed to assess validity of responses (Inconsistency and Negativity)

The last instrument used in this study was the school report card. It is the school's total records of children's school performance in 5 specific areas including Math, English language, Science, Life skills, and Cognitive skills. It reports the child's skills in 3 levels including Below Average, Average, and Above Average.

Intervention

The 101s storybooks were developed for this study and under control of the researcher and 101s specialist. 9 techniques of the 101s positive discipline were chosen to compose 6 social stories. They were also pilot-tested before implementing in the kindergarten classrooms in Pimolwit School. There are 2 steps for implementing the 101s Storybook intervention program in the classroom. The first step is reading the 101s storytelling book to the children. It takes 10 minutes. The children listen to the social story in the 101s storybook in which the characters in the story illustrate when and how to use the 101s techniques. The second step is Summary. It takes 5 minutes. The children discuss about the story with their friends and teacher. The teacher reminds the children how to use 101s techniques in dairy life. The total time is 15 minutes each time. The intervention was implemented 3 times a week for 8 weeks.

Data Collection

1. The informed letters were sent to the faculty of Graduate Studies to get a letter of recommendation. After the ethical permission, the inform letter was sent to target school in this study.
2. After getting the Letter of Recommendation and permission from the faculty of Graduate Studies, the informed letters were sent to the directors of the intervention and control school in order to inform and ask for the permission from the school directors.
3. Having a meeting with the director and teachers of the school to inform the objective, procedures, and schedules for data collections and intervention.
4. The consent forms and questionnaires were sent to the teachers and the parents of the children in order to collect the voluntarily agreement to participate in the research.
5. Before the program implementation, asking the teachers in both intervention and control groups to rate their children's EF skills, using the Behavior Rating Inventory of Executive Function-Preschool Version (BRIEF- P®) and the 101s social-emotional checklist.
6. Implementing the 101s storybook intervention program in the intervention group for 8 weeks.
7. After the program implementation, asking the teachers in both intervention and control groups to rate children's EF skills, using the Behavior Rating Inventory of Executive Function-Preschool Version (BRIEF- P®) and the 101s social-emotional checklist.
8. Collecting the children's report cards at the end of the semester from he teachers.
9. Analyzing the data and Discussing the findings.
10. Implementing the 101s Storybook intervention program in the control group.

Data Analysis

1. Descriptive statistic was used to describe the background of the sample and to match the background of the sample in the intervention and control groups.
2. A series of MANCOVA was used to examine the significantly differences in the changes of pretest and posttest mean scores on EF skills and 101s social emotional skills between intervention group and control group.
3. A series of MACOVA was utilized to examine the significantly mean scores on school achievement between intervention group and control group.
4. A bivariate correlation was utilized in order to investigate the relationships among EF skills, 101s social-emotional skills, and school achievement.

Ethics

This research was approved by the Committee on Human Rights of Mahidol University. The participants indicated their willingness to participate by signing a consent form for human right protection. The participants could ask for any additional information and could stop or withdraw from this study at any time without any affected.

Results

The Impact of 101s Storybook Intervention Program on EF skills

It is important to note that the mean scores on EF skills reflect the misbehaviors related to EF skills. Therefore, low mean score on each subscale shows less misbehaviors and high ability to regulate their appropriate behaviors, and vice versa. In order to quantify the significant changes in EF development, the mean scores on EF posttest were subtracting from the mean scores on EF pretest. A series of MANCOVA was performed to investigate the significant differences between two groups of independent variables on EF subscales. The results showed that the multivariate test for group was significant ($F = 23.551, p < .05$) (Table 1.).

Table 1. Multivariate Test of BRIEF-P

Effect of Pillai's trace	F	Hypothesis df	P-value
Gender	1.368	5.000	.262
Age child	1.472	5.000	.226
Group	23.551***	5.000	.000

*** $p < 0.001$

The univariate followed-up F-test was performed to examine the effect of independent variables on dependent variables.

The results from that the univariate follow-up F-test for Inhibit development, Shift development, Emotional Control (EC) development, Working memory (WM) development and Plan/Organize (PO) development were significant ($F = 33.814, 22.033, 19.043, 103.734, 8.159, p < 0.001, respectively$). It indicated that Inhibit development, Shift development, EC development, WM development and PO development were significantly influenced by group (See Table 2.).

