Developing Interactive Multimedia for Teaching Speaking Descriptive Text to Culinary Program Students

Callista Buena Sinamo
Universitas Negeri Malang, Indonesia, https://orcid.org/0009-0003-7016-9565

Abstract: The objective of this research was to develop interactive multimedia for teaching speaking descriptive text to tenth-grader students of the culinary program. This research was conducted by using the research and development (R & D) approach adapted and modified from Borg and Gall. The procedures were conducting needs analysis, designing the program, validating to experts, revising, and producing the final product. The subjects of the research were thirty-five students in the culinary study program. The instruments for collecting the data were questionnaires (a needs analysis questionnaire and expert judgment questionnaires). The results of the data collection were analyzed quantitatively by using descriptive statistics. The result of this study was an interactive multimedia for teaching speaking descriptive texts to the tenth grader students in one of the vocational schools in Medan. The findings of this study showed that the interactive multimedia for teaching speaking descriptive texts has met good characteristics. It was indicated by the mean score of 93.3% for the content aspect, 93% for the media aspect, and 90% for the interactivity aspect based on expert judgments.

Keywords: Research and Development (R&D), Interactive Multimedia, Descriptive Text

Citation: Sinamo, C. B. (2023). Developing Interactive Multimedia for Teaching Speaking Descriptive Text to Culinary Program Students. In M. Demirbilek, M. S. Ozturk, & M. Unal (Eds.), *Proceedings of ICSES 2023--International Conference on Studies in Education and Social Sciences* (pp. 33-44), Antalya, Turkiye. ISTES Organization.

Introduction

Communicating in English is found difficult to be fluently mastered among Indonesian high school students. Previous research has revealed internal and external factor affecting students' incapacity to speak English (Suryani, et. al., 2020; Abrar, et. al., 2018; Fachrunnisa and Nuraeni, 2022). Internal factors were cognitive and affective aspects while the external factors included learning environment and practice. EFL instruction frequently falls short of its intended objective, leaving learners with insufficient speaking ability. Besides the fact that English is barely used as the main device of communication in Indonesia, English environment was not introduced and provided at school. Clearly, the EFL environment itself is the primary issue.

Utilization of learning media has proved to be valuable in improving students' ability to speak. Erben, Ban, and Castañeda (2008) believed that the integration of technology inside English as a Foreign Language (EFL)

instruction in classrooms, along with the provision of optimal and engaging language input, resulted in positive and improved outcomes. Furthermore, Mayer and Moreno (2003) explained upon the cognitive theory of multimedia learning, describing the cognitive processes involved in information processing when accompanied by visual and auditory stimuli. In the context of multimedia learning, the sensory memory of the auditory and visual systems is engaged to process incoming information. This information is then integrated into the working memory through the utilization of verbal and graphical models. This integration has the potential to activate relevant background knowledge stored in long-term memory. The principle of multimedia learning, as proposed by Mayer (2009), provides support for Krashen's input hypothesis, which suggests that language acquisition is facilitated by comprehensible input. If the provided input is understood and considered sufficient, the necessary grammatical structure is produced automatically, as discussed by Saville-Troike (2006).

It is well-established that multimedia technology has overcome a number of EFL-related challenges. Globally, the usage of multimedia learning has demonstrated a significant influence on students' English performance. Through observation of English language classes at a private university in Bangladesh, Islam (2020) summarized the students' viewpoint that multimedia is engaging, efficient, and beneficial. In addition, Lin & Wu (2020) investigated the effectiveness of multimedia teaching content on vocabulary acquisition and learning motivation of 3rd-grade students in Taiwan. They suggested that multimedia-material teaching can make learners learning more productive, abundant, and efficient. Moreover, in a study conducted on 90 first-year of undergraduate students in China, Wang (2022) proved that multimedia-assisted language learning provides authentic learning resources, cultivates learner motivation, complements traditional curriculum, and increases better learning outcomes in listening and reading. Overall, in an overview of reviews on multimedia design for learning, Noetel et.al. (2021) synthesized good multimedia design can have a transformative effect on a range of educational outcomes.

In the context of Indonesia, based on students' need analysis, studies aiming to develop interactive multimedia learning have arisen recently. One study by Elviana, Inderawati, & Mirizon (2020) aimed to find out the validity, practicality, and potential effect of the developed interactive multimedia for teaching descriptive texts based on Palembang local culture. The result showed that the product was very highly practical and potentially effective to be applied. Moreover, Sari, Mirizon, & Inderawati (2021) pointed out that the developed interactive multimedia of recount text was categorized very high practicality level and had evaluated through one-to-one evaluation, small group evaluation, and field test with 35 participants achieving 71 as the minimum mastery criterion. Another study related was conducted by Irawan (2021), revealed that multimedia-based English listening material was developed into an executable file (*exe) and considered valid and practical. These researchers highlighted an opportunity to enhance the teaching and learning process by incorporating digital devices.

