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Computer Use Activities in Developing Basic Computer Technology Skills Among Preschool Students

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Abstract: The purpose of this study was to determine the usage of computer among 13 preschool students in Putrajaya could develop basic computer skills among them. The method used was the qualitative approach consist of case study and data gathering method. The data gathering method in practice one teacher includes structured interview, document analysis and observation method. Data collections were done using techniques through observation, and documentation. The effectiveness of computer usage was obtained from the pretest and posttest scores in the control class. Based on the results of the study, it can be concluded that the computer use activities among preschool children is effective in developing the basic computer skills among them. This evidence is further enhanced by interviewing the preschool class teacher which has undergone this activity with the class, states that there are very significant improvement among the usage of computer skills among the class.

Keywords: *Computer Activities, Basic Computer Technology Skills, Preschool Students*

1. Introduction

Technology can be integrated into your daily life in a variety of ways. The amount of time spent by children on computer activities has a significant effect on their knowledge and use of technology. Children are exposed to technology at an early age, both through the items they are exposed to and the way they conduct themselves in their daily lives. Technology holds enormous promise for enhancing children's capacity and skill development in recognizing and responding to learning situations.

When children are exposed to technology at a young age, it can aid in the development of critical thinking abilities, creativity, and exposure to a range of sectors. Additionally, individuals can use their skills and knowledge in real-world circumstances. Furthermore, the usage of a multimedia computer can enhance the quality of teaching and learning. These programs can assist students in learning a variety of essential topics more efficiently and effectively than earlier approaches allowed. It is based on data from two distinct sources. Utilizing multimedia computer teaching and learning package in an efficient manner (Aubrey, & Dahl, 2014).

1.1 Problem Statement

Various learning methods have been used by teachers to interest the students. Recently, in line with the development of the world of Information and Communications Technology (ICT), the use of computers can be one of the elements used in the teaching and learning process to attract the interest and motivation of the students in learning. Since 2002, a preschool ICT program (Ministry of Education Malaysia (2017) was provided priority and made part of an essential element. ICT learning materials are important in promoting learning students through exploration, important in promoting student learning through exploration, creative problem solving.

Besides, the needs of the children are to be considered when factoring the use of computer technology in the curriculum, the focus of the curriculum as well as whether it will add to the children's educational opportunities and experience. Another factor needs to be considered is the age of the child (Straker, et al., 2009). Going into a more specific

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needs, children, and youth with special needs, such as deaf blindness and autism have unique needs for atonement, communication and concept development, therefore, will need access to curriculum that is tailored to their respective needs via the use of technology (Bruce & Borders, 2015; Lee, & O'Rourke, 2006).

Based on the learning styles and attitudes that exist in preschool students, the use of technology has been given comprehensive recognition. There are numerous ways in which ICT can contribute to or bring about transformations, activities, roles and relationships that are experienced by individuals in early childhood education. The major focus of technology in pre-schools focuses upon the use of computers by young students (Roberts-Holmes, 2014). ICT can be a useful tool for supporting effective growth and development of young students. When acquiring an adequate understanding of use of technology in pre-schools, it is vital to generate awareness in terms of policies and practices. Computers help students to learn when used in well-designed, meaningful tasks and activities (Pachler, 2002).

Hence the researcher is urged to conduct research in introducing computer use activities to develop basic computer technology skills among children. It is found that there is not much research conducted in Malaysia and most basic computer use activities start in primary school. However, those skills should be taught and apply since their early age.

1.2 Research Objectives

The following objective will serve as a framework for this research. The three aims of this study are as follows.

i. To know the level of knowledge of basic computer technology skills among preschool children
ii. To examine the computer usage activities in developing basic computer technology skills among preschool children

2. Methodology

2.1 Research Design

This study makes extensive use of the qualitative research method. Qualitative research is adaptable and emergent, with the primary purpose of comprehending, explaining, exploring, discovering, and clarifying a group of people's situations, feelings, perceptions, attitudes, values, beliefs, and experiences. Qualitative research is a kind of inquiry in which participants express their emotions, perceptions, attitudes, values, beliefs, and experiences with others (Ranjit Kumar, 2014). To gain a more in-depth understanding of the subject matter, accurate reporting and extracts from authentic talks are used.

