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DEVELOPMENT OF A SELF-DIRECTION GAME HANDBOOK TO IMPROVE INHIBITORY CONTROL FOR 10–12-YEAR-OLDS

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Abstract
Elementary school-age children need increased inhibitory control to focus and put aside things that are not priorities. Inhibitory control helps children to stay focused, control behavior, think before they act, and manage emotions. However, efforts specifically to increase the ability of inhibitory control have not been made much. This study aims to develop a guidebook to improve inhibitory control in children aged 10-12 years through the game "Self-Steering". This research is development research with the following steps: First, conducting a needs analysis through teacher interviews and classroom observations. Second, planning the manufacture of products as a solution to research problems. Third, making the product. Fourth, testing the product through expert validation and limited trials. Fifth, improving the product based on suggestions for improvement at the product trial stage. The result of this study is a game guidebook containing 3 inhibitory control games that were declared feasible by expert validators. Based on the field trial results, this game guidebook is an interesting game guide to improve children's inhibitory control. Some things that need to be improved will be discussed further.

Keywords: games, guidebook, inhibitory control

Introduction

Inhibitory control is part of the executive function. The executive function helps individuals choose the most profitable options by controlling their thoughts and actions when faced with new or complex situations (Traverso, Viterbori, & Usai, 2015). The executive function is needed to stay focused and keep oneself from acting in ways that will later be regretted (Diamond, 2013). Executive function allows children to pay attention, follow instructions, apply what they have learned, generate ideas about how facts are related, think up creative solutions, and comply with social norms such as waiting their turn and not jumping in line or jumping out of seats, mentally build plans, remember what they have done so they can understand how it relates to later consequences, and much more (Diamond, 2014). When children have executive function, they will be

successful in everyday life, including at school. Meanwhile, if children do not have an executive function, there is a possibility that behavioral problems will arise that can have an impact on children's learning outcomes and social life (Wagner et al., 2019). Therefore, the executive function is very important for children to have.

Inhibitory control

One of the most important executive functions is inhibitory control. Inhibitory control is the executive function that has the most influence on the future (Diamond, 2014). With inhibitory control, a person can become disciplined to stay on task despite distractions by refraining from switching to a more interesting job or having fun. One aspect of inhibitory control is delaying momentary gratification for greater rewards later. Inhibitory control is very important because, without the discipline to finish what has been started and delay gratification, long tasks will not be completed. Without inhibitory control, individuals will get used to thinking or acting for a long time and are always distracted by attractive external stimuli. So inhibitory control allows a person to change and choose how to react and how to behave rather than being someone who is used to acting without thinking. With inhibitory control, there will be a possibility of changes for a better life (Diamond, 2014).

From the interview results with teachers and in-class observations conducted for three months in an elementary school, it was found that the problems experienced by children related to inhibitory control were (1) difficulty ignoring distractions around them, (2) impatient in waiting for their turn, (3) difficulty controlling anger when arguing with friends, and (4) difficulties to obey the teacher's orders. These problems can be solved independently by the children if their inhibitory control increases. With inhibitory control, children will be able to regulate behavior, attention, thoughts, and emotions to ignore things that are not priorities and choose things that are priorities (Diamond, 2013). Problems experienced by children are further classified into types of inhibitory control problems.

Table 1. Inhibitory control problem classifications

Problems	Type of Inhibitory Control
difficulty ignoring distractions[1]	cognitive inhibitory control[1]
impatient in waiting for turn[2]	behavior inhibitory control[2]
difficulty in controlling anger[3]	emotion inhibitory control[3]
difficulty in obeying orders[4]	motor inhibitory control[4]

Not all inhibitory controls are the same. Each type of inhibitory control has a variety of functional processes in carrying out its duties (Raud et al., 2020). The following are types of inhibitory control, namely (Otterson, 2022): Cognitive inhibitory control[1] i.e., the ability to control focus when there are disturbing stimuli. Inhibitory control of behavior i.e., the ability to control the urge to act and respond to situations when you know that the action is not appropriate to do. Inhibitory control of emotions i.e., the ability to control or regulate emotions. Inhibitory motor control i.e., the ability to control motor behavior such as remaining calm even when you are bored.

