INTERACTIVE MULTIMEDIA APPLICATION DEVELOPMENT CONTINENTAL FOOD AS A LEARNING MEDIA FOOD SERVICE CLASS XI (CASE STUDY SMK MVP ARS INTERNATIONAL)

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ABSTRACT

Continental Food is a food that is derived from European countries comprising of appetizer, soup, maincourse and dessert. Food service study program at SMK MVP ARS international subjects of processing and serving continental food as compulsory subjects who have a basic competence in process and serves continental food which consists of entrees (appetizers), soup (soup), main course, and dessert (dessert). On the learning process of processing and serving continental food includes theory and practical classes. In theory the students listen to, and understand the teachers who are delivering as well as discussion. While in the classroom teaching in laboratory kitchen catering, students practice in accordance with the material being taught at the time of the theory in the classroom. As many as 63% of students having difficulty in understanding the subject matter processing and serving continental food. By applying a computer-assisted learning media (Computer Assisted Instruction) based tutorials, simulations and drills and practice expected of students courses catering or visual imagery can have a more clear regarding the practical work, continental food. And teachers can also give you an idea or visual processing and presentation about the appetizer, soup, main course and dessert with a supporting media namely media interactive multimedia learning continental food.

Based on the results of research and testing, applications of interactive multimedia learning media processing and serving continental food grade XI, conclusion that applications built 87% can help the students to understand the material before the practical work as well as it can help teachers in delivering material processing and serving continental food by making use of interactive multimedia**.**

Keywords: *Interactive Multimedia , Computer Assisted Instruction ,learning media, food service, SMK MVP ARS INTERNASIONAL*

1. PRELIMINARY

SMK MVP ARS INTERNATIONAL is a private vocational secondary school located at Jalan international school No. 1-6, Antapani, Bandung. SMK MVP ARS international accredited "A" (Excellent) and an ISO standard with 8 skill courses, one of which was a course catering. In the program there is a foodservice study subjects processing and serving continental food as compulsory subjects who have a basic competence in process and serves continental food which consists of entrees (appetizers), soup (soup), main meal (main course), and dessert (dessert). On the learning process of processing and serving continental food includes theory and practical classes. In theory the students listen to, and understand the teachers who are delivering as well as discussion. While in the classroom teaching in laboratory kitchen catering, students practice in accordance with the material being taught at the time of the theory in the classroom. Based on the results of the interview with Mr. Ferry Tikkos SE. Par as subjects teachers serving continental food processing and says that students have difficulty in understanding the content of the subject matter processing and serving continental food. This occurs because the learning material in the book are mostly continental food shaped text and images. These difficulties had an impact on the process of teaching, often found students who are having difficulties when preparing food, and equipment that comply with the continental food recipes. As for the results of a questionnaire that can be seen in annex 1, against the 19 students of Class XI as a measure of students ' understanding of subjects regarding the processing and presentation of continental food, that 63% of students having difficulty in understanding the subject matter processing and serving continental food. This occurs because at the time pembelajaan the theory of teachers only explain the theories in the book the continental food and do not provide an illustration or picture on the material being studied. So did his thing with a difficult teacher gives an illustration or picture moment theory in the class thus only described verbally. And yet the existence of the media learning as a tool to understand the subject matter processing

and serving continental food grade XI Food services SMK MVP ARS INTERNATIONAL.
Based on problems that have been outlined, required a medium supporting multimedia learning intereraktif which can be an additional media in learning activities, so that the submission of theoretical and practical work will be more interesting and easy to understand. based on the results of the questionnaire, students liked the interactive learning process such as discussion, or use of alternative media and supports built his a interactive multimedia learning media applications continental food as a learning tool students in understanding the material. 84% of students choosing the applications that will be built to take advantage of desktop-based computer labs. By applying a computer-assisted learning media (Computer Assisted Instruction) based tutorials, simulations and drills and practice expected of students courses catering or visual imagery can have a more clear regarding the practical work, continental food. And teachers can also give you an idea or visual processing and presentation about the appetizer, soup, main course and dessert with a supporting media namely media interactive multimedia learning continental food.