2.2 Respondents of The Study

Sources of data in this development research include material experts, teachers, and students. The criteria possessed by the data source subject are as follows:

a. Panel/Expert in the material in the early childhood education field
b. Kindergarten teacher who has a minimum of 15 years of teaching experience, and a minimum educational background of Bachelor of Education (HONS)
c. 13 preschool students from one of the local institutions in Putrajaya

2.3 Instruments

This study makes use of several research instruments that are adapted to the investigation's specific needs. The usage of equipment as data collection tools can help to improve the quality of the study. The relevant information was gathered using data collecting devices such as worksheets and checklists, as well as lesson plans and an interview question list.

2.4 Analysis Technique

It is required to analyze the data acquired to answer the research questions, and this is accomplished through the use of a variety of analytical techniques. Our conclusions will be meaningless unless and until we correctly analyze our data sets. By utilizing qualitative analysis methodologies, it is feasible to categorize and summarise data collected through qualitative measurements such as interviews, narrative observations, and open-ended questionnaire responses. The qualitative analysis enables you to gain an in-depth understanding of the characteristics of your sample, (Cowie, 2009).

Microsoft Excel was used to compare the percentage marks earned by students before and after the test for the pre and post-test. The pre and post-test results were compared to determine whether there was any difference between

the two phases. On the other hand, the lesson plans prepared for the activities are analyzed as well to gauge the appropriateness of the activities with regards to the children's development, learning outcomes as well as the objectives gained from each of the activities.

Analysis of the checklist from the children's participation was conducted by using Microsoft Excel in observing the percentage of the children's participation in each activity. The results were compared with the analyzed data from the lesson plan. The lesson plan is analyzed by using content analysis or also knownas "first-pass document review" (Cohen, et al., 2017). Practice in observing and documenting the activities of young children will begin to change not only how we see but also how we express what we observe.

The interview transcript was then analyzed for themes to provide answers to the research's remaining questions. The data acquired during the interview should be logically organized (Cohen, et al., 2017). The transcript listens to three times in total to identify significant subjects for the research project. Several stages occur during a theme analysis, the most critical of which are as follows: Making a list of the key concepts or subjects that arose from participant replies or activities and classifying them.

3. Finding and Discussion

The result of the preliminary study shows that many preschool children are still behind in basic computer skills. This contributes to the less effective when teachers are doing online classes and conveying activities and homework via the online class structure and putting in teachers' work. This has affected the children to be less interested in pursuing learning via online structures involving a computer and mobile phones.

From this finding, a lesson plan is constructed by collaborating with the teacher and the students. There are three parts of the lesson plan which are the basics of computer hardware, the basics of computer software, and the basics of the internet. The objectives, learning standards learning outcomes, and component related to children's development are based on the National Standard Preschool Curriculum (Ministry of Education Malaysia, 2017).

From the lesson plan, the activity named 'Computer Lab Course' took place at the institution, and the results obtained from this activity show a clear picture of the gap which is existed in computer knowledge among these preschool children.