If ignored, inhibitory control problems will have a bad impact. Someone with impaired inhibitory control has problems completing daily tasks (Tomko et al., 2014). Without inhibitory control, a person will act impulsively, unable to refuse the wrong offer, allowing inappropriate and/or self-defeating actions. Considering the adverse effects of this inhibitory control disorder, increasing inhibitory control should receive high attention to reduce future adverse outcomes. Children who experience inhibitory control disorders have more difficulties than adults think. Often adults think children are naughty, when in fact children want to do the right thing but have no inhibitory control over doing it. Likewise in learning, children who fail the test are not necessarily because they do not understand the concept, rather they do not have inhibitory control to show their understanding of the test (Diamond, 2014). Children need inhibitory control to see something through to completion even though they are bored and frustrated, especially if there is a temptation to do something interesting (Diamond, 2014). Inhibitory control is an individual's ability to master and filter thoughts so that they become selective, focused, and able to think before they act. Inhibitory control can make someone silent when they have to be silent or speak at the right time. Inhibitory control helps control emotions, even in situations of haste, frustration, and/or stress. Children who have inhibitory control will be able to control emotions such as giving answers to questions posed by the teacher when their name is called and asked, resisting the urge to scream, refraining from hitting friends who accidentally bump into them, ignoring distractions, and being able to carry out tasks given properly (Zulherma, 2019). Encouraging increased inhibitory control in children will give positive results. There is a causal relationship between cognitive ability and inhibitory control (Biggs et al., 2015). Inhibitory control can reduce the regulation of performance-based behavior and physiological actions of emotional reactivity (Gil, Cohen, & Wienbach, 2022). In addition, inhibitory control allows individuals not to do or say something they will regret. Inhibitory control helps filter out what is irrelevant and distracting and allows you to focus on all tasks. Discipline and persistence can be seen as aspects of inhibitory control because they involve inhibiting all temptations. Children who have good inhibitory control abilities tend to have good social skills, less deviant behavior, better health, higher incomes, and better jobs. The problem of difficulty controlling anger[3] can be overcome by the children themselves when they have inhibitory control. This is because inhibitory control plays a central role in predicting social-emotional competence. Social competence can be trained along with interventions to increase inhibitory control to deal with everyday problems, one of which is through games, because by playing children learn to work together and respect each other. In addition, children with high inhibitory control have superior academic achievement than children with impaired inhibitory control (Liu et al., 2018).

Age 10-12 years

Each period of individual age development has different characteristics. Children aged 10-12 years need physical activity characteristics. For this reason, the teacher/facilitator must have a deep understanding of the basic characteristics and needs of children for physical activity (Hidayat, 2021). On the physical and motor aspects, children aged 10–12 years experience rapid growth in the muscles

of the body so they need physical exercises. At this age, children can coordinate fine motor skills well (Santrok, 2014). The age of 10-12 years is the golden period (the peak period of desire for physical activity) which is right for practicing a skill that is conveyed through physical movements so that both the desired skill and the need for movement are equally achieved (Weinberg & Gould, 2015). According to Piaget's theory of cognitive development, children aged 10-12 years are in the late concrete operational period and the early years of the formal operational period (Santrok, 2014). Characteristics of cognitive development in the operational period include being able to classify things, being able to think systematically about real objects, being able to find relationships between the whole and its parts, and actively solving problems (Rabindran & Madanagopal, 2020). Entering the beginning of the formal operational period, children begin to think abstractly and logically (Ahmad et al., 2016). As for the characteristics of the sociopsychological aspect, children show an interest in mastering organized physical skills such as games, enjoy dramatic, creative, imaginative, and rhythmic activities, and have an interest in individual achievement (Santrok, 2014). Developmental inhibitory control is latent in middle childhood, which is the critical period for the maturation of higher inhibitory processes compared to younger children. Through appropriate interventions, children aged 10-12 years become more self-controlled and can interrupt ongoing responses in isolation. In addition, compared to younger children, 10–12-year-olds are more efficient in their ability to cancel an initiated response, regardless of the strategy they choose. The increase in other impulses such as the ability to wait, the ability to be consistent, and the ability to increase intra-individual attention in children is higher at the age of 10-12 years. Therefore, it can be concluded that middle childhood is a milestone in important developmental aspects related to inhibition control (Perez et al., 2021).