1.1 *Continental Food*

Continental food is food that comes from European countries consisting of appetizer, soup, maincourse and desert. The development of these foods continue to grow through to other continents including America (due to the colonization of the United Kingdom), because it's American food menu will have commonality with the menu from Europe.

1.2 *Computer Assisted Instruction*

Computer Assisted Instruction is the development of an integrated information technology than IE communication (interactive), audio, video, image appearance (image) which is packed with multimedia technologies. Computer Assisted Instruction includes the use of computers that connect with students as well as educators. In this case the CAI can be used to teach and train in studying disciplines. As for the models found in Computer Assisted Instruction as follows:

1. *Tutorial* : the material presented in the form of text and images and is done gradually..



Figure 1. *Tutorial*

2. *Drills and Practice* provides the main material or provide to users through existing software, so that users of the software can perform the exercises of the problems which have been provided.



Figure. *Drills and Pratice*

3. *Simulation* : provides the main material or provide to users through existing software, so that users of the software can perform the exercises of the problems which have been provided .



Figure 3. *Simulation*

1.3 Multimedia

Multimedia can be described as a new form in the creation of computer programs with the annexation of more of a media. According to Turban "Multimedia is a combination of at least two media input or output of data, this can media audio (voice, music), animation, video, text, graphics and images".
There are four important components of multimedia, namely:

1. There should be a computer that coordinates what is seen and heard that interact with the user
2. There should be a link connecting users with the information
3. There should be a navigation tool that guides
4. Multimedia provides a place to collect, process, and communicating user ideas and information..

If one of the components does not exist, it is not a multimedia in a sense.
Multimedia consists of several elements, i.e. text, sound (audio), images (image), video and animation. The following explanation.

1. **Text**
   The text is the element that the submission of the data is common and most simple because it takes little space on storage compared to other elements. Here is a picture of the text can be seen on figure 4.



Figure 4. Teks

2. **Audio**

The voice is the element of delivery data is quite interactive, because users can get information using only the sense of hearing alone. For example, songs,instruments-instrument, audio formats such as WAV, MIDI, and MP3. Here is a picture of the Audio can be seen on figure5.



Figure 5. Audio

3. **Image**

The image is an element of delivery data is capable of representing the message intext form. The image does not require a specific movement, because without human gerakanpun can find out any information that is submitted. Some image formatsinclude JPG, PNG and BMP. Here is a picture of the image can be seen on figure 6.



Figure 6. Image

1.4 Interactive Multimedia

Interactive multimedia is a multimedia tool that comes with a controller that can be operated by the user, so the user can select what is desired for the next process.

Examples of interactive multimedia is: multimedia applications, interactive learning games, and others.

2. RESEARCH CONTENT

2.1 Descryption System

The system that will be built have two users namely admin (teachers) as System Manager and users (students) as a user of the system, each has different access rights,for it required a security mechanism by providing different Login facility. The facility is used as verification of user and admin access rights on the system. Verification is used there are two i.e. username and password, where the username is used for students wearing NIS (number of stem students) and for teachers to wear the username admin@ars.com. Interactive multimedia applications to be created-based desktop. Students will learn the material processing and serving continental food are presented using information visually by combining several components of multimedia such as text, images, audio and simulation. While in simulation that is presenting some of the equipment that is in URR.LAB. KITCHEN with cooking food as well as the continental way gives an overview how to work equipment of appropriate food to be made, as well as the evaluation in the form of reserved PG and the essay must be carried out by students. Those questions came from material processing and servingcontinental food and simulations that have been studied previously. In this case the student is obligated to understand the material and the simulation. If all the questions had been completed were done then, the application will provide a response to the students ' answers in the form of score obtained when answering the question of the evaluation.

This interactive multimedia applications can be accessed by teachers and studentsof SMK foodservice MVP ARS INTERNATIONAL w ho was doing a learning activity before the practical work. Here is a picture of the flow of interactive multimedia systems of continental food can be seen on figure 7.