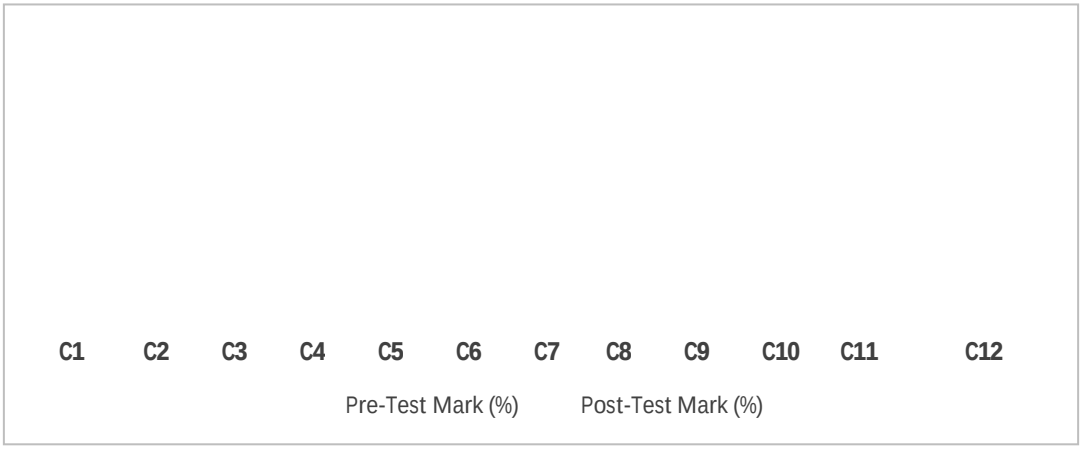

Fig. 1 - Percentage Marks for pre-post-test.

Fig. 1 above shows the marks obtained by each respondent that participate in this test. Before they attended the School Computer Lab Course, this test was conducted in the Computer Lab in good out gauge their level of knowledge when it comes to basic computer skills. After the pre-test is done, the course is then conducted on all 13 participants. Hence, immediately after the course is finished, a post-test is then conducted and the difference in marks can be seen as in the graph above. All children that participate an increase in marks after the course. Before the course, the lowest percentage of marks is 30% while the highest percentage of marks is 55%. After attending the course, this figure improved tremendously, as the lowest percentage of marks rose to 70% while the highest percentage of marks went up to 80%.

The result of these tests shows that during the pre-test, the children have little knowledge with regards to basic computer skills. During the course, the children obtained more knowledge from the activities conducted that in turn help them during the post-test.

During the interview session with Teacher A, there are further findings that supported the graph, as the teacher emphasize that there are some children who are exposed to the basic computer knowledge from previous, but there are larger groups who do not.

"I have been with the class for almost a year now, and along the way, definitely noticed that most of the children did showcase some lack of knowledge when it comes to computational skills, especially during the period where 'online schooling' took place due to Covid-19."

Referring to the interview excerpt, teacher A states that the children are lacking in awareness and knowledge with regards to the basic computational skills. This is showcased further during the pandemic of Covid-19 which has forced many to utilize 'Online Classroom Learning'. From her observations during the period, it can be deduced that many children are still lacking the proper knowledge in operating a computer and a course such as this, must be participated by all preschool children to prepare them further in their growth and development.

Throughout the interview session with Teacher A, the researcher found that it is important for the teacher to understand basic computer skills before they share the knowledge and develop the skills among children. The respondent claims that:

"To be honest, basic computer skills are one of the most important basic knowledge areas for children to learn and occupied themselves with. Many parents and adults alike are lacking in awareness of exposing their children to basic computer skills. This lack of knowledge critically shows during the pandemic whereby the whole nation forced to the gogo-online platform for learning and working!"

Before being able to teach the basic computational skills and plan the activities to be conducted during the lessons, the teacher needs to also have a fairly good understanding of these skills theoretically as well as practically. Based on the excerpt above, teacher A is truly one of the supporters of the idea of exposing children to basic computer skills and being famous in the school as one of the 'tech-savvy' teachers around, she fits the criteria of the respondent the researcher is looking for. Here is another excerpt of an interview with the teacher:

"Computer skills normally are self-taught or being taught by parents at home. However, for this current crop of generation, I believe we need to change this, and this 'pilot' or 'trial' project whatever we want to call them, will have my support, and I want the children to have the basic so that they would improve on this whenever they go on higher education learning."

The following activities are done to extract further findings for this study. The activities are Basic Computer Hardware, Draw My Body Hardware, My Keyboard, I Know My Software, and I Can Surf the Internet and the result is as follows.