Games

Intervention can improve inhibitory control, one of which is by playing games (Diamond, 2014). Game is a form of exercise functions that are very important in adult life later. Game is one form of social activity that is very dominant in childhood. Children spend more time outside the home to play with their friends compared to other activities. Games for children are a form of fun activity. In addition, games can be used by teachers/facilitators for learning by incorporating educational elements into them. Games can be interpreted as a reflection of reality, as an initial form of acquiring knowledge (Dyanrch, 2015). For children, play activities are the most important part of their age to develop mentally, socially, and emotionally (Granic, Lobel, & Engels, 2014). Indeed, we have the internet in the modern world which can be used to access various kinds of information. However, we need a generation that is creative, critical and has a leadership spirit with compassion in the future. Children learn these skills through play activities. For children aged 10-12 years the games chosen should be the ones that provide challenges and exercises related to executive function and inhibitory control. It is important for children aged 10-12 years to continue increasing the complexity of their games and activities. Any game that involves strategy provides the important exercise in keeping complex movements in mind, planning many steps, and then adjusting the plan both in response to the envisioned

outcome and to the opponent's moves. With practice, children can develop real skills in strategy games. Children aged 10-12 years also enjoy complex games involving fantasy. Games can be combined with music and movement patterns, as they can test children's selective attention and self-monitoring. This kind of game challenges the children's inhibitions. Movement while singing provides many opportunities for developing attention and self-monitoring because moving requires control in the mind to coordinate movement with music. Playing games develops gross and fine motor skills, social skills, cooperative skills, compromise, and affection (Nadolny & Halabi, 2016). Both free play and structured play build perspective, develop patience, and develop emotional intelligence as children interact with their world. By playing games, children practice both verbally and nonverbally to process difficult relationships and experiences until they can solve these problems (Willard, 2020). Structured games are designed to achieve certain goals, one of which is to increase inhibitory control. With games, children can be trained to block impulsive tendencies, reflect on situations, inhibit irrelevant thoughts, and find non-intuitive solutions (Crepaldi et al., 2020). Structured games can be new games or modified games. Modified games are games that already exist, but the steps of the game or the media of the game are changed in such a way that they can lead the game to achieve the game objectives.

Game guidebook

The importance of inhibitory control and games that can be a tool for increasing inhibitory control inspired this research to develop a game guidebook to answer the needs analysis. The product developed is a Self-Steering game guidebook that contains three Self-Steering games. The name Self-Steering game was chosen because children can direct themselves when they are in a difficult position to let things go that are detrimental and prioritize things that are priorities. The following details the Self-Steering game and the intended goal of increasing intended inhibitory control:

Table 2. "Self-steering" game

"Self-Steering" Game	Improved Inhibitory Control
Self-Steering 1: Concert Target Words 1 & Concert Target Words 2	cognitive inhibitory control[1]
Self-Steering 2: Mr. Budi Says	behavior inhibitory control[2]
Self-Steering 3: Feeling Thermometer	emotion inhibitory control[3] & motor inhibitory control[4]

The Self-Steering Game 1 consists of two games, namely the Target Concert Word 1 game and the Target Concert Word 2 game. Both of these games aim to train children not to move impulsively. The Target Concert Word 1 game is a concert-themed digital game. The child is challenged to press the letter Y when the singer mentions the target word and leave it alone when the singer mentions a non-target word. Digital games are made as a form of game variation because they get a lot of attention and interest from children. While Target Concert Word 2 game is a non-digital game to meet children's needs for body movement. In this game, you are given a challenge to move and stop according to instructions. The movements performed are usually performed during concerts. The instruction will

be mentioned by the facilitator in the form of a target word, namely the name of a certain body member. When the target word is mentioned, the child must move the body members according to the target word, but when the stop sign is raised, the child must stop making movements.

The Self-Steering Game 2 is the Mr. Budi Says game. This game is a modification of the Simon Says game in terms of game steps and game media. The purpose of this game is to train children to get used to queuing and waiting for their turn to speak. This game is combined with movement and songs, which include floor patterns, to support the achievement of the game objectives. This game is carried out by doing movements and singing a song about *Aku Ingin Menyalip, Tapi Kumenunggu* (I Want to Overtake, But I'm Waiting) then doing Mr. Budi's instructions about good queuing behavior. For training, children wait their turn to speak, it is done in the same order, namely, the children do the movements and sing a song about *Aku Ingin Menyela, Tapi Kumenunggu* (I Want to Interrupt, But I'm Waiting), then doing Mr. Budi's instruction about good speaking manners.

