Little Bee Circuit As A Stimulation Aspect of Early Childhood Development

Esti Kurnia Mahardika
Pendidikan Guru Pendidikan Anak Usia Dini, Universitas Terbuka, Indonesia
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Abstrak
Games included into an integral part of early childhood learning methods. The present research was conducted to develop a game-based learning method for early childhood named ‘the little bee circuit’. This research implements research and development by Borg and Gall which consists of 10 steps. Furthermore, the little bee circuit game is designed sequentially and systematically so that it can stimulate five aspects of child development. The subjects in this study were teachers at five PAUD institutions and group B children in the Blitar Regency by the total respondents are 100. The data collection technique is the distribution of questionnaires to experts in the field of early childhood education, both from educators and early childhood education lecturers. The results of this study produced a learning program that is in accordance with the characteristics of early childhood and is believed to be able to stimulate 5 aspects of children growth and development.

Keywords: game; little bee circuit; stimulation

Introduction
Parents often make reading, writing and arithmetic as indicators of children's intelligence (Ma’ruf & Syamsudin, 2021; Wulansuci & Kurniati, 2019). Thus, they encourage the children to have these abilities as early as possible. Not even a few parents “force” their children to take some intensive reading, writing and arithmetic courses from their early age. These parents believe that by practicing these three basic abilities as early as possible, it will bring their children succeed in the future (Asiah, 2018).

In fact, some studies confirm that forcing children to have the ability to read, write and count from an early age can actually have some negative impacts on the aspects of child development (E. Pratiwi, 2019; Wulansuci & Kurniati, 2019). The children who have reading course since their early age even show disinterest to learn as adults due to experiencing unpleasant learning periods at their childhood (Bers et al., 2019; Safira, 2020).

Through a circular letter numbered 1839/C.C2/TU/2009, the government enforces the rules about organizing Kindergarten Education and about the acceptance of new elementary school students (Hikmah et al., 2022; Marbun et al., 2021). The regulation contains an appeal so that early childhood education institutions do not focus on teaching reading, writing and arithmetic (calistung) skills to early childhood. In addition, the new student admissions committee in elementary schools is also not allowed to use calistung abilities as a selection tool. This rule is based on the stages of child development. The ability to read, write and count are
indeed important skills that must be mastered by every individual, but this does not mean that all children must master them as early as possible.

The children world still consists about playing and having fun (W. Pratiwi, 2017; Priyanto, 2014). If parents want to develop deeper toward their children’s skills and abilities, they must go through by this method. Teaching and learning which are carried out through games and fun activities can bring the children to have some fun learning experience since an early age. This experience will continue to be reminded of the child into adulthood.

Game-based learning can make children have analytical thinking and logical reasoning (Hwa, 2018). In addition, children can also learn to socialize, learn about the sphere around them, understand themselves and others, solve some upcoming problems and practice some skills and dexterity that are important for their growth and development (Vogt et al., 2018). However, not all games have a good influence on children’s growth and development. Some games just provide only pleasure, some even lead negativity for children (Rohman, 2019). By this reason, filtering the games are needed to provide positive stimulation for aspects of children's growth and development.

Based on the results of observations and preliminary research, there are not a few early childhood education institutions applying paper and pencil-based learning methods. Besides, the games chosen as learning methods also tend to be monotonous e.g. only limited activity to throw and catch some balls, cut the patterned paper, and so on. Based on some data above, the researcher modify some ways by developing a game called Little Bee Circuit. This game is designed not only to stimulate one aspect of child’s growth and development, but also impacts for some their multiple aspects. The purpose of this research is to develop a game that can stimulate 5 aspects of children’s growth and development at once, so as to create a game that is effective, affordable, and easy to use. The game objectives are to make the children active, creative, happy and less boring in learning activities. Thus, the little bee circuit game can be a prototype in early childhood learning activities.

The little bee circuit game is a learning activity that requires the play method. This offered game consists of 5 activity posts. Besides, it implements interesting media in terms of materials, colors and usage, which are designed for children in the 5-6 year age group. This kind of game offers an alternative learning activity to stimulate aspects of child development.

Methodology

The present study is a kind of research and development (R&D). The chosen development model was Borg and Gall (Effendi & Hendriyani, 2018; Putra et al., 2020). The steps used in development research according to Borg and Gall are: (1) research and data collection; (2) planning; (3) product draft development; (4) initial field trials; (5) revise the results of the trial; (6) field trials; (7) refinement of field test products; (8) field implementation test; (9) final product refinement; (10) dissemination and implementation.

The subjects in this study were teachers at five PAUD institutions and 100 respondents in Group B in the Blitar Regency. Subjects were selected using a purposive sampling technique, namely from 2 sub-districts in developed areas and 3 sub-districts in suburban areas. By considering the representation of 2 different geographical categories. The data collection technique is through the distribution of questionnaires to experts in the field of early childhood education, both from educators and early childhood education lecturers.