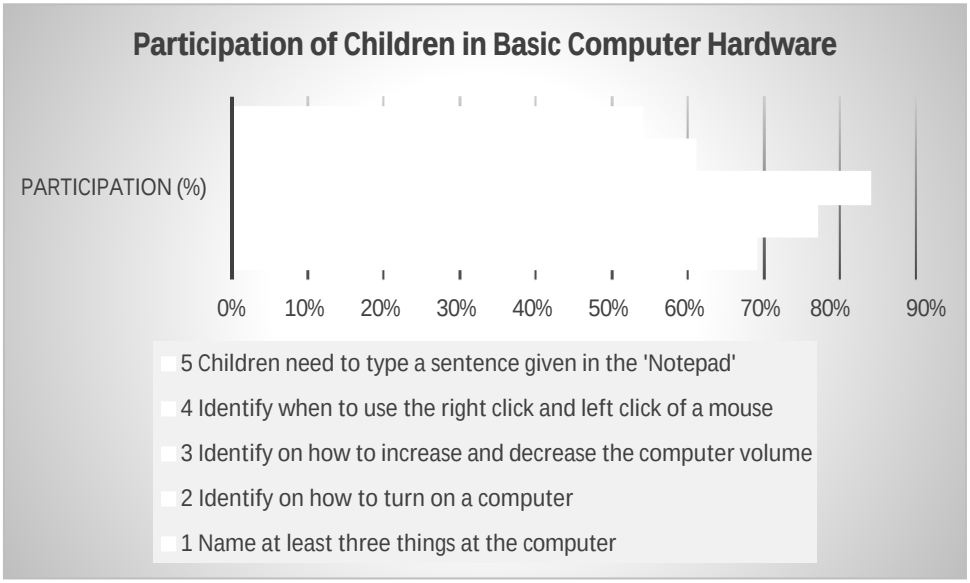

Fig. 2 - Participation of children in basic computer hardware.

Fig.2 shows that on average, there are 69% of children participating in this first activity called 'The Basic Computer Hardware highest percentage recorded is 84% where it involves the increasing and decreasing of the volume of the computer, while the lowest is 54% as they required to type a provided sentence into the program called 'Notepad'. The lowest percentage of the activity perhaps contributed because the nature of the activity is a bit complex to execute. All in all, for all the activity, the participation recorded are more than the majority which shows a good sign.

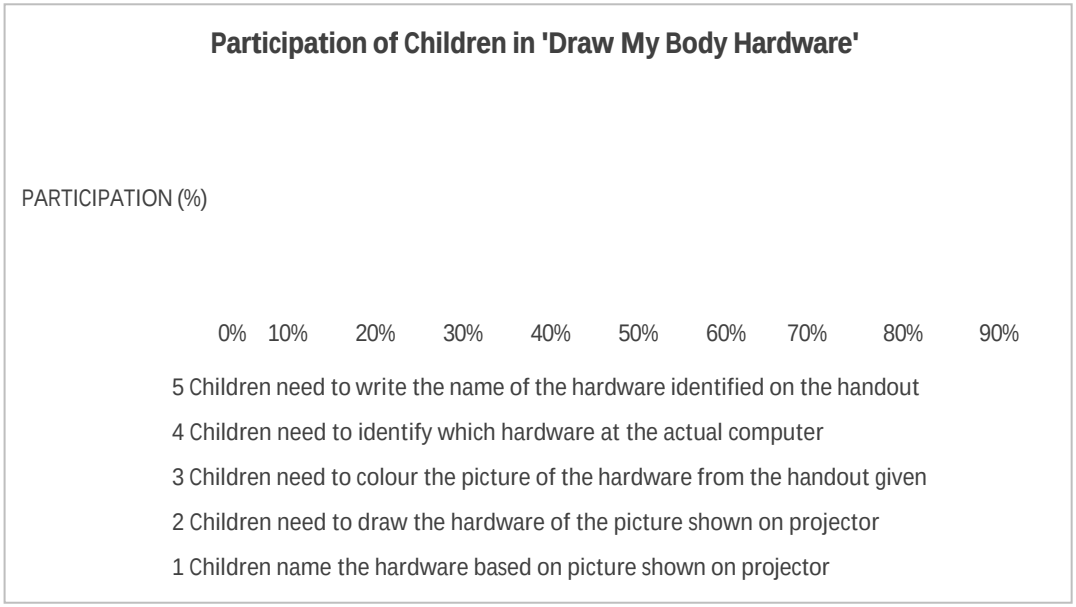

Fig. 3 - Participation of children in draw my body hardware.

