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**OPTIMIZING THE ROLE OF CHARACTER EDUCATION
THROUGH SCIENCE AND TECHNOLOGY TOWARDS
EXCELLENT AND INTELLIGENT GENERATION**

MAKASSAR STATE UNIVERSITY

Thursday, 20 August, 2015



**International Conference
on Education and Technology**



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International Conference on Education and Technology



FOREWORD

Main theme of the 54th anniversary of Makassar State University is Education as an intelligent movement towards superior generations who have good character. The event series started from 29 June until 22 August 2015.

This conference is an annual academic event that holds as a part of events series to celebrate the anniversary of Makassar State University. This year, it is conducted and arranged by engineering of faculty as the main committee for the 54th Dies Natalis. This conference comes with theme “Optimizing the role of character education through science and technology towards excellent and intelligent generation”. The main theme is expected to give birth on new thinking and recommendation on aspects such as the following : Science and Technology, Art and Humanities, Education, Vocational Education and training and other interests that related to the main theme.

This proceeding consists of all accepted and supplementary paper. They are also presented in the conference. All papers are contributed by researchers who are not only academic member of Makassar State University but also those who come from many area disciplines such as teachers, practitioners, and students. It is hoped that this proceeding will be used well as academic references in the field of education and vocational education especially in term of building and integrating character education as one of very important factors to produce generation which are not only smart but also have good character.

Makassar, August 15th 2015

Editor



International Conference on Education and Technology



THE SCHEDULE OF INTERNATIONAL CONFERENCE

"Optimizing the Role of Character Education through Science and Technology
Towards Excellent and Intelligent Generation"

Makassar State University, August 20th 2015

TIME	ACTIVITY	PRESENTER	PIC
07.30 – 09.00	Registration		Committee
09.00 – 09.05	Opening ceremony	<i>Master of Ceremony</i> (MC)	Masni & Hasrul
09.05 – 09.10	Lagu Indonesia Raya	Dirigen	
09.10 – 09.20	Pembacaan Doa	Dr. Faisal Amir, M.Pd.	
09.20 – 09.30	Report and welcome address	Prof. Dr. Husain Syam, M.TP. (Chairman of Dies Natalis Committee)	MC
09.30 – 09.40	Welcome address	Rector UNM	MC
09.40 – 10.00	Opening Ceremony and Speech as Keynote Speaker	Prof. Mohamad Nasir, Ph.D. Ak. (Ministry of Research, Technology and Higher Education)	MC
10.00 – 10.10	Cultural Action	Traditional Dance (maks 10 menit)	MC
10.10 – 10.20	Souvenir Gift	Given by Rector UNM & Chairman	Committee
10.20 – 10.30	Coffee Break		Committee
10.30 – 12.00	Speech of Invited Speaker (Panel Session)	1. Prof. Dr. Muklas Samani (UNESA) 2. Ir. Simon Tandibua, M.Eng. (BPPT)	<u>Moderator:</u> Hasanah Nur <u>Notulen:</u> Yasdin
12.00 – 12.20	Discussion	Participant	
12.20 – 12.30	Souvenir Gift	Given by Coordinator of Seminar	Committee
12.30 – 13.30	Lunch Break		Committee
13.30 – 14.40	Speech of Invited Speaker (Panel Session)	1. Prof. Baharuddin Aris (Malaysia) (<i>Character Building in Academia via NALI & NA- RIPENS</i>) 2. Prof. Graeme Johansen (Australia) (the links between Information and Communications Technologies (ICTs), entrepreneurship, and excellence in education) 3. Larry Lai (Singapore) (<i>Character Education in the Cyber Age</i>) 4. Mahyuddin Bin Arsat, Ph.D. (Malaysia) Empowering Character Education through Sustainability Thinking In Engineering	<u>Moderator:</u> Yasser A. Djawad <u>Notulen:</u> Dyah D. Andyani
14.40 – 15.20	Discussion	Participant	
15.20 – 15.30	Souvenir Gift	Given by Coordinator of Seminar	Acara
15.30 – 15.45	Coffee Break		Committee
15.45 – 16.45	Parallel session	National & International presenter	Moderator: Fiskia Rera; Samnur; Ahsan; Amiruddin; Prof. Yunus; Prof. Lahming
16.45 – 17.00	Closing Ceremony	Gift for the best presenter; Most active participant, the best moderator	Committee (Prof. Saptu)



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on Education and Technology**