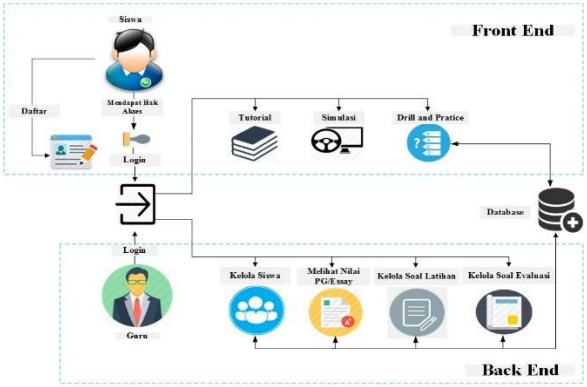


Figure 7. Continental Food System Flow

2.2 Descryption Concept Built

Interactive multimedia application continental food as a medium pembelajran food service class XI SMK MVP ARS INTERNATIONAL is an application that can be used to help teachers in foodservice learning material gives an processed. The following is a table of descriptions of the concept of the application to be built can be seen in table 1 below.

Table 1. Descryption Concept Built

The Building Elements	Description
Title	Interactive Multimedia Application Development Continental Food As A Learning Media Food Service Class XI

The Building Elements	Description
	(Case Study SMK MVP ARS International
User	Students and teachers food service class XI
Materi	The materials applied into applications is the material in the textbook based on curriculum 2013, presented using visual information by combining several components of multimedia such as text, images, audio and simulation
Audio	Audio in adapts to applications built on the menu animated simulation
Animation	Animation in built applications are 2D animation.
Interaktivity	Interaktifitas in applications that are built are doing exercises, evaluation, perform simulations and reading material

To produce an interactive multimedia application that is used to convey the message (information and skills) with visual media. Here is the concept of visual media to multimedia-based learning application interactive.

1. **Format Screen Size**
   Applications built is designed with a size of 1366 x 768 pixels. Here is a picture format size of the screen can be seen in Figure 8.

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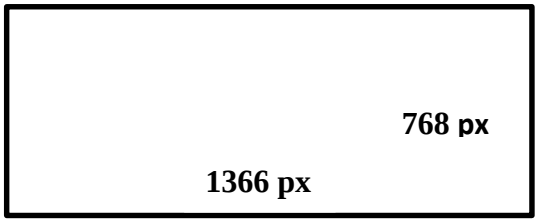


Figure 8. Format Screen Size

2. **Layout**
   Layout is an arrangement position of an element - element applications such as image, animation, and text. So the message or the information contained in the application can be conveyed properly. Here is a sample image layout can be seen in Figure 9.

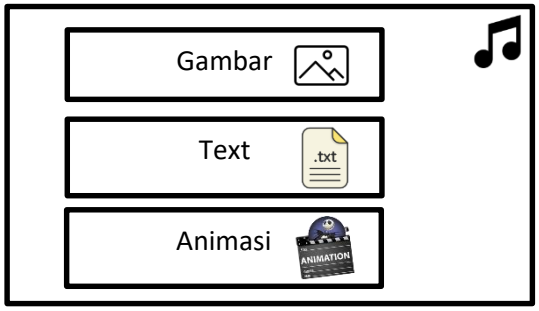


Figure 9. Sample Layout

Sound elements that are in the background section, while elements - other elements such as images, text, and animation placed according to need. So comes the interrelated combination of elements - elements.

3. **Letter**
   The letters that are used in applications that are created are letters that are easy to read and interesting to see.
4. **Color**
   Color is an important element in the multimedia application. Colors that match the colors used are white, blue, and red because it is adapted to the origin of the backround of the logo SMK MVP ARS INTERNATIONAL.



Figure 10. Color SMK MVP

2.3 Analysis Of Interactive Learning Method

Interactive learning method is a method that is carried out in order to realize an interactive atmosphere between teachers with students so that it appears the reciprocal teaching and between students. The methods used in this research is ComputerAssisted Instruction (CAI) is a learning method using media computers. Method ofComputer-Assisted Instruction (CAI) was used in the construction of this application just three concepts, namely:

2.3.1 Learning Methods Tutorials

The concept of the tutorial will be used in application development interactive multimedia learning and simulation of continental food to delivering food to students continental shaped text, animation, and visual. The flow of material in the delivery of interactive multimedia learning applications and continental food are as follows.