Table 2. Univariate F-test of BRIEF-P

Source	Dependent Variable	df	F	P-value
Group	Inhibit development	1	33.814***	.000
	Shift development	1	22.033***	.000
	EC development	1	19.043***	.000
	WM development	1	103.734***	.000
	PO development	1	8.159**	.007

*p < 0.05, **p < 0.01, ***p < 0.001

The results from the descriptive statistic of EF subscales showed that the children in the intervention group had significantly higher changes in the pretest to posttest mean scores on executive function subscales including inhibition (M = 6.10, SD = 3.493), shifting (M = 2.45, SD = 1.791), emotional control (M = 3.10, SD = 3.323), working memory (M = 11.85, SD = 3.703) and plan/organize (M = 5.1, SD = 2.125) than did the children in the control group have the changes in the pretest to posttest mean scores on EF subscales including inhibition (M = 0.80, SD = 1.936), shifting (M = -0.80, SD = 1.881), emotional control (M = 3.10, SD = 3.323), working memory (M = 1.5, SD = 3.069) and plan/organize (M = 3.05, SD = 2.704) (See table 3.).

The findings indicated that the 101s storybook intervention program had a significant impact on children's EF development. Therefore, the children in the intervention group had better changes in EF development in all subscales than did the children in the control group.

Table 3.Descriptive Statistics of executive function subscale

	Group	Mean	Std. Deviation	N
Inhibit development	intervention group	6.10	3.493	20
	control group	.80	1.936	20
	Total	3.45	3.869	40
Shift development	intervention group	2.45	1.791	20
	control group	.25	1.164	20
	Total	1.35	1.861	40
EC development	intervention group	3.10	3.323	20
	control group	-.80	1.881	20
	Total	1.15	3.317	40
WM development	intervention group	11.85	3.703	20
	control group	1.50	3.069	20
	Total	6.67	6.224	40
PO development	intervention group	5.10	2.125	20
	control group	3.05	2.704	20
	Total	4.07	2.615	40

The Impact of The 101s storybook intervention program on The 101s social-emotional skills

In order to quantify the significant changes in the 101s social-emotional development, the mean scores on the 101s social-emotional pretest were subtracting from the mean scores on the 101s social-emotional posttest. A series of MANCOVA was performed to investigate the significant differences between two groups of independent variables on the 101s social-emotional subscales. The result showed that the multivariate test for group was significant ($F = 48.992, p < .001$) (See Table 4.).

Table 4.Multivariate Test of 101s social emotional skills

Effect of Pillai's trace	F	Hypothesis df	P-value
Gender	2.259	6.000	.063
Age child	0.241	6.000	.959
Group	48.992***	6.000	.000

***p< 0.001

The univariate follow-up F-test for Identifying Feeling on Oneself and Others Development, Controlling Anger and Impulses Development, Understanding How and When to Apologize Development, Problem Solving Development, Taking Turn Development and Sharing Toys and Other Materials Development were significant ($F = 198.841, 15.646, 3.672, 107.121, 20.414, 40.359, p > 0.001$, respectively).

It indicated that the 101s social-emotional skills were significantly influenced by group (See Table 5.)

Table 5. Univariate F-test of 101s social emotional skills

Source	Dependent Variable	df	F	P-value
Group	Identify feeling development	1	198.841***	.000
	Controlling anger development	1	15.646***	.000
	Apologize development	1	3.672	.063
	Problem Solving development	1	107.121***	.000
	Taking turn development	1	20.414***	.000
	Sharing development	1	40.359***	.000