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- PARALLEL SESSION -

Makassar State University, August 20th 2015

TIME	PRESENTER	PAPER
Parallel Session I: Education		
15.45 – 15.55	Muhammad Danial ¹ & Nurlaela ²	Development of basic chemistry learning tools forbiology-based group investigation for improving metacognition skills and concepts mastery
	Dahyar Daraba	Character education as the basis formation of praja (students of institute of domestic governance) to become a pioneer in mental revolution
15.55 – 16.05	Agustan S.	The process of student's thinking having learning style of auditory-sequential in understanding quadrilateral
	Andi Asmawati Aziz ¹ , Nurhayati B ² , Andi Irma Mutmainnahtul Adawiyah ³	The influence of using instructional media lectora inspire to students learning outcomes of class x in material of invertebrate at SMA Negeri 9 Bulukumba
16.05 – 16.15	Firman, Nurhayati B., Yusminah Hala, A. AsmawatiAzis, & Oslan Jumadi.	Correlation between peer assesment, readiness to learn with maternity care course's learning outcome of the students of Bina Bangsa Majene institute of health science
	Muhammad Akil Musi ¹ & Azizah Amal ²	Implementation of cultural value in character education for early childhood (case study at bugis family in Makassar city)
16.15 – 16.25	Mustari S. Lamada	Needs analysis project based learning in programming webcourses at informatics and computer engineering education UNM
	Muhammad Yahya	Ananalysis of vocational competency on eastern Indonesia
16.25 – 16.35	Sugiarti and Reni Appang Allo	The effect of using media animation through guided inquiry learning model toward motivation and student's achievement at class vii smpn 30 makassar (study on characteristic substances)
	Usman ¹⁾ , Nasrullah ²⁾	The difference of mathematical disposition based on learning models cps and dt in mathematics learning for secondary graders
16.35 – 16.45	Erma Suryani Sahabuddin ¹⁾ , Filha Mori Duhuria ²⁾	Cooperative learning model "student teams achievement divisions" effect toward learning outcomes of science program and interpersonal interaction
	Nuri Emmiyati	Students' Motivation Profiles Of Junior Secondary School In Indonesia In Learning English
16.45 – 16.55	Sapto Haryoko ¹⁾ , Hendra Jaya ²⁾	Attitude assessment students of vocational school toward using android based simulation laboratory
	Nurhikmah Hasyim	Character building as efforts to prevent crime and demoralization children in elementary school
16.55 – 17.05	Rusyadi ¹⁾ , Ahmad ²⁾	Analysis of supervisor performance of vocational high school (case study in district Pinrang in South Sulawesi)
	Muhammad Rais ¹ , Amiruddin ²	Disaster mitigation education model based on social learning theory

TIME	PRESENTER	PAPER
Parallel Session II: Science And Technology		
15.45 – 15.55	Frederik Palallo ¹ , Nixon Wibisono Suma ²	Resistance mechanical properties of material katinting boats effect on environment
	Soetyono Iskandar	Alternative electric power plant that environmental friendliness at Indonesia
15.55 – 16.05	Mithen ¹ , Sunardi ²	Impact of environmental conditions settlement watershed of Mamasa
	Nurlita Pertiwi	Ecobehaviour in the management of riverbanks at Soppeng regency
16.05 – 16.15	Nasrullah	Teachers' creativity in posing problems of mathematics using traditional games as learning context
	Ita Hasmila ¹ , Amaliah Z.J. ² , Netti Herawati ³ , Muhammad Danial ⁴	Isolation and identification of secondary metabolite compound etil acetate in the bark extract of pedada mangrove (<i>sonneratia caseolaris</i>)
16.15 – 16.25	Rosmini Maru	Rainfall seasonality index for south sulawesi province, indonesia, 1982-2012
	Wahidah Sanusi ¹ , Syafruddin Side ² & Muhammad Kasim Aidid ³	Intensity-duration-frequency (idf) curves for rainfall data in Makassar city
16.25 – 16.35	Moh. Ahsan S. Mandra	Analysis of emission control strategy of vehicles in makassar city using interpretative structural modeling
	Muhammad Ichsan Ali	Contingency plan for flash flood in Enrekang regency
16.35 – 16.45	Mushawwir Taiyeb ¹ , Irma Suryani Idris ²	Analysis of dietary habit and nutrition status biology student mathematic and sciences faculty makassar state university
	Pince Salempa	Phytochemical compound of stem bark soursop plant (<i>annona muricata linn</i>)
16.45 – 16.55	Mantasia ¹ , Tasri Ponta ²	The role of technology augmented reality in strengthening a scientific learning process



