

DEVELOPMENT OF LEARNING KIT 'KOMPUTER KAMI' AND THE USAGE IMPACT WITHIN CHILDREN WITH SPECIAL NEEDS

^aHalizah binti Ahmad

^bSiti Nabilah binti Kasdi

^aSMK Bandar Kota Tinggi

^bSMK Taman Sutera

^ahalizah.ahmad@gmail.com

^bsitinabilahkasdi@gmail.com

Abstract: “Komputer Kami Learning Kit” are a combination of teaching aids using the mobile application in android environment, a workbook by level of cognitive and Tarsia puzzle game. Applications’ “Komputer Kami” developed using Adobe Flash for the topic “Know Your Computer Parts” on the syllabus of Multimedia in Special Education Curriculum for Learning Disabilities . The selection of technology can help reduce constraints, limitations and difficulties faced by special education teachers to integrate elements of entertainment and education to be more fun and interesting for them to learn. In addition, environmental factors that influence the students' use of applications using tablet computers in the learning process also noteworthy because these factors greatly influence the effectiveness of the use of tablet computers among students with Special Needs (SEN) towards 21st Century Education. Pre and post test data was analyzed using SPSS version 18 for the mean value of the marks obtained by the students. The findings showed that student achievement increased by 25.48% (Pre Test mean = 55.08%, Post Test Mean = 80.56%). While the T test showed no significant difference between the two mean scores on the significance level of 0.05. The conclusions of this study, has been able to improve the students’ skills master the learning objectives. This approach has the potential to be further extended.

Keywords: computer, learning kit, special education

INTRODUCTION

Based on our observations, LD students need extra time to understand new concept. Therefore, they need to be assisted by a fun materials to support the learning process. Using technology can help to reduce the constraints, limitations and difficulties faced by special education teachers to integrate entertainment and education elements to be more enjoyable

and interesting for them to learn (Anuar, Daniel, 2014). According to Mohamud (2016), the learning ability of LD students to understand new words will be easier to apply if using a combination of several elements such as definition, synonym, sentences and images to reinforce their understanding. Figure 1 shows the theoretical teaching LD students

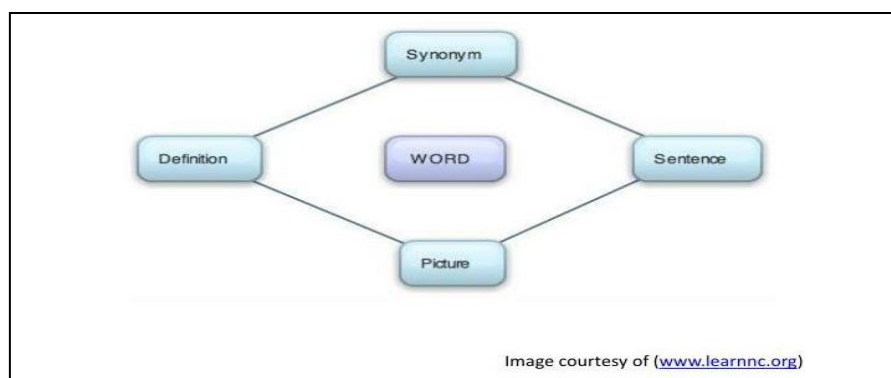


Figure 1-Theoretical teaching LD students

RESEARCH PROBLEM

The main problems that can be seen among LD students is lack of concentration and interest in conventional teaching and learning process which is blackboard and books were used.

THE INNOVATION APPLIED

The use of mobile applications in the Android platform using tablet was introduced, then

exercises using exercise books by students cognitive level, the next game IQ test is used as a reinforcement. Mobile applications developed in Android offline environment has three main modules, “Jom Main” (let's play), “Jom Belajar” (let's learn) and “Info Pengguna” (user info). Details of each module as shown in Figure 2.