*** $p < 0.001$

The results from the descriptive statistic of 101s social emotional skills showed that the children in the intervention group had significantly higher changes in the pretest to posttest mean scores on the 101s social emotional skills including Identifying Feeling on Oneself and Others development ($M = 14.65, SD = 2.183$), Controlling Anger and Impulses development ($M = 8.45, SD = 2.188$), Understanding How and When to Apologize development ($M = 1.80, SD = .523$), Problem Solving development ($M = 12.65, SD = 2.455$), Taking Turn development ($M = 4.35, SD = 1.309$), and Sharing Toys and Other Materials development ($M = 2.15, SD = .366$) than did the children in the control group have the changes in the pretest to posttest mean scores on 101s social emotional skills including Identifying Feeling on Oneself and Others development ($M = 5.15, SD = 2.003$), Controlling Anger and Impulses development ($M = 5.85, SD = 2.134$), Understanding How and When to Apologize development ($M = 1.50, SD = .513$), Problem Solving development ($M = 5.50, SD = 1.850$), Taking Turn development ($M = 2.65, SD = .988$), and Sharing Toys and Other Materials development ($M = 1.30, SD = .470$) (See Table 6.).

The findings indicated that the 101s storybook intervention program had a significant result in the children's 101s social emotional development. Therefore, the children in the intervention group had better changes in the 101s social emotional development in all subscales than did the children in the control group.

Table 6. Descriptive Statistics of 101s social emotional skills

	Group	Mean	Std. Deviation	N
Identify feeling development	intervention group	14.65	2.183	20
	control group	5.15	2.033	20
	Total	9.90	5.242	40
Controlling anger development	intervention group	8.45	2.188	20
	control group	5.85	2.134	20
	Total	7.15	2.507	40
Apologize development	intervention group	1.80	.523	20
	control group	1.50	.513	20
	Total	1.65	.533	40
Problem solving development	intervention group	12.65	2.455	20
	control group	5.50	1.850	20
	Total	9.08	4.209	40
Taking turn development	intervention group	4.35	1.309	20
	control group	2.65	.988	20
	Total	3.50	1.432	40
Sharing development	intervention group	2.15	.366	20
	control group	1.30	.470	20
	Total	1.73	.599	40

The correlations among children’s Executive Function, the 101s social-emotional skills and school achievement

In order to determine the relationships between children’s social-emotional and cognitive skills, a bivariate correlation was performed to investigate the significant correlations among the total mean scores on BRIEF-P, social-emotional skills, and school achievement. The results showed the significant relationships among EF skills, 101s social-emotional skills, and school achievement.

In Table 7., the result showed that there were significantly negative correlations between EF skills and social-emotional subscale checklist ($r = -0.613$, $p < .001$), meaning that the children who had lower mean scores on EF tended to have higher means scores on the 101 social-emotional skills. It was important to note again that the mean scores on EF skills reflect the misbehaviors related to EF skills. Therefore, the lower mean scores mean the less misbehaviors and higher abilities to conduct appropriate behaviors. Therefore, the result indicated that the children with better EF skills were more likely to gain the 101s social-motional skills. However, the result showed there were no significantly correlations among EF skills, the 101s social-emotional skills, and school achievement, indicating that EF skills and the 101s social-emotional development in the current study did not relate to children’s school achievement.

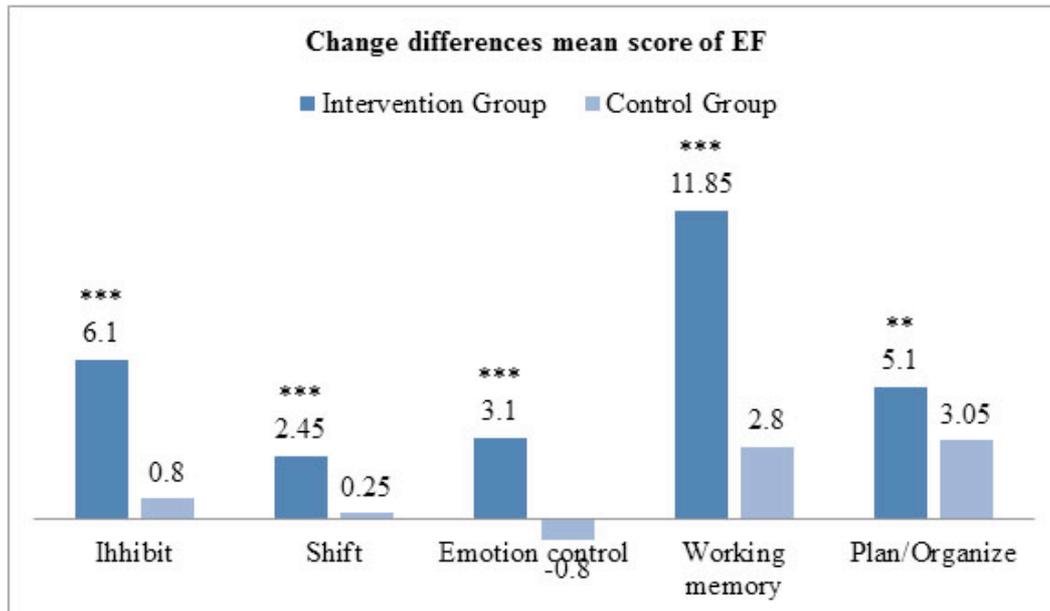
Table 7. The correlation among children's Executive Function, the 101s social-emotional skills and school achievement