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Parallel Session III: Social, Art And Humanities		
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15.55 – 16.05	Abdul Azis ¹ , Hajrah ²	Folktale categories fable language learning materials as Indonesia and literature in primary school
16.05 – 16.15	Heru Winarno	The role of social capital, entrepreneurship education and interest among students at faculty of engineering Makassar State University
16.15 – 16.25	Mashur Razak ¹ , Bahrul Ulum Ilham ²	The effect of personal character, family, and governmental policy toward entrepreneurship competence of young entrepreneur (case study of gkn 2014 program South Sulawesi).
16.25 – 16.35	Andi Aminullah Alam	The impact of school counseling on student educational outcomes in high schools
	Ismail ¹ , Nurhikmah Tenri Pada ²	Analysis of student character development stages through the implementation of typical curriculum of sekolah alam (a case study in sekolah alam bogor junior high school level)
16.35 – 16.45	Jokebet Saludung	Prospects of kecombrang fruit development become home industry
16.45 – 16.55	A. Padalia	The effectiveness of motoric skill assesment using video in the subject of basic South Sulawesi dances



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ATTITUDE ASSESSMENT STUDENTS OF VOCATIONAL SCHOOL TOWARD USING ANDROID BASED VIRTUAL LABORATORY

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ABSTRACT

Vocational education graduates is expected to be an individual who is able to work become productive and middle-level manpower and prepared to face the job competition. On Curriculum Vocational High School (SMK) in 2004 stated that vocational education is secondary education that prepares students primarily for work in a particular field who have the skills, knowledge and attitudes to be competent. The lack of equipment in school practice based on interviews with teachers subjects due to lack of budget is a good budget for the procurement of equipment and maintenance costs and maintenance equipment are damaged so that the tool cannot be improved to meet the completeness of laboratory equipment. Another obstacle is the factor of human resources remain limited among teachers, the limited time available also affect obstacle in practical activities in school. For that several obstacles in the implementation of practical activities at SMK, android-based virtual laboratory as a means that is needed by the students of SMK (SMKN 9 Makassar). Program "LAVIR" and distributed to vocational students. Results of assessment of students in the attitude aspect Using "LAVIR" (*Attitude Toward Using*) obtained ratings with a mean score of 4.71 in the category at Good..

Keywords: *Attitude, assessment, Android Virtual Laboratory*

A. Introduction

The development of education is currently entering an era marked by incessant technological innovation, thus requires the adjustment of education system in tune with the demands of the working world. Education must reflect the humanizing process in the sense actualize all their potential capabilities that can be utilized in daily life - the day in the wider community. One of the institutions in the formal education that prepares graduates to have an edge in the world of work, such as through vocational education.

Conceptually SDM is the entire human ability or potential (population) that are within a certain area and its characteristic or feature of demographic,

social, cultural and economic that can be utilized for development purposes. The quality of human resources in a country can be seen from the level of income, level of education and level of health. One study that can serve as a major catalyst for the development of Human Resources (HR) is through vocational schools (Djojonegoro, 1998: 59). Secondary vocational education role is very important and very necessary to produce quality human resources, professional, and reliable in work and work.

Education SMK The main objective is to prepare learners to be ready to plunge into the world of work by providing specific skills, so that education programs in vocational expected to

constantly adjusted to the development needs of the work of Government Regulation (PP) No. 29 of 1990 Article 7 (Wena, 1996: 105).

Vocational education graduates is expected to be an individual who is able to work productively and become a middle-level manpower and prepared to face the job competition. In the face of a changing world of work so quickly. SMK as early institution of human resource development should be able to provide competency or *skill* capable of improving the quality of graduate students for the various employment opportunities or the possibility of acquiring a larger work.

SMK attendance today coveted presence in the midst of society, especially people who are directly involved in the working world with a note, that graduates of vocational education has classified as (potential) workers who have a particular vocational abilities according to their expertise. Supposedly in the learning process of students should not be passive, but must be active and creative in learning and practicum. Students can develop their own understanding, so that the potential and ability of students to uncover and develop. This is consistent with the understanding of constructivism, meaning that human knowledge is built by little by little, the result is expanded through a

limited context / narrow and not what the (MONE, 2002: 11). Through understand constructivism, students are expected to build their own understanding of the experience / prior knowledge (Nurhadi, 2003: 8).