This research was conducted in Blitar Regency, involving five early childhood education institutions representing rural and urban areas. Broadly speaking, the test subjects in this study were group B children in five kindergarten institutions. The types of data obtained are both qualitative and quantitative data. Qualitative data obtained from the results of expert reviews in the form of suggestions on the products and the input data derived from interviews with the teachers. Meanwhile the quantitative data obtained from the results of small and large group trial data through observation activities by the teacher and the researcher. The little bee circuit game development procedure begins with information
gathering, planning, initial product development, small group testing, initial product revision, retesting in large groups, final product refinement and ending with dissemination.

**Result and Discussion**

Model is defined as a conceptual framework that is used as a reference in performing some activities (Abdillah, 2019; Paramitha & Sutapa, 2019). Whereas the model referred in the learning context is mentioned as the learning model namely a conceptual framework that describes a systematic procedure in organizing some learning experiences to achieve certain learning goals, and serve as a guide for learner designers and teachers in planning and implementing learning activities (Octavia, 2020).

The learning model becomes a framework for a teacher, containing the steps of learning activities to make it easier for teachers and students to commit some learning experiences. The learning model has a significant role in achieving learning objectives. Therefore, the selection of learning models is very crucial so that learning objectives can be achieved. Especially for early childhood learning which has different and unique characteristics.

This learning model through the circuit games here adopts circuit games that are often used in the sport field. The researcher designed this learning model by modifying the content of circuit games. This is done as an effort to innovate learning that is different from what is usually done in early childhood education institutions.

This model is later expected to stimulate or develop five aspects of early childhood development as stipulated through Permendikbud No 58 of 2000 (Efiawati et al., 2021; Setiyawati et al., 2021). Five aspects that want to be developed through the little bee circuit game consist of moral and religious values, social emotional, language, cognitive and physical motoric children. In accordance with the number of developmental aspects to be developed, the researchers decided that there were five circuit game posts, where this design was based on an analysis of learning needs in early childhood education institutions.

**The Developed Product of “Little Bee Circuit”**

**Post I “Spin of Little BEE”**

The purpose of this post is to stimulate the development of moral and religious values, especially in the material for ablution, prayer and hijaiyah letters. The tools and materials needed for this post include plywood (4ml), vinyl stickers, bolt rings, polish, saw, tape measure, pencil, and wood ribs.

The procedure is making a support board from wood ribs that is adjusted to the size of the child. Next, measure the plywood according to the diameter of 50cm as many as 2 sheets and 55cm per sheet, next attach the vinyl sticker to the plywood, and put a hole in the middle of the plywood. Saw the plywood cover by following the form of cone adjusting to the sticker. Finally, attach the ring to the plywood that has been perforated, then attached to a support so that it is able to rotate. The game activity is done by asking the children to rotate the circle provided by the teacher, then each child mentions the picture that stops when it rotates.

The development of religious and moral values in early childhood is very crucial (Oktaviani Hidayat et al., 2019; Safitri, 2019). On that basis, the development of these values is placed in post 1. The material for ablution, prayer and the introduction of the hijaiyah letter was chosen because it is the basic material that determines the quality of other worship. Through this post 1 “Spin of Little BEE”, it is hoped that children will have a pleasant experience while studying religion (Rafikasari et al., 2021).

**Post II “The Mystery of Expression”**

The purpose of this post is to distinguish and name the emotion according to the emotion expression card taken. Tools and materials that need to be prepared in this post are flannel and cardboard (to make expression dice), jars, dacron, flannel, straws, art paper,
scissors, glue and duct tape (to make mystery boxes). Meanwhile, to make a post board, you need a tripod banner, cardboard, art paper, playmate and vinyl stickers.

How to Make Expression Dice: a) Measure the cardboard by size 15 cm as much as 6 surfaces the, cut them, b) Combine the cardboard pieces to form a cube using duct tape, c) Cover the cube with black flannel, d) Cut the flannel into small circles and then stick the pieces in a cube shape, and e) Decorate the edges of the cube with yellow flannel.

How to Make a Mystery Box: a) Make a hole in the lid of the jar then line the hole using a black flannel cloth that has been cut and sewn, b) Cover all surfaces of the jar with a brown cloth with a little dacron filling, and c) Cut out a picture like an expression and give it a stem from a straw.

How to Make Playmate Expression: a) Create an expression playmate design, then print a sticker according to a predetermined playmate size, and b) Put a vinyl sticker with pictures of various expressions on the playmate board.

The game in this post begins with the child rolling the dice, then seeing the number of circles visible. Then the child steps according to the number of circles, after that the child imitates the expression that s/he stepped on. Finally, the child looks for an expression image according to the one in the expression box.