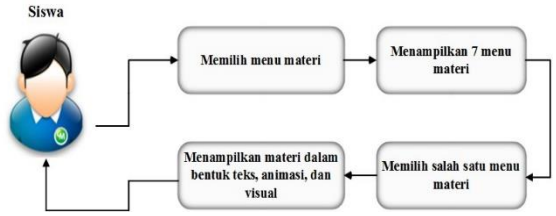


Figure 11. Delivery Of Material Flow

2.3.2 A Learning Method Of Simulation

The concept of simulation is used to test the ability of students to the materials is studied through an overview of the situation in accordance with the real world to meminimalisisr risks that may be encountered. In
the simulation, cooking continentalfood is served in the form of a combination between audio, animation, and instruction. The concept of interactive mmultimedia application simulation in Continental Food implemented parts of the simulation.

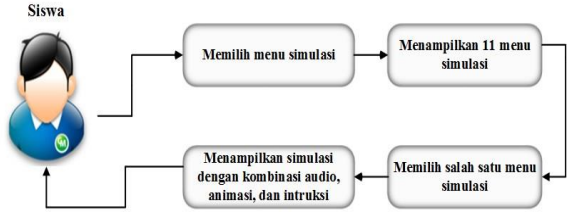


Figure 12. delivery flow simulation

2.3.3 Drill and Practice learning methods

The concept of Drill and Practice used to improve students ' ability to understand the material that has been studied. On interactive multimedia application continrntal food concepts the drills and practice implemented in the exercise and evaluation strands with the submission as follows::

1. Flow Delivery Practice Reserved PG/Chapterb

Delivery flow Practice Reserved/continental food chapter describes Groove delivery practice reserved/chapter continental food through the application is built. students choose a workout then the application displays the questions as much as 5 reserved for each chapter of her along with a selection of answers to be answered by students. After that students select answers that felt right. The application then displays the score as reciprocal top answers chosen by students..

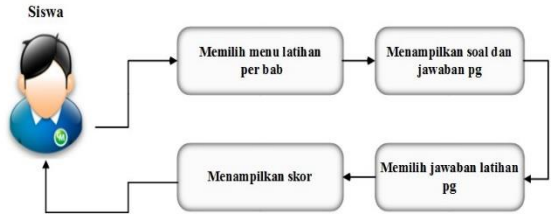


Figure13. Flow Delivery Multiple Choice Exercises

2. A Multiple choice Evaluation of delivery Flow

Flow Delivery multiple choice evaluation of continental food delivery flow describes the evaluation of continental food through the application is built. Students choosethe evaluation then the application showing as many as 25 questions a matter of choice and their choice of answer to is answered by students. After that students select answers that felt right. The application then displays the score as reciprocal topanswers chosen by students. And the results of the evaluation will be to record in the database.

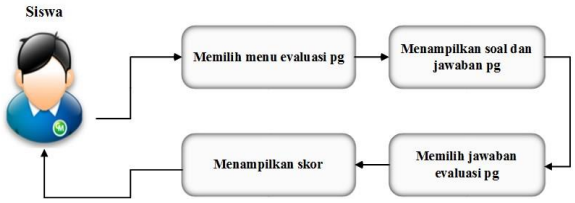


Figure 14. Multiple choice Evaluation of delivery flow

3. Delivery Flow Evaluation Essayy

Submission Evaluation flow Esssay continental food delivery flow describes the evaluation of continental food through the application is built. Students choose the evaluation then the application displays the questions as much as 5 essay question with a choice answers to answered by students. After that students fill out the answers where appropriate. The application then displays the score as reciprocal top answers chosen by students. And the results of the evaluation will be to the records in the database

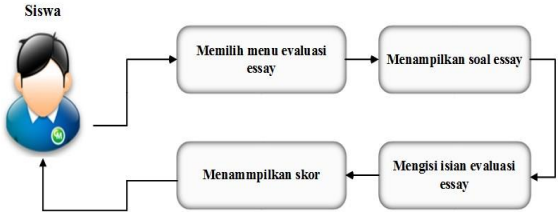


Figure 15. Delivery Flow Evaluation Essay

2.4 Implementation Of Interface

Implementation of interface do with each page created and pengkodeannya in the form of program files. The following is an implementation of the interface to the students.