Technological complexity alleviate students' ability to comprehend and understand the contents of the core subjects and practicum. This is due to the fact that the computing environment and application development is an effective teaching tool that can improve students' learning ability (Brown et al., 1997).

After the invention of the telephone, this device is so rapid development, in 1983 the company claimed invention Motorola mobile devices such as mobile phones which then has a mass of 1 kilogram. Subsequently in 1993, the hardware company IBM launched the first *touchscreen smartphone* which became the basis of technological development of mobile devices that have an operating system-based smart phones or often called *smartphones* that allows users to run a variety of things in the clutch.

Curriculum 2013, which has been developed demanding change system learning where the new curriculum, pupils are guided more active than the teacher, and the teacher as a learning tool capable prosecuted providing media that



could help students understand the material. According to research results, Rahmatullah (2011: 178) states that teachers tend to only use the blackboard and books as a medium of learning, this is expected to change when applied curriculum 2013. Another study developing *android-based* learning media is the medium of learning Mathematics *android* application on three-dimensional material by Purbasari 2013, this application is the media that contains the material, example problems, evaluation and glossary. Differences in these applications with applications developed is the material used. In this application, the material used is a three-dimensional material mathematics. As for the productive subjects in vocational learning medium developed yet *android-based*.

Based on the description above was developed based animation instructional media *android* aimed at helping vocational students in learning. Differences of similar instructional media that already exist especially on the subjects of productive lies in the hardware (*hardware*) used, but can be run on a computer, this medium can also be run on mobile devices (*mobile device*) with the help of an application based on *Android* emulator. Another advantage of this learning media is the

media easier for users is due to the hardware that is used is easy to carry anywhere. Therefore it is this research aims to produce multimedia products on the *Android-Based* Learning Animations Productive for vocational subjects who meet the eligibility criteria.

Multimedia

Multimedia technology according Cahyana (2008: 26) provides a definition of computer technology as a combination of both hardware and software with electronic technology. On the application of multimedia CBT is expected to help with chores in presented or visualize: technique of sampling techniques, procedures, visualization lab equipment, engineering laboratory analysis, as well as understanding the role of environmental laboratories in producing data that is accurate, so as to provide information appropriate for those who need it.

Interactive multimedia by Dada (2006: 34) were classified into two properties, namely linear and nonlinear. A system is linear if the user (*user*) cannot control what is seen on the screen. While the nonlinear systems are systems commonly called interactive multimedia in which the user can control what is seen on the computer screen, users participate in

the control of the operation of the computer.

Utilization of multimedia technology as an *interactive multimedia instructional* (IMM), as a means of learning for students, has some basic power as raised by Phillips (1997), namely: a) *mixed media*, using multimedia technology various conventional media that there can be integrated into in one type of interactive media, such as text media (blackboard), audio, video if separated would need more media; b) *User control*, IMM technology, allowing users to browse the teaching materials according to their ability and background knowledge possessed in addition, makes users more easily learn media content over and over again; c) *simulation and visualization*, simulation and visualization is a special function that is owned by IMM, so that the animation technology, simulation and visualization of computer users will obtain a more real information than the information that is abstract; d) *different learning styles*, IMM has the potential to accommodate users with different learning styles.

Animation

Animation is a technique how to set / display back behavior / behavior objects that depend on time. Model simulations in assisted learning is basically a one strategy

learning aims to provide a more concrete learning experiences through createdimitations form of experience approaching the real atmosphere. According to Suyanto (2003: 287-290) there are 9 kinds of animation, among others: a) *cell animation*, an animation created by cell media (sheet selluliod) contains animated object in each frame image; b) *the animation frames*, the computer animation process from frame one frame to another; c) *sprite animation*, a computer-animated main object is animated to move, while the background is static; d) *animation track*, an animated computer animation in which the object is moving along a curve or line designated as its trajectory; e) *spline animation*, the animation path where the animated object moving speed can be controlled by the user with a button; f) *animation vector*, an animated computer-animated objects adjusted by varying three parameters, namely the tip / base, the direction and length of the line segments with a vector image as objects; g) *The character animation*, a computer animation on the characters; h) *computational animation*, a computer-animated motion animated objects based on variations in Cartesian coordinates; i) *morphing animation*, a computer animation that changes the shape of an object to another shape.