In the early period, children use crying as a way to communicate with adults. Children will cry to get what they want (Hasiana, 2020; Sukatin et al., 2020). Introducing a variety of emotions to children is very important. Children need guidance from adults in managing emotions appropriately. Children with the ability to express and manage emotions well will grow up to be good individuals as well (Perry et al., 2020; Sagui-Henson et al., 2020).

Post III “Word Train”

The purpose of this post is to stimulate children to form words through word games on the body of the train. The tools and materials needed are teak wood, paint, brush, thinner, sandpaper, glue, pine needles, cardboard, Polaroid rope, art paper and stickers.

How to create this game is by sawing the wood according to the train pattern, assemble the train pattern pieces according to the order of the carriage heads and the train carriages. Paint each carriage with colorful paint and then attach pine nails to the train carriage. The child chooses a picture and puts it on the head of the train. Then the child takes the letters and arranges them according to the picture (arranges the letters into words).

Several studies confirm that the use of smartphones in early childhood affects the child's speaking and language skills (Anggrasari & Rahagia, 2020; Septriani et al., 2022). Cases of speech delays in early childhood are increasingly being found along with the increase in smartphone use in early childhood. Therefore. Designing an interesting and fun game that is used to hone children's speaking and language skills is something urgent (Cendana & Suryana, 2022). As was done in post III "word train".

Post IV “Finger Pocket”

The purpose of the game in this post is to stimulate children to play counting through finger pocket games. The tools and materials needed are support boards, blackboards, spunbun cloth, flannel, paper glass, ice cream sticks, plastic microwaves, dacron, polaroid rope, cardboard paper, art paper, adhesives, plastic mica, beads, scissors, glue gun, thread, needle and scrub.

This tools is made by coating the blackboard with black spunbun cloth, then glue the cloth on the board and decorate with beads on the board. Trace the shape of the palm then cut it out with the pattern and then paste the palm shape on the ice cream stick with wax glue. Cut the flannel and sew the edges of the fabric into 6 pockets. Cut out 2 cm black and yellow flannel, then stick it on the paper glass and stick it on the edge of the board as a place for your palms. Wrap the microwafe plastic with flannel cloth, fill the side of the microwafe plastic with dacron then attach it to the support board using a scrub and polaroid rope.
Finally, paste the number art paper image on the cardboard and then cut it according to the pattern. The game activity in this post is for children to count the number of fingers on the finger board. Then add up the fingers and take the number according to the fingers above.

Counting lessons are often disliked by children because they are considered difficult and unpleasant (Hodges, 1983; Levine & Pantoja, 2021). While the ability to count is an important ability that will continue to be useful throughout human life. The game in Post IV "Finger Pocket" is designed to provide a fun experience while learning to count.

**Post V “Tapak Sikil (Footprint)”**

The purpose of learning in this post is to stimulate both balance and leg muscle strength. The tools and materials needed include a transparent mat, foot stickers, scissors and glue. Meanwhile, for postal materials for the footprint, a tripod banner, cardboard, and art paper are needed.

How to make this post is to cut the sticker according to the pattern. Then paste the sticker pieces on the transparent mat. Then cut the transparent mat according to the pattern. Glue the art paper and paste it on the cardboard. Cut out the cardboard according to the pattern. The game activity in this post is for the child to jump according to the exact pattern of the feet.

Steps of Learning Model through Little Bee Circuit Game: 1) The teacher explains the rules of the little bee circuit game, 2) The teacher gives examples of game activities in each post, 3) The teacher arranges the children who will play the game in sequence, 4) The first child plays the game from post one to post five in a row, 5) The teacher accompanies the child through the game from post one to post five, 6) The teacher gives feedback after the child completes each game in each post, and 7) The next child plays a similar game accompanied by the teacher until the last child.

This game is designed to stimulate five aspects of child’s development, which includes cognitive development, social and emotional development, speech and language development, fine motor skill development, and gross motor skill development. The more aspects of a child's development that are stimulated allow the child to grow into a complete individual. This game also allows the teacher to make modifications according to the theme being studied. By then, this allows the game to continue to be used throughout the learning year. The variety of activities provided at each post will also make children excited and not easily bored in one type of game.

This game meets all the requirements that must exist in a game designed for early childhood; fun, safe, build closeness, and stimulate aspects of child development. This game offers various types of activities, so that children are enthusiastic and not bored. This game is also harmless, because it is made of safe and easy-to-obtain materials. In addition, this game can also build closeness between children and teachers or parents (Fadliullah, 2017; Fitriani & Adawiyah, 2018).

**Conclusion**

The little bee circuit game is designed to stimulate five aspects of early childhood development, including aspects of moral and religious values, socio-emotional aspects, language aspects, cognitive and physical motor aspects. The game consists of five posts that represent one aspect of a child’s development. The advantage of this game is that the teacher can manipulate according to the learning theme being discussed. This game has not been tested neither small nor large groups, so there are still several more steps that need to be conducted, by then, this game is ready for dissemination.

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