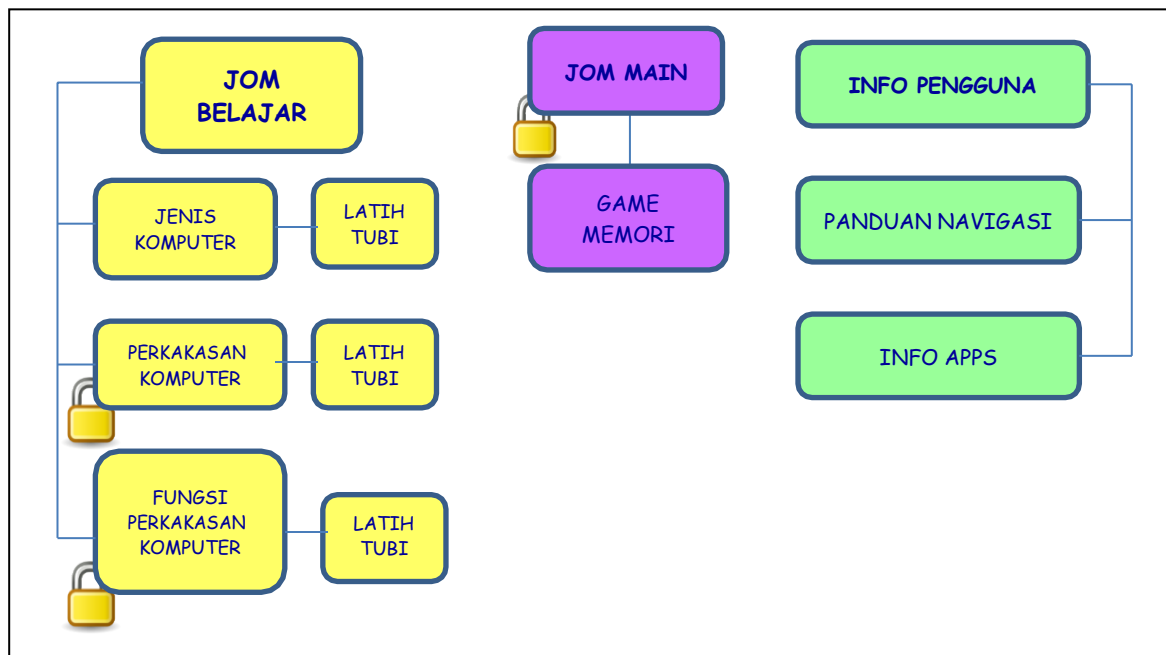


Figure 2-Main Framework

There are three sub module in “Jom Belajar” (Let’s Learn) module which are known as Jenis Komputer (Types of computer), Perakasan Komputer (Computer Hardware) dan Fungsi Perakasan Komputer (Function of the Computer Hardware). Each sub module came with their own exercise. Users need to complete each topic with the exercise before they can access to the next topic.

Users can also choose the “Jom Main” (Let’s Play) module that has memory game which they need to match the same picture. This memory game helps stimulate users’

memory indirectly while learning. The next menu “Info Pengguna” (User Info) which displays information about the applications.

“Komputer Kami” Learning Kits also combined reading textbook and writing exercise for drilling process. Exercise book is divided into three levels according to student cognitive level. Tarsia puzzle game was used as an additional activity for fun learning beside of applying the collaborative, creative, cooperative and critical thinking LD students. 16 cards were used to match the pictures with the correct words like shown in Figure 3 below.



Figure 3 - Complete Tarsia puzzle

Selected topics in this innovation is “Mengenai Bahagian-bahagian Komputer” (recognize parts of the Computer) as in syllabus of Learning Disabilities Special Education Curriculum. Focus of this learning kit is in the teaching and learning area by applying information technology usage among SEN.

DEMOGRAPHIC DATA ANALYSIS

Demographic data from Part A of the questionnaire designed was to obtained profile

information of each respondent. Here are some of the questions and the assessment for each question.

Gender

Respondents had to choose one of two answers have been given in the item the question whether choosing male or female as in table 1 and chart pie in Figure 4.