		EF	Social	Achievement
EF	Pearson Correlation	1	-.613**	-.430
	Sig. (2-tailed)		.004	.059
	N	20	20	20
Social	Pearson Correlation	-.613**	1	.426
	Sig. (2-tailed)	.004		.061
	N	20	20	20
Achievement	Pearson Correlation	-.430	.426	1
	Sig. (2-tailed)	.059	.061	
	N	20	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

Discussion

The current study investigated the impact of the 101s storybook intervention program on executive function, the 101s social-emotional skills and school achievement in preschoolers. The children in the intervention group who received 101s storybook program, significantly had higher changes in the mean scores on all subscales of EF; including Inhibition control, Shift, Emotional control, Working memory and Plan/Organize, comparing to the children in the control group (See Figure 1.). The findings of this research were consistent with previous research in the 101s positive discipline training to promote children's EF development. The children in the intervention group were more likely to control their emotions and regulate their behaviors to meet the classroom's rules and expectations. The findings in this research suggested that 101s storybook intervention program could promote children's EF skills.



*p < .05, **p < .01, ***p < .001

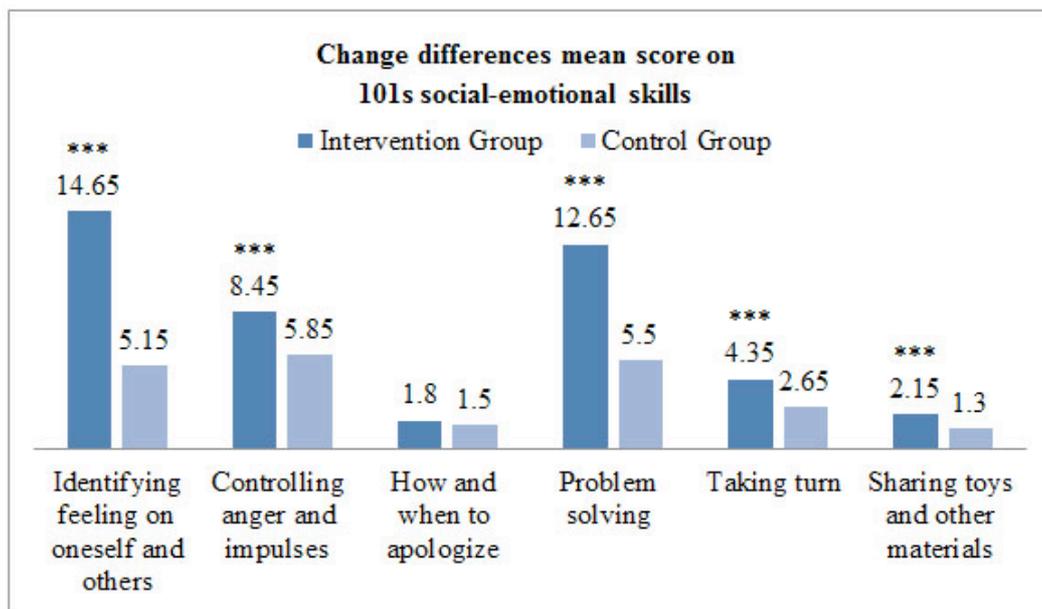
Figure 1: Change differences mean score of EF