Figure19. Interface Material Options

2.4.1 Implementation interface Form Login Student

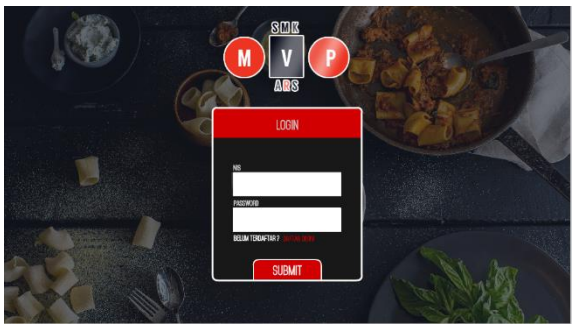


Figure 16. Antarmuka Form Login Siswa

2.4.2 Implementation interface Form Signup Student

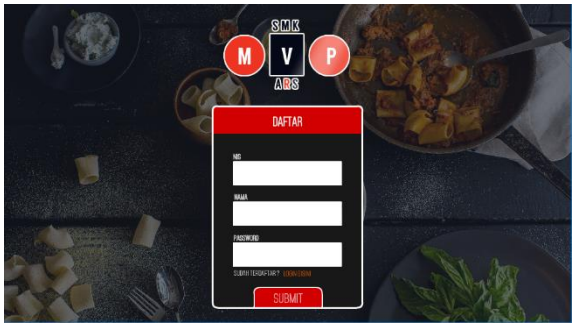


Figure17. Antarmuka Form Daftar Siswa

2.4.3 Implementasi Interface Main Menu



Figue 18. Interface Main Menu

2.4.4 Implementation Of Interface Material Options



2.4.5 Implementation interface Materi *Continental Food*



Figure 20. Antarmuka Materi *Continental Food*

2.4.5 Implementation interface Choice Of Simulation



Figure 21. Simulation Interface Option

2.4.5ImplementationOf Interface Simulation America Burger



Figure 22. Interface Simulation America Burger

2.4.6 Interface Implementation Exercise Multiple Choice Question



Figure 23. Practice Multiple Choice Question Interface

2.4.7 Implementation Of Interface Option Exercise Question Essay

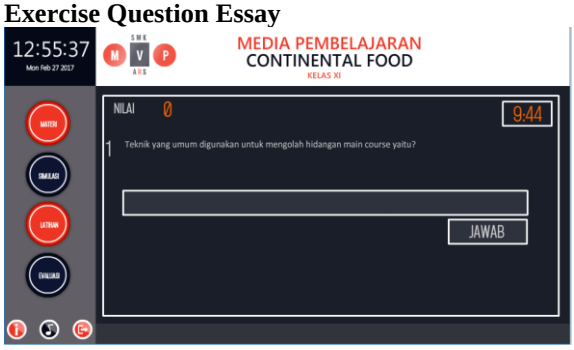


Figure 24. Implementation Of Interface Option Exercise Question Essay

2.5 Examination

The software testing is a stage to find mistakes and shortcomings in the software that is built so that the bias is unknown whether the lunakk devices have met the criteria in accordance with the purpose or not. The test methods used in perangkatl this software is a black box method. Black box testing focuses pda software functional requirements. Black box testing method is composed of two phases, namely testing phase of alpha testing and beta testing phases.

2.5.1 Alpha Testing

The scale of Assessments is alpha testing functional testing held in neighborhood development by a group of students that will be using the software. Construction of the party stood for and noted those errors or problems perceived by the user. Alpha testing is done on the construction of the multimedia application intraktif continental food, i.e. scenario test cases and test results and conclusion pengujianAkhir Application.

2.5.1.1 Scenario Testing

Scenario testing exposed the sequence and it tested testing was done on the "Interactive Multimedia Application Development Continental Food as a medium of instruction, Class XI Foodservice (case studies SMK MVP ARS international)". As for the scenario that is done can be seen on table 2.

Table 2. Scenario Testing

No	Component Tested	Skenario Testing	Types of Test
1	*Login* Siswa	Entering NIS	*Black Box*
		Entering *Password*	*Black Box*
		Selecting The "*Submit*"	*Black Box*

2.5.1.2 Cases and Test Results

Here is a case to test the software that has been built using the black-box testing based on tables 2 scenarios that have been made previously.