Referring to Fig. 3 above, it can be seen that the percentage of participation among the children in activity is 67%. This is a good number as it shows that more than half of the participants join in the activity which took place. The activity that generates the most participation from the children is the colouring of the hardware on the handout given by the teacher, which is 84%. The lowest percentage of participation is shown during the writing exercise whereby the children were required to write down the name of the hardware that they have identified within the handout. Although a bit low, it is still able to generate up to 54% of participation, a little higher than half of the participants who joined.

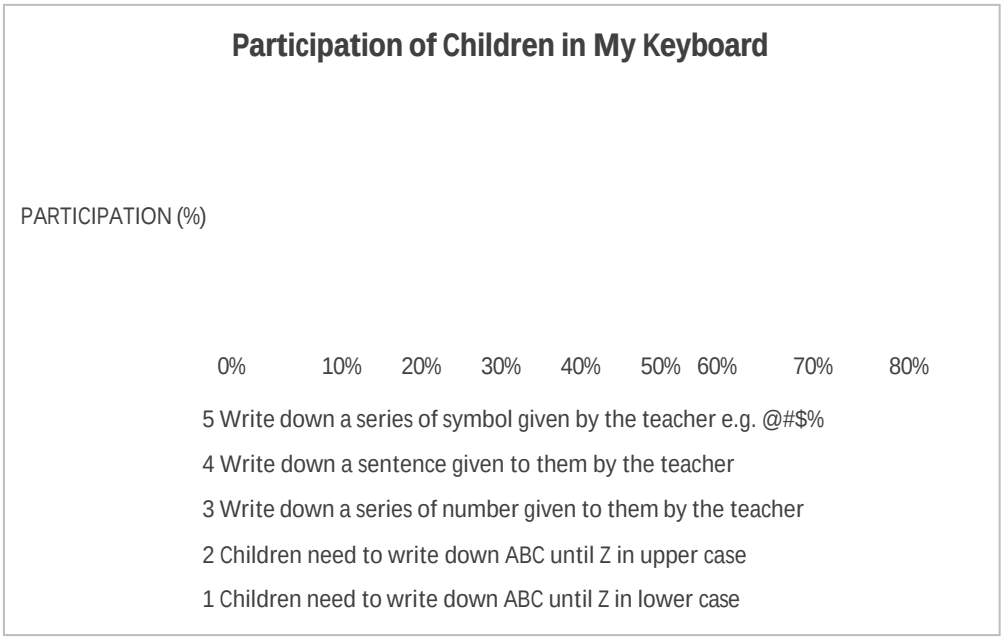

Fig. 4 - Participation of children in my keyboard.

Referring to Fig.4 above, it can be seen that the percentage of participation among the children for this activity is 71% which is pretty high considering previous numbers. The activity that generates the most participation from the children is writing down all the letters available in a lower cone on the computer. This activity recorded a healthy 84%

participation out of 13 children. Meanwhile, the lowest percentage of participation is recorded during the activity of writing the symbol as per instructed by the teacher. This activity is rather complex as it involves a combination of buttons and letters to be pressed on the keyboard, hence, explaining the low percentage of participation. All in all, in terms of participation, this activity can be considered a success as it gathers a high average percentage of participation which is 71%.