The Self-Steering Game 3 is the Feeling Thermometer. These games help children identify the feelings they are experiencing. This game directs children to be able to take the right attitude, one of which is when they are bored, they can do fun inhibitory control games, and when they are angry, they can do inhibitory control activities such as children's yoga. This game begins with the teacher/facilitator telling a story using paper dolls to give children an understanding of how to identify feelings. Inside the Feeling Thermometer, there are types of feelings, pictures of feelings, actions according to feelings, and ways of handling the feelings experienced. Specifically, the Self-Steering game guidebook discusses how to deal with feelings of boredom and feelings of anger. Handling the feeling of boredom is done by moving the ball with the group. The ball is placed on a tray tied with rope at the ends. Groups of children work together to move the ball from one point to another, but when music is played, they are not allowed to make any movements. Handling feelings of anger is done with children's yoga. The movements are simple, imitating the shapes of objects around the children.

Each game is equipped with reflection and follow-up activities to help children make sense of the games they have played. The game guidebook is prepared with several indicators, namely inhibitory control, contextual, stimulating, interesting, and varied. Contextual means that the game guidebook emphasizes the link between game guides and real-life conditions that can be seen and analyzed by readers. Stimulating means helping the reader to develop. The games in the manual are intended to train inhibitory control and other supporting aspects such as obeying rules, never giving up, focusing, working together, and being critical. Interesting means the book is not boring when read. Varied means that Self-Steering games are presented in different forms, namely digital games, non-digital games, games combined with movement and songs, and games combined with paper doll stories.

From the problem analysis results, it was found that children experienced inhibitory control disorders, namely difficulty in focusing, difficulty in waiting their turn, and difficulty in overcoming disturbing feelings. These problems can be solved independently by the children if they have inhibitory control. Games can

be a tool to improve inhibitory control in children aged 10-12 years. Therefore, this study aims to develop a game guidebook that contains self-direction games to develop children's inhibitory control.

Method

This research is development research carried out in five steps. First, the researcher conducts a needs analysis through a data collection process consisting of interviews and observations about inhibition control and play. Second, the researcher determines research objectives, plans product content, determines the order of games, plans playing strategy, and plans a game evaluation system. Third, researchers make products and develop product implementation guidelines. Fourth, researchers tested the product through validation by experts and trials with six children aged 10-12 years. Fifth, researchers make product improvements based on suggestions for improvements from the trial phase. This research method is based on research steps according to Borg and Gall (1989) in Sugiyono, 2017.

The data analysis process was carried out in two ways, namely quantitative data analysis and qualitative data analysis. Quantitative data analysis is carried out by grouping data based on variables and performing calculations to answer the problem formulation (Sugiyono, 2018). Quantitative data is obtained from the results of product validation by experts. The score on the validation sheet is on a scale of 1 to 4. Score 1 is the lowest, while score 4 is the highest. The total score divided by the number of question items is equal to the results of the validation assessment.

$$Final\ Score = \frac{\Sigma\ score\ obtained}{\Sigma\ question\ items}$$

The final validation result score is then converted into qualitative data through the following table (Widyoko, 2014):

Table 3. Qualitative data conversion

Final Score	Classification
$3{,}26 \leq X \leq 4{,}00$	Very Good
$2{,}51 \leq X \leq 3{,}25$	Good
$1{,}76 \leq X \leq 2{,}50$	Enough
$1{,}00 \leq X \leq 1{,}75$	Not Good

Qualitative data analysis is the process of systematically compiling data obtained from evaluation results and field notes so that it is easier to understand. The process of data analysis in qualitative analysis techniques was carried out before entering the field, during the field, and after completion in the field. Researchers have conducted data analysis before researchers went into the field.

The analysis is carried out on data from preliminary studies or secondary data that will be used to determine the research focus (Sugiyono, 2018).

Findings and Discussion

This research is development research carried out with the following steps: First, the researcher conducts a needs analysis through interviews and observations. The results of the problem analysis showed that some children do not have sufficient inhibitory control. Individuals with inhibitory control problems mean they have not been able to regulate behavior, and give attention, thoughts, and emotions when facing non-priority situations (Diamond, 2013). Problems experienced by children interfere with the children's development which should be according to their development level. Therefore, the child should stop for a moment, and then use attention and reasoning to respond appropriately. For children, an experience will help them consider the future consequences that will occur of their choices. Therefore, teachers/facilitators need to provide experience of increasing inhibitory control for children.