Table 3. Cases and Test Results Studennt Login

Kasus dan Hasil Uji (Data Normal)			
Scenario Testing	**Excepted Results**	**Observation Result**	**Test Result**
Entering NIS	Listed in Textbox NIS	Can be filled in NIS NIS on a column as expected	[√] Accepted [ ] Rejected
Entering *password*	Can be filled in NIS on a column as expected	Can fill out the password on the password column as expected	[√] Accepted [ ] Rejected
Click Button "*Submit"*	NIS and password data received by the system and go to the main page for the process "*submit"*	"Submit" button may not function as expected	[√] Accepted [ ] Rejected
Kasus dan Hasil Uji (Data Salah)			
Scenario Testing	**Excepted Results**	**Observation Result**	**Test Result**
NIS or password is empty	Can not log in and display a message	Displays the message "NIS or password required"	[√] Accepted [ ] Rejected
NIS or password wrong	Can not log in and display a message	Displays the message "NIS or password incorrect"	[√] Accepted [ ] Rejected

2.5.1.3 Conclusion Testing System

Based on the results of testing the system with the test case above, the conclusion that can be drawn in the development of Interactive Multimedia application Continental Food as a medium of instruction, Class XI Foodservice These are not the fault of the process and functionally has been running as expected.

2.5.2 Beta Testing

Beta testing is testing conducted objectively where the testing is done directly to the respondent by giving questionnaires or interviews to potential users of the software is built.

2.5.2 Interview

The interview was conducted on users who have their type of admin (teacher). As for the results of the interviews have been conducted with Mr. The Ancient Ferry Tikkos SE. Par, as the would-be user with admin user types. Below is a table of questions and answers.

Table 4. Interview With Teacher

No	Questions and Answer
1	**Questions** : Whether this application can be helpful in learning activities?
	Answers: This application is very helpful in the learning activities of the processing and presentation of the food is continental, with interactive multimedia facilities with which itexerts such material, simulations, exercise s and evaluation.
2	**Questions :** Whether the look of the application looks interesting?
	Answers : Yes, very interesting because the appearance resembles continental cooking food with a concept that already exists.
3	**Questions** : This interactive application?
	Answers : Yes, because it is served with tutorials and simulations that combines animation, audio and instruction.
4	**Questions** : Whether the application is easy to use?
	Answers : Pretty easy to use, because interface simply userfriendly.
5	**Questions** : Whether this application can be one of the media or a learning tool of processing and presentation of continental class XI?
	Answers : This application I think, can assist students in understanding the course of processing and presentation of the food is continental with breakthrough interactive multimedia. Because learning methods like this has never been done before..

Based on the results of the interviews with the teachers, it can be concluded that the application of this learning can help in learning activities, has the look of a very interesting, interactive, easy to use, can help students in the understanding of the processing and presentation of continental food with breakthrough interactive multimedia, and can help get the info from the results of the evaluation of students ' ability.

2.5.3 Questionnaires

A questionnaire given to some prospective users of the software to be built. As forsome of the points examined on this Learning Multimedia application is as follows:

1. This application as an additional media in the process of learning activities.
2. Easy to understand material presented.
3. Interesting or not display this application.
4. Is the interactive application.
5. Ease of use of the application.
6. Measuring students ability in using this application.

Answer Sacle :

SS : Sangat Setuju
S : Setuju
CS : Cukup Setuju
KS : Kurang Setuju
TS : Tidak Setuju

Here are some of the questions posed to the user employees. Here is a table of questions employees can be seen in Table 5.

Table 5. Questions Students

No	QUESTION	SS	S	CS	KS	TS
1	If this application is included as an additional medium for learning activities?					