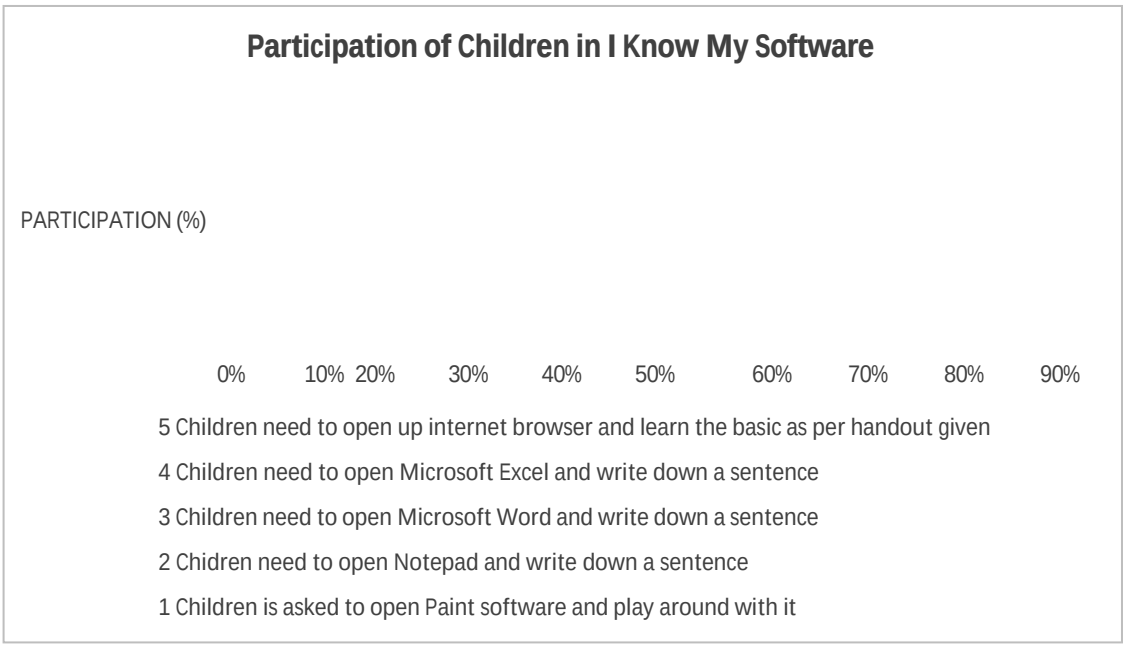

Fig. 5 - Participation of children in i know my software.

Referring to Fig. 5 above, it can be seen that the percentage of participation among the children for this activity is 63% which is pretty low considering previous activities. The activity that generates the most participation from the children is writing down sentences in software called Notepad. The level of difficulty for this activity is considered pretty easy as they have experience opening up a Notepad in the previous activity. This activity recorded a healthy 77% participation out of 13 children. Meanwhile, the lowest percentage of participation is recorded during the activity of opening up the internet browser and learning the basic buttons and functions as per the given handout by the teacher. This activity is rather complex as it involves learning new software and learning the new concept that is the internet, which explained the low percentage of participation. All in all, in terms of participation, this activity can still be considered a success even though it gathers a mere average percentage of 63%.