Moreover, for the 101s social-emotional skills, the children in the intervention group significantly had higher scores on the changes in all subscales of the 101 social-emotional skill mean scores on Identifying Feeling on Oneself and Others development, Controlling Anger and Impulses development, Problem Solving development, Taking Turn development and Sharing Toys and Other Materials development, comparing to the children in the control group (See Figure 2.). The findings indicated that the 101s Storybook intervention program helped children to gain social-emotional and EF skills. It could be possibly explained that the 101s storybooks explicitly combined the 101s techniques to the stories. Soleimani & Akbari (2013) explained that storytelling allowed children to listen, process, and reproduce the stories. Children’s social-emotional cognitive were promoted by retelling and remembering the plot of the story.

As a result, the children could apply the 101s techniques containing in the 101s Storybooks in the real situations in their classroom and acquire the 101 social-emotional skills. For example, one of the 101s Storybooks illustrated “Choice Principle” technique by having the character in the story express his feeling that he did not want to share the toy to his friend because he was still playing and he was afraid that his friend would not return him the toy. Then, he came out with the “Choice Principle”. He asked his friend, “Would you like to play the toy 2 or 3 minutes before you give me back?” It was evident that the teachers in the intervention group rated their children on the 101s social-emotional skill checklist as often to usually used the “Choice Principle” when they were dealing with sharing situations. They reported that the children used the Choice Principle technique when their friends asked them to share the toy they were playing, and when they wanted to asked their friends to share them the toy. The finding from this research suggested that the 101s Storybook was an effective media facilitating children to understand the 101s techniques via the stories and pictures.

In addition, the result also showed the significantly negative correlation between the EF skills and the 101 social emotional skills. The results were consistent with the previous research conducted by Ellis et al. (2004). Findings from the previous research suggested that EF skills were related to social-emotional skills. In this research, it could be possibly explained that the 101s positive discipline techniques learned from the 101s Storybooks facilitated the children to control their emotions and regulate their behaviors.

As they used the 101s techniques, they exercised their emotional control and planned which techniques and how they would use the techniques to solve the problems. As a result, they acquired the 101s techniques. While using the 101s techniques, the children illustrated the 101s social-emotional skills and conducted less disruptive behaviors to the teachers. Therefore, it could be concluded that the 101s Storybook intervention program could equipped the children with the 101s positive discipline techniques to deal with the classroom situations that helped them to develop the 101s social emotional skills and EF skills.



***p < .001

Figure 2: Change differences mean score on 101s social-emotional skills

For children’s school achievement, the findings from this research showed that the children’s school achievement was not significant correlated to the EF skills and the 101s social-emotional skills. The findings were not consistent with previous research conducted by McClelland et al. (2007) in predictive relations between preschoolers’ behavioral regulation and emergent literacy, vocabulary, and math skills.

The findings suggested that children’s social-emotional and cognitive skills could predict children’s academic performance over the school year. It could be explained that this research was conducted in the short period of time. The intervention was implemented only 8 weeks so that children’s academic performance that normally developed over the school year could not be observed.

Conclusion and Recommendation

The results showed the positive impact of the 101s Storybook program on children's EF and 101s social-emotional skills. It also showed the evidence of significant correlations between EF skills and the 101s social-emotional skills. The phenomenon could be explained that the 101s Storybook intervention program was an effective media for children's learning. The children were stimulated through vivid story and pictures so that the children were able to understand the 101s techniques illustrated by the characters in the 101s storybooks. Moreover, the development also occurred through socially mediated interactions with their peers and teachers.

As a result, the children had a chance to exercise the 101s techniques and were able to learn social expectations and conduct appropriate behaviors related to EF skills. The findings of the research suggested that the 101s Storybook intervention program could be an alternative way to promote children's EF skills and the 101s social-emotional skills. Because this research was the first research attempted to investigate the impact of children training via storybooks on children's EF skills and 101s social-emotional skills, a replication of research with large sample groups or different ages and sample background is suggested for future research in order to support the educational reform in preschool level and to reach the goal of the national policy.

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Contact email: 101panadda@gmail.com