2.5.4 Conclusion Beta Testing

Based on the results of questionnaires given to Students of Class XI Course Foodservice SMK MVP ARS INTERNATIONAL as the taking of the sample, can be searcheda percentage of each answer using the formula::

Information :

Y= P/Q*100%
Y : Nilai Prosentase
P : Total Skor
Q : Skor Tertinggi

To gauge the attitude of the users of the applications that have been built using likert scale can. Likert scale is a scale used to measure perceptions, attitudes or opinions of a person or group about an event or social phenomena, based on the definition

of the operations that have been set by the researchers. Here is a score given toanswer a questionnaire that was given to research the authors::

Table 6. Score Questionnaire Answers

Answer Scale	Info	Score
SS	Sangat Setuju	5
S	Setuju	4
CS	Cukup Setuju	3
KS	Kurang Setuju	2
TS	Tidak Setuju	1

To know the interpretation of the score calculation results can be seen in the following table:
:

Table 7. Interpretation Score Calculation

Value	Info
0% - 20%	Tidak Setuju
21% - 40%	Kurang Setuju
41% - 60%	Cukup Setuju
61% - 80%	Setuju
81% - 100%	Sangat Setuju

Following are the results of the respective percentage of answers already calculatedvalue using the formula already described. This questionnaire be tested to 19 students class XI Course Food Service SMK MVP ARS INTERNATIONAL.

Table 8. Results of Questionnaire Students

No	QUESTION	SS	S	CS	KS	TS
1	If this application is included as an additional medium for learning activities?	5	14			

1. is this application is included as an additional medium for learning activities?

Tabel 9. PercentageStudents Questionnaire Question 1

Question	No	Info	Respondents Answer	Score	Percentage (%)
1	1	Sangat Setuju	5	25	**(81/100)*100 %=81**
	2	Setuju	14	56	
	3	Cukup Setuju	0	0	
	4	Kurang Setuju	*0*	*0*	
	5	Tidak Setuju	*0*	*0*	
Amount			**19**	**81**	

Results percentage of number 1 is as much as 81% of respondents with 19 students from 100% expected. Thus the value of the calculation means that the students strongly agree that this application could include additional activities as a medium of instruction. The following scale of assessment results number 1 shown in Figure 16.

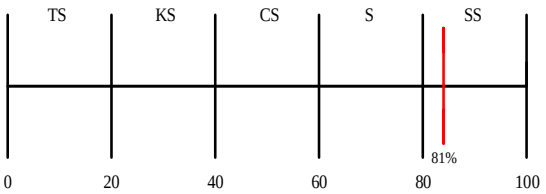


Figure 25. Skala Hasil Penilaian Nomor 1

2.5.5 The conclusion of the results of Observations Observations and interviews

Conclusion the results of beta testing is done with the obeservasi observation then it can be inferred that the majority of the resulting in a using tutorials, simulations,
and drill and practice it already meets the criteria in the appropriate ways of learningwith the material in the SMK MVP ARS international, these applications can assist students in understanding the subject matter processing and serving continental foodgrade XI visually with a combination of audio , animation, and computer lab instruction in SMK MVP ARS IN TERNATIONAL and can assist teachers in delivering subject matter processing and food serving continental to the students of Class XI a SMK MVP ARS INTERNATIONAL by making use of interactive multimedia. Thus means the students very much agree that this application can help the student to gauge his ability to understand the material processing and serving continental food.

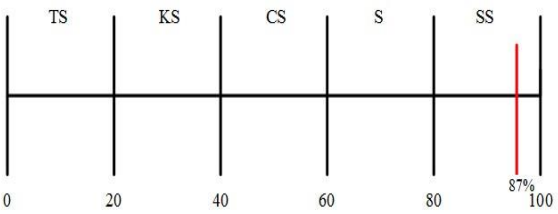


Figure 26. The Scale Of Final Assessment Application

3. CLOSING

Based on the results of the implementation and the testing that has been done, then the conclusion of the final project entitled "development of an Interactive Multimedia application Continental Food as a medium of instruction, Class XI Foodservice (case studies SMK MVP ARS international)" that is as follows:

1. Can assist teachers in delivering subject matter processing and serving Continental Food to the students of Class XI a CMS MVP ARS INTERNATIONAL by making use of interactive multimedia
2. Can help students understand the subject matter processing and serving Continental Food Grade XI visually with a combination of audio, animation, and computer lab instruction in SMK MVP ARS INTERNATIONAL..
3. The existence of a tool or medium auxiliary for learning of students in the subjects of processing and serving Continental Food class XI in SM K MVP ARS INTERNATIONAL.

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