Table 1- Gender analysis

Gender	Frequency	Percentage (%)
Male	32	64
Female	18	36
Total	50	100

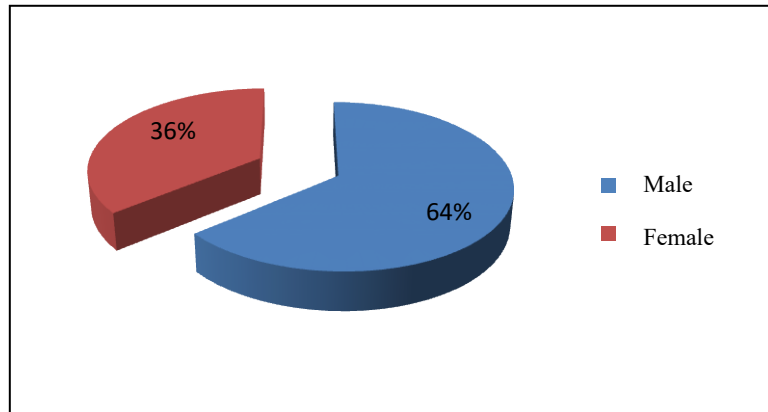


Figure 4-Percentage of respondent by gender

Table and diagram above shows the analysis of data respondents consisting of 32 male students representing 64 percent of the total respondents and 18 female students representing 36 percent of the total respondents. Which is conclude that female students is more participating in this research.

Races

Based on the questionnaire given, only two over four races chosen among the respondent which is Malay and Chinese. This were shown in Table 2 and Figure 5 below.

Table 2-Races analysis

<i>Races</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>Malay</i>	37	74
<i>Chinese</i>	13	26
<i>Indian</i>	0	0
<i>Other</i>	0	0
<i>Total</i>	50	100

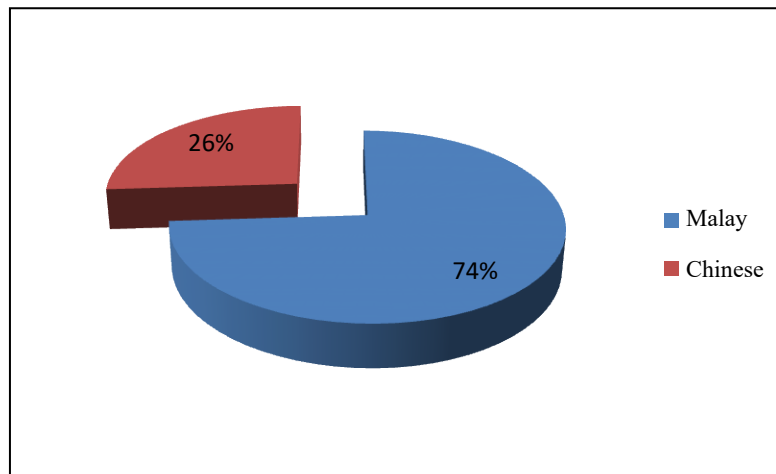


Figure 5- Percentage of the races analysis

Age

The results of data analysis showed that the age distribution of the respondents are almost evenly

because there is five respondents represent each level which is shown in Table 3 and Figure 6.

Table 3-Age analysis

Age	Frequency	Percentage (%)
13 years	7	14%
14 years	8	16%
15 years	5	10%
16 years	7	14%
17 years	9	18%
18 years	7	14%
19 years	7	14%
Total	50	100