Difficulty ignoring distractions[1] can occur when the sensory environment contains more information than the individual can process. To be able to overcome distractions, individuals need the ability to separate task-relevant information from irrelevant information. It is not just about focusing attention on the mechanisms that result in selecting the desired information, but about how disturbing information is ignored. Strategic information learned information, and passive information can contribute to better distractor ignoring (Geng, Won, & Carlisle, 2019). Impatience in waiting for turns occurs when there is a belief that waiting is too difficult or not worth it. The first step to teaching patience to children is to provide an understanding that waiting has value. Everyone has ever been tempted to jump in line or interrupt someone else's conversation. This happens because to be patient one must have strong determination. Children usually think they want to wait if the expected results are certain and valuable. But the value of waiting is not just the moment, but the result of later life skills such as inhibitory control. Therefore, to train children to have patience, teachers/facilitators should provide interventions to increase children's self-assumptions that they can wait (Roberts & Fishbach, 2022). Difficulty in controlling anger[3] occurs when one does not receive the expected reward, is treated unfairly, or the actions of others impact one's goals or plans. A study reports that anger and aggression can occur due to social rejection, frustration, provocation, and social stress (Lickley & Sebastian, 2018). Anger can often lead to aggression, which hurts individuals and society. Anger is important to treat. Lack of anger control negatively impacts mental health (Prabhu et al., 2014) and leads to poor and maladaptive decisions (Meissner et al., 2021). Difficulty in obeying rules[4] is experienced by children who have impaired inhibitory control. These children usually have difficulties in communicating, and interacting socially, as well as stereotypes and rigidity in hobbies and activities, so they experience many difficulties when participating in class and social settings. The attitude of not obeying the rules can cause someone not to be accepted in the group. Developing rule-abiding skills in the classroom has a significant role and meaning for children. The intervention provided can be in the form of a game that

teaches obedience to the rules to complete the game and be accepted by the group (Mai & Tran, 2022).

Second, the researcher determines the product to be developed based on the problem analysis results. The product developed is a Self-Steering Game Guidebook. Product development is carried out up to level 4 according to Sugiyono (2013), namely researchers researching to design new products, manufacture them, and test the products. There are various studies on games to increase inhibitory control in children aged 10-12 years. In executive function activities for 7-to-12-year-olds (developingchild.harvard.edu) games challenge attention, monitoring, and selective inhibition such as laser tag and paintball, and some video games that present inhibitory control skills training. In choosing the right game for children, the teacher/facilitator must ensure that the game does not contain violent content and must be careful in choosing the appropriate option and setting reasonable time limits.

In this planning step, the researcher determines the game objectives, product content, game order, game strategy, and game evaluation system. The contents of the product consist of two, namely "Knowing Inhibitory Control" and "Improving Inhibitory Control". "Knowing Inhibitory Control" contains an understanding of executive function, the importance of executive function for children, the meaning of inhibitory control, the importance of inhibitory control for children, and how to teach inhibitory control to children. While "Increasing Inhibitory Control" contains the meaning of the game and three "Self-Steering" games. The Self-Steering game is played in the order Self-Steering 1, Self-Steering 2, and Self-Steering 3. The Self-Steering game is designed with gradual follow-up activities starting from directing children to realize the importance of inhibitory control, guiding children to solve problems encountered with inhibitory control, and encouraging children to enter into an inhibitory control plan in the future.

Third, researchers develop products. The product creation stage consists of three parts, namely the beginning, content, and end. The first part of the book consists of a cover, preface, and table of contents. The following is the cover image of the game manual.