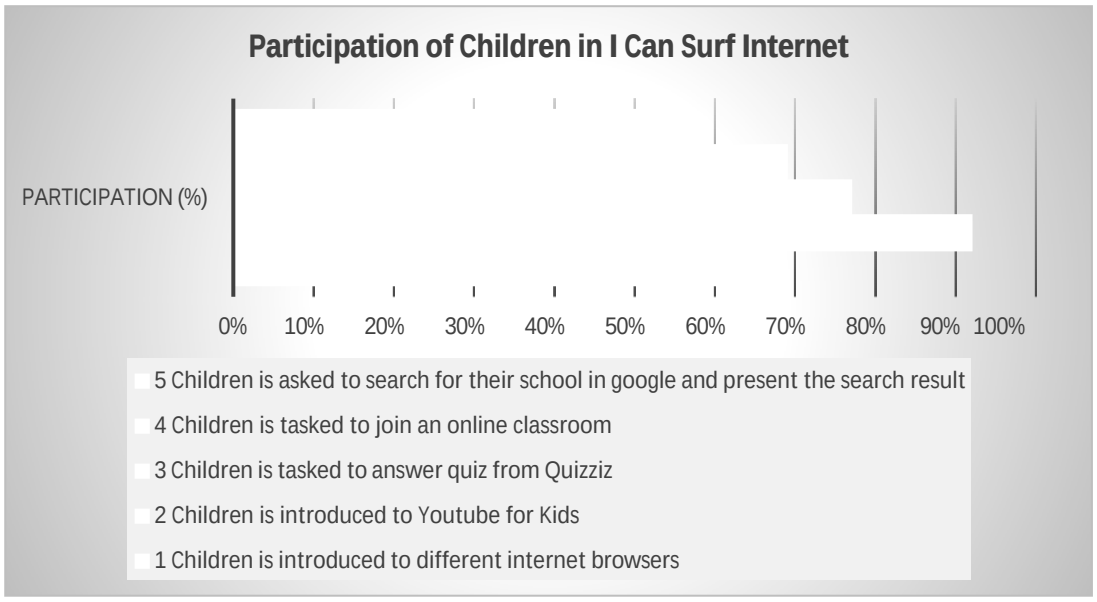

Fig. 6 - Participation of children in i can surf the internet

Referring to Fig. 6, it can be seen that the percentage of participation among the children for this activity is 72% which is very encouraging considering the activities on offer are quite difficult to execute at this level. The activity that generates the most participation from the children is when they are introduced to YouTube Kids by the teacher. These kids are normally exposed to YouTube from home as they used to see it on their smartphone nowadays. The level of difficulty for this activity is considered pretty easy as they have experience with this before, plus it is so entertaining and appealing to them watching cartoons on this platform. This activity recorded a staggering 92% participation out of 13 children. Meanwhile, the lowest percentage of participation is recorded during the googling their school on the internet and presenting their search result to everyone. This activity can be considered a bit complex as it involves learning a new concept that is the internet and its search engines. All in all, in terms of participation, this activity generates a healthy and good average participation which is 72%.

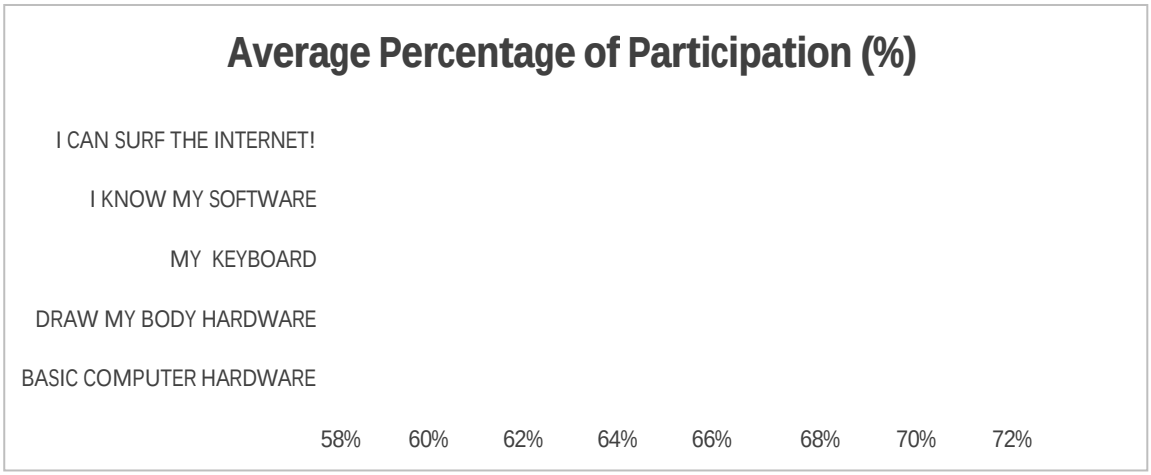

Fig. 7 - Participation of children in basic computer skills course.

Based on the result as show in Fig. 7, the participation of children in each activity is at a good and encouraging level. This can be seen in the graph as children are showing their interest and participate quite actively in every activity. From the graph, the highest percentages are at 72% which is for the activity of surfing the internet, while the lowest is for the activity of learning new software. This is considered a good first step towards improving the syllabus and activities to provide ample yet basic knowledge to them on how to operate a computer (Roberts-Holmes, 2014).

4. Conclusions and Recommendations

As a result of the findings of this research, further pre-school courses and programs of this nature will be offered in the future. The study's findings demonstrate that children, especially those who have not undergone formal computer education, are already conversant with computer fundamentals. As a result, children require further supervision to build their fundamental understanding, which will enable them to apply and practice what they have learned in their future endeavours.

Future researchers may get further benefit out of the course, by utilizing another type of method, such as parents' involvement during the course, as well as allowing the researcher to witness the experience of both children and parents. By doing this, the lesson plan and other checklists need to be updated, but this would offer a much better insight into the attitude and discipline of the children when doing the activity together with their parents.

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Conflict of Interest

The authors declare no conflicts of interest.

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