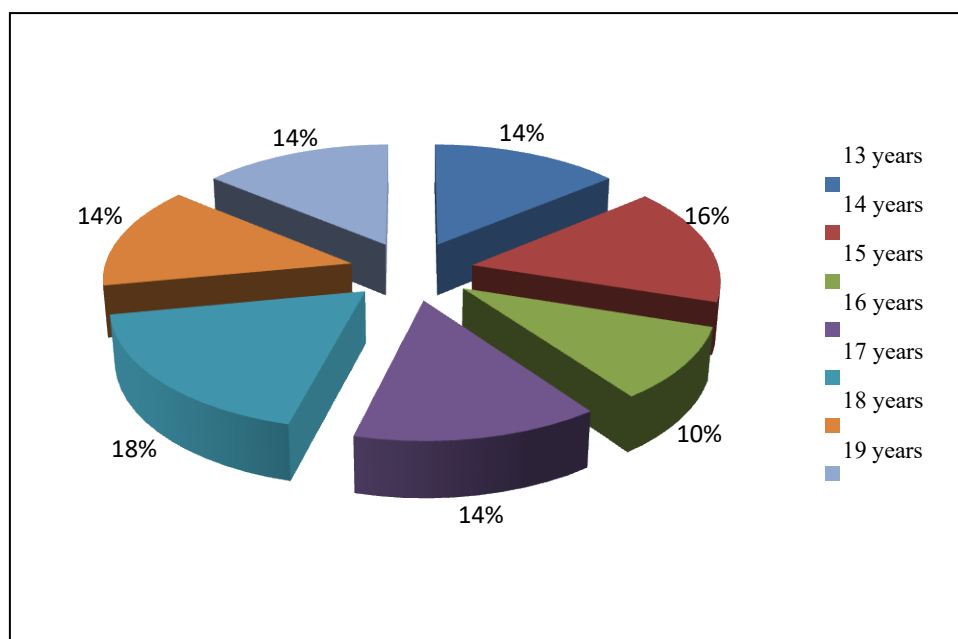


Figure 6 - Percentage of respondent age

Using Computer Tablet Experience

The experience of respondents against the tablet computer technology also asked to see the

acceptance. They respond their experience using the technology as in Table 4 and Figure 7 below.

Table 4 - Experience using computer tablet analysis

Experience using tablet	Frequency	Percentage (%)
Never	17	10
Less than a year	14	20
1 to 2 years	14	30
More than 2 years	5	40

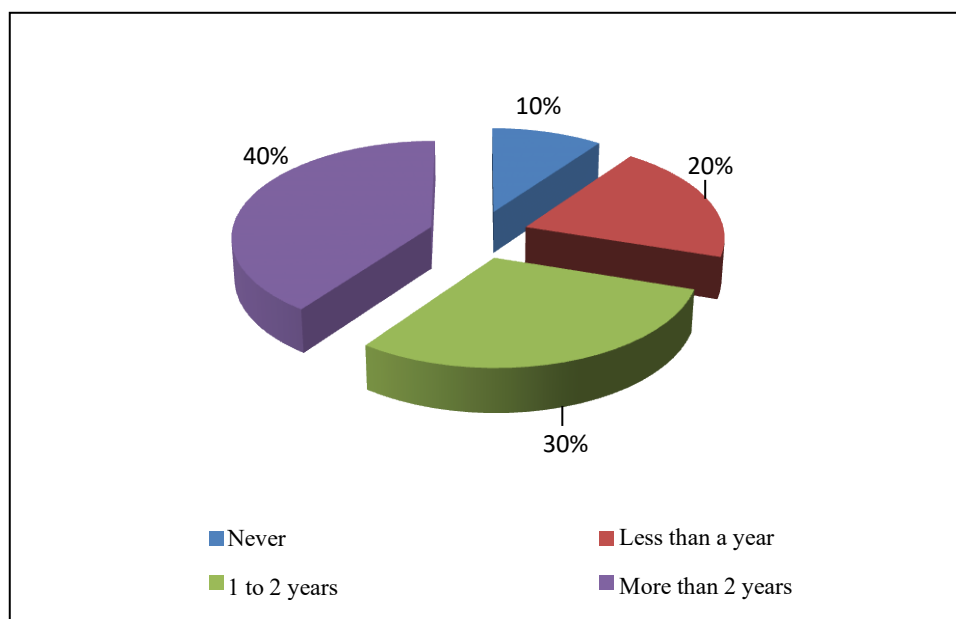


Figure 7-Percentage of respondent experience using computer tablet

Innovation was started in June 2016 with operating cost around RM 2000.00. After the innovations done, pre and post test data were analyzed using SPSS version 18 for the mean score achieved by students. The findings shows that student achievement increased (Mean = 55.08% Pre Test, Post Test Mean = 80.56%). T test shown a significant difference between the two mean score is 0.05.

using tablet computer in-depth analysis of paired t-test sample were used. Full marks for each test is 100 marks. The distribution of the overall student achievement scores in the pre-test and post-test described in Table 5.

THE EFFECT OF USING APPS “KOMPUTER KAMI” ANALYSIS

Pre-test and post test was conducted on 50 respondents in this research. The result were analysed in tabular form for ease of understanding. To see whether there is a difference of student performance before and after the learning process through apps

Table 5 - Overall marks distribution for pre-test and post test

Student	Pre-test		Post test		Marks Different (y - x)
	x/100	Grade	y/100	Grade	
P1	32	E	88	A	56
P2	24	E	56	C	32
P3	14	E	40	D	26
P4	14	E	28	E	14
P5	28	E	30	E	2
P6	28	E	90	A	62
P7	88	A	92	A	4
P8	30	E	90	A	60