Picture 3. Book cover

The components of the cover are the title of the book which includes the variables of the Self-Steering game and inhibitory control, the author's name, and a picture of the Self-Steering game. The next section is the foreword which

contains an explanation of the importance of inhibition control for children aged 10-12 years in improving life skills used to overcome problems in life, and thanks to all parties involved in the preparation of the guidebook. In the game guidebook, a table of contents is written which includes the arrangement of subchapters and the pages of each sub-chapter in the contents of the book. The purpose of making a table of contents is to make it easier for readers to find each subchapter in the book. The contents of the book consist of two parts, namely "Knowing Inhibitory Control" and "Improving Inhibitory Control". "Knowing Inhibition Control" contains the importance of executive function in helping individual self-regulation effectively and activating positive individual behavior, the importance of inhibitory control in helping set aside things that are not priorities, and make responsible decisions when facing problems. In addition, it describes intervention methods to increase inhibitory control, one of which is a game. "Increasing Inhibitory Control" contains the Self-Steering games, each game is equipped with objectives, age, time, inhibitory control in the game, game benefits, game steps, reflections, video tutorials, and follow-ups. Apart from that, the Target Concert Word 2 game is equipped with musical instruments, concert moves, target words, and game equipment. Mr. Budi Says the game is equipped with game equipment, song lyrics one, song lyrics two, motion and song links, and game instructions. The Feeling Thermometer game is equipped with game equipment, ball-moving games with the group, accompaniment songs, yoga, the benefits of yoga, and yoga movements. The end of the book consists of the author's identity and back cover.

Fourth, the researcher tested the game manual through expert validation and a trial with six children. The trials of game guidebooks through expert validation were carried out by three validators, namely a PGSD Lecturer, a Primary School Principal, and a Counseling Guidance Teacher. Researchers make Terms of References (TOR), validation instruments, and validation permits before conducting product validation. The developed product was validated in April 2023. The following are the results of the game manual validation.

Table 4. Expert validation result

Validator	Total	Average	Criteria
PGSD Lecturer	73	3,32	Very good
Primary School Principal	68	3,09	Good
Counseling Guidance Teacher	76	3,45	Very good
Average	217	3,28	Very good

Based on the expert validation results, it can be seen that of the 22 aspects assessed from the game manual, the average is 3.28. This result is included in the range of $3.26 \leq X \leq 4.00$ with very good criteria and is suitable for use with revision according to suggestions for improvement.

The trial with six children was evaluated in three ways, namely reflection, follow-up, and field notes. From the reflection data, it can be concluded that children can understand every step of the game by being able to answer each reflection question correctly. The following is the children's understanding of the steps in the Self-Steering game, namely: in the Target Concert Word 1 game, to be able to finish the game, children must have an attitude of never giving up and

focus so they do not answer wrongly. In addition, children realize that it is important to control themselves so they do not press the wrong button by thinking before they act. In the Target Concert Word 2 game, to complete the game well, children must listen to the instructions from the facilitator so that their movements are carried out correctly. In addition, children must always focus so that they can immediately stop moving as soon as the stop sign is raised. This game also teaches self-control because children need to think about whether to move or stop. In the Mr. Budi Says game, children realize that a good attitude when queuing is to patiently wait, stop first, and think not to overtake. There are several ways mentioned by children about how to overcome the feeling of wanting to overtake, namely being calm, talking to yourself, standing up straight, and taking deep breaths. In the same way as having a good attitude when speaking, children say that when speaking, it is better to wait for the opportunity to speak, be calm, not emotional, and it is important for children to stop talking and think first. In the Feeling Thermometer game, children understand the importance of respecting friends and how to control themselves such as taking deep breaths, talking about things they like, singing, being patient, trying other ways to distract themselves, and thinking about the consequences of an action. The reflection activity is completed by children drawing a brain with facial expressions in it. Children can identify the types of feelings they have, namely disappointed, confused, anxious, angry, nervous, and worried. From identifying these feelings, the teacher/facilitator helps children overcome disturbing feelings by using a Feeling Thermometer.

Intervention intensity is directly proportional to the increase in inhibitory control. One way to increase the intensity of the intervention is to carry out follow-up activities. Playing games helps children improve their self-understanding. From the children's answers to the problem of following up on the Self-Steering Game 1, it can be concluded that after playing, children can realize the importance of inhibitory control in their lives. Children write down the consequences of actions without inhibitory control. The children write that if they watch HP and/or TV for too long, their eyes will hurt, and/or wake up late. After playing the Self-Steering Game 2, children can solve problems with inhibitory control. By playing, children practice both verbally and nonverbally to process difficult relationships and experiences until they can solve problems (Willard, 2020). The problem that was successfully overcome by the children was the problem of inhibitory control of behavior, namely, they succeeded in controlling the urge to act inappropriately, such as being able to control themselves not to respond to the friend's taunt, being able to restrain themselves from shouting as loudly as they could. After playing the Self-Steering Game 3 it can be concluded that the children have been able to enter into an inhibitory control plan in the future. The inhibitory control plans they plan include emotional inhibitory control and motor inhibitory control, namely the children's action plan when they feel emotional and/or bored.