Development of Multimedia Learning procedure

According to Lee (2004: 161) there are 5 media development procedures include: 1) *analysis*, before developing the media, must be subjected to a needs analysis. Needs analysis can be conducted through field observations, interviews, and pre survey; 2) *design*, stage design includes instructional design and media products. At this stage the design adapted to the material, display techniques, and color selection techniques so that *the user's* eyes are not quickly saturated; 3) *development*, this stage is the stage of media production according the planned design was then developed. E.g. for different vocational students with high school students, vocational high schools focus more on the application; 4) *implementation*, this stage will implement the results of the design that has been designed and developed. Implemented to users by taking into account the weight of the material, high school students of different weight as college students; and 5) *evaluation*, evaluation of instructional media is done by the validation by experts of material and media experts to determine the quality of the media that have been produced.

Android

Android is an operating system for Linux-based *mobile* devices that includes an operating system, *middleware* and applications. Android is a new generation *mobile platform* that provides the opportunity for developers to develop as expected. The underlying operating system Android is licensed under the auspices of the GNU General *Public License* Version 2 (GPLv2), which is commonly known as *Copyleft*. The term *copyleft* license is that any repairs by third parties should continue to fall under *terms*. Android distribution is under the Apache Software License (ASL / Apache2), which allows for the distribution of a second or so. Android application developers are allowed to distribute their applications under the licensing scheme whatever they want. Developers have several options to create applications that based on Android. However, most developers using Eclipse as an IDE to design their applications. It is because Eclipse received direct support from Google to become the Android application development IDE.

B. Research Methods

The proposed research entitled "Animation Multimedia Applications Based Android (LAVIR) Subject To Productive In SMK" This is the kind of

research and development (*research and development*), in which the development of the selected design is the use of multimedia development model (Lee & Owens, 2003). Because the main outputs that will be produced in the form of a software research, then in the process of media development will be equipped with special methods of software development using the *Software Development Life Cycle* (SDLC) with Waterfall-based model.

Because the media developed in the research of this development will produce the final product in the form of a software simulation program, the third phase will be followed by the fourth phase of design development adapted to the method is a method of software development *Software Development Life*

Cycle (SDLC) with *Waterfall Model*. SDLC methodology is a methodology for analyzing and designing a structured system.

The fifth stage is the last stage of the design development of instructional media, which at this stage of testing software as a medium of learning which include: media expert testing, expert testing contents, testing small groups and field trials.

The variable in this study is the Android-Based Multimedia Animation or so-called "LAVIR". While the other variables measured in the study is response vocational students toward the development and use of instructional media "LAVIR".

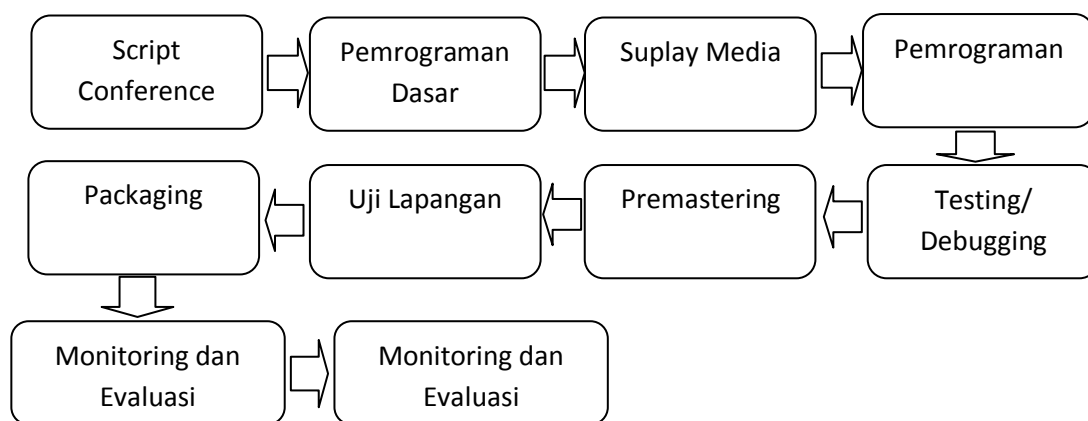


Figure 1. Stage Development, Production and Implementation LAVIR

C. Results and Discussion

Once the script was written by the author mobile learning through the flowchart and story board and has been

reviewed by experts materials, curricula, media and instructional design, the next stage is the stage of development / production. Results in the form of software

product development (Figure 2) that has been integrated with the hardware in this case a tablet brand "SAMSUNG" which has been filled with the program "LAVIR" and ready to be tested to schools. To reach broad deployment it is necessary

dissemination and outreach to schools. Although the program "LAVIR" going through a very long way it is possible to be improved to get to the perfection of the program. For the monitoring and evaluation should be done.