P9	90	A	90	A	2
P10	20	E	92	A	72
P11	64	C	68	B	4
P12	30	E	46	D	16
P13	48	D	72	B	24
P14	86	A	88	A	2
P15	72	B	72	B	0
P16	76	B	88	A	12
P17	58	E	58	C	34
P18	30	E	92	A	62
P19	90	A	94	A	4
P20	92	A	96	A	4
P21	96	A	94	A	-2
P22	62	C	64	C	2
P23	70	B	94	A	24
P24	96	A	98	A	2
P25	52	C	90	A	38
P26	64	C	90	A	26
P27	58	C	70	B	12
P28	30	E	90	A	60
P29	66	B	92	A	26
P30	90	A	94	A	4
P31	84	A	92	A	8
P32	44	D	60	C	16
P33	40	D	68	B	28
P34	96	A	96	A	0
P35	48	D	90	A	42
P36	40	D	88	A	48
P37	40	D	68	B	28
P38	26	E	86	A	60
P39	36	E	68	B	32
P40	36	E	68	B	32
P41	34	E	88	A	54
P42	46	D	100	A	54
P43	94	A	98	A	4
P44	36	E	92	A	56
P45	32	E	90	A	58
P46	48	D	92	A	44
P47	88	A	90	A	2
P48	66	C	66	B	16
P49	96	A	94	A	-2
P50	78	B	88	A	10

Based on Table 5, majority of students showed an increase in test scores in the post test. For example P1 get 32 marks in the pre-test, increased to 88 marks in the test post. P6 was very brilliant when scoring 28 in the pre-test, but in the post-test scores rose 62 points to 90

points. However, there are two students P15 and P34 is not increased in the post-test. P21 and P49 showed a decrease of 2 points in the post test of each obtained 94 points.

The increase of student achievement can also be measured through the grade

obtained in the post test. The number of students who failed the test which is graded as E is decreased from 18 to 2. It shows the increment in the student achievement. The

number of students who obtained grade A also increased a large group of 20 people. The results of pre-test and post-test are detailed by grade in Figure 8 below.

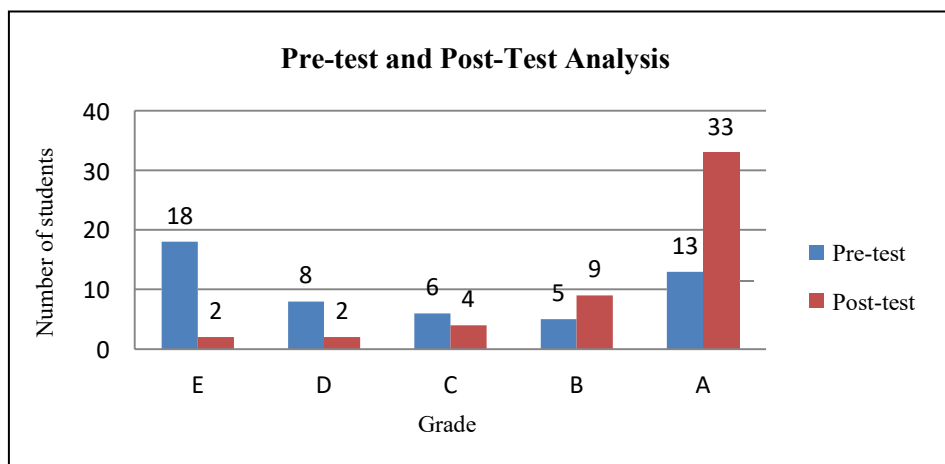


Figure 8-Pre-test and post-test analysis based on grade

Table 6 shows mean scores of pre-test is 55.08 while the mean score for post-test were 80.56. Based on these values, mean post-test scores were higher than the mean pre-test score which is increment in student

achievement. T-test analysis in Table 7 shows that there is a significant difference at significant level 0.05 between the two mean score.