Based on field notes data, the Self-Steering Game is a fun game for children. This is by the purpose of play, namely activities carried out for pleasure. Even though the game Self-Steering Game gives challenges to children, this game does not cause children to feel frustrated when playing. In addition, the Self-Steering Game fulfills the requirements of a good game, namely having goals and

safety controls, both physically and psychologically. By playing, children learn to work together. Based on the field note data, the children worked together on the Target Concert Word 2 game, Mr. Budi Says, and the Feeling Thermometer on the game of moving the ball with the group. Positive self-talk can shift the brain toward a solution-focused inner dialogue. The Mr. Budi Says game teaches children to use self-talk to teach calm in a fun way because the facilitator asks children to say whatever they are talking about in their hearts. Children learn not to give up by continuing to repeat the game when they failed before by understanding the instructions well so that they succeed on the next try. On several occasions, the teacher/facilitator invites children to play the role of facilitator. This creates enthusiasm and a sense of pride in the children so that they can play a good role as facilitators and get a positive response from their friends. Self-steering games that are arranged with various variations are one of the supporting factors for children's joy when playing, as in the Mr. Budi Says game, children quickly memorize songs and are cheerful when doing movements and songs. Even after playing, the children still sing the song. The Feeling Thermometer is the game the children like the most. In addition, children like paper doll stories. By listening to stories, children can answer questions of reflection and identify feelings critically. Children have so much fun playing the ball-moving game that they repeat the game over and over again. Yoga is also a fun activity for children. The field note data ends with the actions of children who can control themselves not to litter as before.

Fifth, the researcher revised the product. Based on the expert validation results and trials with children, the product is generally clear and complete but requires revision in several parts, namely: book components, page numbering, writing references and references, grammar, sentence structure, irrelevant sources, subchapter titles, appearance, pictures, video tutorials, and paper doll stories. In addition to improving some parts of the book, the researcher clarified the game steps and improved how to increase inhibitory control in the Target Concert Word 1 game.

The limitations of this research are the limitations of the trial locations because it is difficult to test the game at Kinderstation Primary School, the school where the problem analysis is carried out, in terms of licensing, the teacher as a game facilitator, and students whose study schedule has been determined so that the trial location is carried out in Ketep Village, Sawangan, Magelang. The formulation of the problem in this research and development research did not extend to the influence of game guidebooks on inhibitory control in children aged 10-12 years due to limited research time and the knowledge of researchers. Borg and Gall's development research was only carried out up to the fifth step of the 10 steps of Borg and Gall's research due to limited research respondents, research time, and research costs. Borg and Gall's preliminary field-testing steps were carried out in 1 to 3 schools with a total of 6 to 12 subjects, but in this study, it was only carried out in 6 subjects from 2 schools. Therefore, for the sake of progress, the next researcher can try to find the same trial location as the location where the problem analysis was carried out so that the trial data can be used to measure the effect of game guidebooks on inhibitory control of children aged 10-12 years, and Borg and Gall development research will produce better products if carried up to the tenth stage.

The games in the guidebook help children aged 10-12 years to make the right decisions so that the product can be said to fulfill the executive function requirements (Traverso, Viterbori, & Usai, 2015). The children's action when playing which show that they make the right decisions is when they play the Target Concert Word 1 game, namely whether it is time for me to press Y or not. Focus is needed to find the target word, but also caution to make decisions. This is by the executive function which is needed to stay focused and help make good decisions (Diamond, 2013). In the Target Concert Word 2 game, children learn to make the right decisions by thinking about whether now is the right time to move or not. In Mr. Budi's Says game, children are trained to make the right decisions related to their attitude when queuing and talking. Through movement and songs as well as floor patterns, children can make decisions to be patient in waiting their turn. Children consciously understand that inhibitory control is important in helping children pay attention, follow instructions, do what they have learned, and think of solutions to existing problems (Diamond, 2014). The Feeling Thermometer game trains children to make good decisions when they realize that the feelings they are experiencing are interfering with their activities. This is very important considering that disturbing feelings have the potential to cause problems (Wagner et al., 2019).