Individual trials involving 3 students, test in small groups involving 8 students, and expanded trials involving 15 students with sampling used through purposive sampling. In granting the instruments to

vocational students to find out how students in using technology LAVIR (Virtual Laboratory). Based on questionnaires stuffing obtained results as shown in Figure 3.

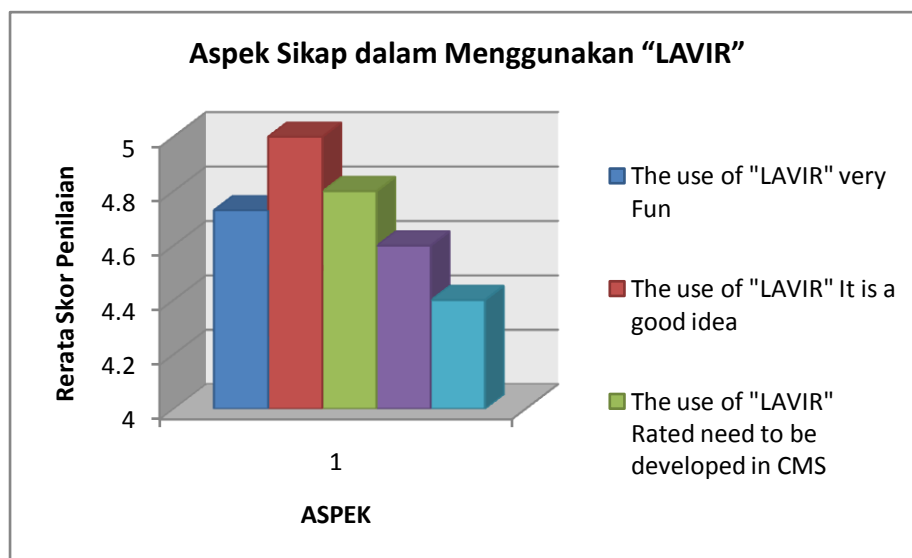


Figure 3. Graph Acquisition Score every aspect of attitude in using LAVIR by Students SMKN 9

From Figure 3 presented that aspect of the attitude of the students in using LAVIR consists of several indicators, among others: 1) The use of "LAVIR" very pleasant;2) The use of "LAVIR" It is a

good idea;3) The use of "LAVIR" Rated need to be developed in CMS;4) All CMS must use "LAVIR";5) Use "LAVIR" It is a wise idea.In detail the assessment results can be seen in Table 3 below.

Table 3. Attitude Aspects in Using "LAVIR" (*Attitude Toward Using*)

ASPECT	Mean Score	Category
The use of "LAVIR" very Fun	4.73	Very good
The use of "LAVIR" It is a good idea	5:00	Very good
The use of "LAVIR" Rated need to be developed in CMS	4.80	Very good
All CMS must use "LAVIR"	4.60	Very good
The use of "LAVIR" It is a wise idea	4:40	Very good
Mean Score Overall	4.71	Very good

From Table 3 with indicator SKAP students stated that by using "LAVIR" very pleasant obtained ratings with a mean score of 4.73 to the category of Very Good.Usage Indicator "LAVIR" by students is a good idea with the assessment obtained a mean score of 5:00 with the category of Very Good.Usage Indicator "LAVIR" Judged by students need to be developed in vocational assessment obtained with a mean score of 4.80 to the category of Very Good.All the indicators expressing the vocational students to use "LAVIR" assessment obtained with a mean score of 4.60 to the category of Very Good.Usage Indicator "LAVIR" It is a wise idea to the assessment obtained a mean score of 4:40 with the category of

Very Good.So Average Overall Score 4.71 with category Very Good.

D. Conclusion

Android-based animation multimedia development for productive subjects conducted through a multimedia device development.Mobile learning script written by a screenwriter and has been reviewed by experts materials, curricula, media and instructional design, the next stage is the stage of development / production.Program "LAVIR" and distributed to schools.Results of assessment of students in the attitude aspect Using "LAVIR" (*Attitude Toward Using*) obtained ratings with a mean score of 4.71 to the category of Very Good.



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