Table 6: Pre-test and post-test mean analysis

		Mean	N	Standard Deviation	Standard Error Mean
1st pair	Pre-test	55.08	50	26.305	3.720
	Post-test	80.56	50	17.884	2.529

		N	Correlation	Sig.
1st pair	Pre-test & Post-test	50	0.541	0.000

* $\alpha = 0.05$

Table 8-T-Test analysis for pre-test and post-test

	Pairing Difference				t	df	Sig (2 tailed)
	Mean	Standard Deviation	Standard Error Mean	95% Confidence Interval of the Difference Below Top			
1st Pair Pre-test Post-test	-25.480	22.427	3.172	-31854 -19.106	-8.034	49	0.000

Referring to the results of the T-test in Table 8, the research is significant ($t = -8034$, $df = 49$, $p < 0.05$). The researchers decided that there is a significant difference between the student achievement before and after using the apps “Komputer Kami” in learning process. The higher mean score in post-test shows that this approach can improve student achievement.

CONCLUSION

This learning kit can realize M-Learning and improving the implementation of active learning especially in Special Educational Multimedia Learning Disabilities. Android-based platform learning application has been developed in accordance with the syllabus of special education in which students can learn anywhere and at any time.

Development of these applications not only benefit students but also for special education teachers. Mobile applications can also be shared with other SEN wherever they are with a minimal cost because they already have smart phones using the android platform and a home computer.

REFERENCE

- Abbott, C. (2007). Keperluan Pendidikan Khas dan Internet. ITBM.
- Anuar Mohd Yusof, Esther Gnanamalar Sarojini Daniel, Wah Yun Low, Kamarulzaman Ab Aziz (2011), Teachers’ Perception on Mobile Learning for Special Needs Learner: A Malaysian Case Study. Bandung, Indonesia. APAC Mlearning Conference 2011.
- Anuar Mohd Yusof, Esther Gnanamalar Sarojini Daniel, Wah Yun Low, Kamarulzaman Ab Aziz (2011), Teachers’ Perception on Blended Learning Environment for Special Needs Learners in Malaysia: A Case Study. Singapore. IPEDR vol 13 (2011).
- Anuar Mohd Yusof, Esther Gnanamalar Sarojini Daniel, Wah Yun Low, Kamarulzaman Ab Aziz (2014), Teachers’ Perception of Mobile Edutainment for Special Needs
- Anuar, K, & Norazrena, A.S (2011). Perisian Matematik bagi Tajuk Pecahan untuk Pelajar Berkeperluan Khas, (2007), 39–47 Florian, Lani, and John Hegarty. ICT and pecial Educational Needs: a tool for inclusion. Open Univ Pr, 2004.
- Gasparini, A. A., & Culén, A. L. (2012). Tablet PCs – An Assistive Technology for Students with Reading Difficulties ?, (c), 28–34.
- Ghani, M. Z., & Ahmad A. C (2011). Kaedah dan Strategi Pengajaran Kanak-kanak Berkeperluan Khas. Penerbit USM.
- Manisah Mohd Ali, Ramlee Mustapha and Zalizan Mohd Jelas (2006). An Empirical Study On Teachers’ Perceptions Towards Inclusive Education In Malaysia. International Journal Of Special Education Vol 21 No.3 2006.
- Mohamed, J. K. (2006). Pendidikan khas untuk kanak-kanak istimewa. PTS Professional.
- Mohamud, L.O (2016). Theory of Teaching Slow Learners. www.learnnc.org
- Norfarhana Abdollah, Wan Fatimah Wan Ahmad, Emilia Akashah Patah Akhir (2010), Multimedia Courseware for Slow Learners: A Preliminary Analysis, IEEE 2010.
- Norfarhana Abdollah, Wan Fatimah Wan Ahmad, Emilia Akashah Patah Akhir (2010), Design and Development Methodology of Komputer Saya “:Multimedia Courseware for Slow Learners, Universiti Teknologi Petronas. Norfarhana Abdollah, Wan Fatimah Wan Ahmad, Emilia Akashah Patah Akhir (2011), Usability Evaluation for Komputer Saya “:Multimedia Courseware for Slow Learners, Springer-Verlag Berlin Heidelberg 2011 Norfarhana Abdollah, Wan Fatimah Wan Ahmad, Emilia Akashah Patah Akhir (2012), Development and Usability Study of Multimedia Courseware for Slow Learners: Komputer Saya “, International Conference on Computer & Information Science (ICCIS)2012.
- Zharulnizam Shah ZA, (2010). Kepimpinan dan Pengurusan Pendidikan Khas. Kuala Lumpur: Utusan Publication & Distributions Sdn. Bhd.