In the Concert Target Word 1 game, it was carried out by the children in turns, so that when a child is playing, the other children have the potential to become a distraction for the child who is playing. However, to be able to finish the Concert Target Word 1 game, children must focus so they will not miss the target word that appears so they no longer care about what other friends are doing and choose to be able to finish the game immediately without mistakes. This game can help children stay focused and disciplined to keep working on assignments despite pleasant distractions around them (Diamond, 2014). Children learn to delay gratification for a moment to be able to get pleasant rewards later, namely, children are very proud when they complete the game.

Children's inhibitory control will be able to regulate behavior, attention, thoughts, and emotions (Diamond, 2013). Behavior regulated by the child is the behavior of waiting in line, namely in Mr. Budi's Says game, and the behavior of children throwing garbage in the trash after playing the Self-Steering game. The attention regulated by the children is to stay focused on being able to complete the Concert Target Word 1 game and Concert Target Word 2 game. Children's thoughts and emotions are regulated through a Feeling Thermometer, namely through activities to identify feelings and make efforts to cure disturbing feelings. This regulatory action is by the tasks of each inhibitory control (Otterson, 2022). One of the disturbing thoughts is non-compliance with established rules. The attitude of not obeying the rules causes a person not to be accepted by the group (Mai & Tran, 2022). Children who are bored with learning are often preoccupied with themselves and do not listen to the teacher. These actions include actions that deviate from existing rules so in the Feeling Thermometer game one way to overcome boredom is to train in a structured game.

Inhibitory control is used to master the mind so that it becomes selective and able to think before acting (Zulherma, 2019). Selective thinking and thinking before reacting can be seen in every decision that is made by the children. One of the selective thoughts of children is when children identify feelings. Various kinds

of feelings may be experienced, but with the help of the Feeling Thermometer game, children can selectively choose which feelings they are currently experiencing because the Feeling Thermometer game contains behaviors that are often experienced when experiencing certain feelings. Through the intervention game of Self-Steering game, children can control themselves to remain silent when they should be silent and speak when asked to speak. Based on the follow-up data, children have managed to control themselves not to shout, hit friends, ignore distractions, and complete assignments well. Efforts to increase inhibitory control are also supported by the calm attitude of children while playing. This is the expert opinion that inhibitory control can reduce excessive behavior regulation (Gil, Cohen, & Wienbach, 2022).

Social competence can be trained along with increased inhibitory control, namely by playing (Liu et al., 2018). Through all Self-Steering games, children interact with friends and respect each other while playing. Children aged 10-12 years like to play with friends. Games that catch their attention are physical (Hidayat, 2021). Therefore, the Concert Target Word 2 game, Mr. Budi Says game and a Feeling Thermometer game contain physical activities that are favored by children. Children aged 10-12 years have an interest in grouping things according to their classification and can solve problems together (Rabindandran & Madanagopal, 2020). From the children's answers to the follow-up questions, it can be concluded that the children chose structured ways to answer the existing problems. Children aged 10-12 years are interested in games, stories, and music, and desire to achieve individually (Santok, 2014). Therefore, the Self-Steering game is equipped with stories and musical instruments. Although the games in the guidebook do not teach competitive attitudes to children, during the game trials it can be seen that children always do their best and want to stand out from other friends. Children consistently play until they complete a series of playing steps. This supports the theory that the age of 10-12 years can be said to be the right time for the development of important aspects such as inhibitory control (Perez et al., 2021).

Games can be used to convey knowledge to children (Dyanrch, 2015). Indeed, playing a Self-Steering game can help improve inhibition control, but other problems of inhibitory control that may arise require other interventions or other games. The development of this game guidebook is expected to motivate further research to improve children's inhibitory control which is very important for children. As is the case with this research which develops low-cost interventions where the products developed are contextual, stimulating, interesting, fun, and varied.

Conclusion

The results of the development of game guidebooks to improve inhibitory control for children aged 10-12 years show good results in terms of helping children recognize inhibitory control, solve inhibitory control problems, and plan for future inhibitory control. This game guidebook is contextually developed, stimulating, engaging, and varied. From the results of the validator's assessment and testing of the game guidebook, the game guidebook is very good and feasible to apply, although there are still shortcomings in the developed product.

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