Integrating technology, in the 21st century, is typically a requirement for a teaching qualification. The Indonesian government strongly encourages it via several policies. In a regulation regarding process standards in early childhood education, basic education levels, and secondary education levels, in Permendikbud Number 16

the Year 2020 third section – strategies to attain learning objectives, article 7 verse 2 states that learning strategies should be designed to provide a high-quality learning experience through the use of information technology tools and communication (translated from permendikbud number 16 the year 2020).

Considering the fact that speaking English remains difficult for Indonesian students, learning strategies should be designed exciting, practical, motivating, and student-centered. In response, the study gives an account to develop interactive multimedia for teaching speaking descriptive text to culinary program students. This media development was based on an investigation of the students' media learning needs in a more specialized linguistic context involving culinary activities.

Method

This study was conducted by using the research and development (R & D) approach adapted and modified from Borg and Gall (2003). The population of this study was 35 tenth-grader students of the culinary program in one of the vocational high schools in Medan, Indonesia. Moreover, in attaining students' need regarding the criteria of good interactive multimedia, a need analysis questionnaire was distributed to the students. The results of the data collection were analyzed quantitatively by using descriptive statistics. Furthermore, the procedure of media development is shown in this following figure.

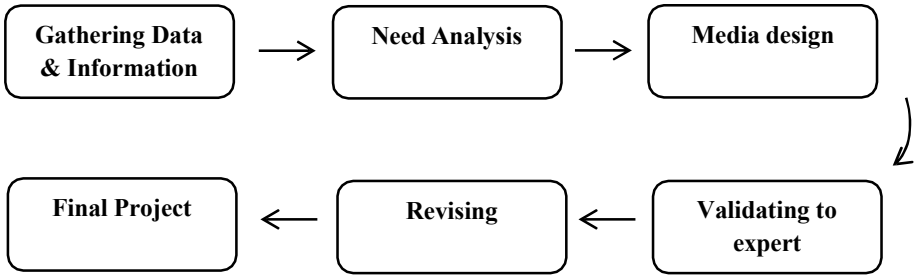

Figure 1. Research and development cycle adapted and modified from Gall et. al. (2003)

The collection of data and information regarding students' problems and the needs for learning media was conducted through a primary observation. Furthermore, a questionnaire for needs analysis was provided in order to obtain the opinions of students regarding the criteria for effective interactive multimedia. The interactive multimedia was developed as an English learning-teaching strategy in accordance with the Indonesian 2013 curriculum, taking into consideration the students' needs and employing a scientific approach. In practical terms, the learning process was enggaged in research activities such as observation, experimentation, and association (Nugraha & Suherdi, 2017; Ratnaningsih, 2017). Moreover, the media received validation by experts through a front-end analysis to determine the suitability of using interactive multimedia in the classroom. Moreover, the media was revised in accordance with the critiques and suggestions provided by experts. Finally, following the revision, the media is ready for implementation within the educational setting.

Findings

Need analysis

In conducting this study, the second phase in doing this research was to perform a needs analysis, since the first step of preliminary observation indicated that the media utilized in the classroom was less fascinating and motivating power point slide sharing. This students' need analysis became the guidance to develop the media.

Table 1. The Data of Student' Needs Analysis

No	Questions	Option	Number of Students
1.	I recognize Interactive Multimedia	Yes, I do.	20
		No, I don't	15
2.	In Interactive Multimedia, I prefer if the speaking activity is:	Monologue and or dialogue conversation	25
		Role play	9
		Reading text	1
		Others	-
3.	In Interactive Multimedia, I want the descriptive texts topics to be:	Chefs, foods, and restaurants	35
		Tourism	-
		Arts	-
		Others	-
4.	I need recorded monologues and dialogues in Interactive Multimedia	Yes	35
		No	-
5.	I need a layout in Interactive Multimedia that:	Interesting	1
		Motivates me to study	10
		Has a nice color combination	-
		Combination of a, b, and c	24
6.	I want the font type in Interactive Multimedia to be:	Bold	2
		Varies	-
		Simple, clear	10
		Varies, clear, and legible	23
7.	I want a color combination between the display background and letters in an Interactive Multimedia that:	Not colorful	- 26
		Use the right color combination	9
		The letters have a lightcolor	
		Others	-
8.	I need the use of illustrated explanationin Interactive Multimedia	Yes	35
		No	-
9.	I want back sound and music in Interactive Multimedia	Yes	35
		No	-

10.	I want the use of navigation (buttons) in	Not messy	-
		Has corresponding navigation icon	-
		Easy to find	-
		Combination of three options above	35

According to the data presented, the majority of students have identified an interactive multimedia. In developing interactive multimedia, the majority of students favor monolog and dialog speaking activities. The students also desired that the material be relevant to their culinary-related study program. The layout should be engaging, motivating, and employ appealing colors. The students also desired fonts that are varied and legible. In addition, the background should have an attractive color scheme. In addition, using the media should be accompanied by a clear and explanatory illustration and a quality back sound. Additionally, the preferred navigation of next, previous, and exit should be simple to locate and understand.

Developing Interactive Multimedia as a Learning Media

The Interactive Multimedia was created using Adobe Photoshop, Adobe Flash, and internet-sourced supporting characters. The creation of the interactive multimedia required several stages. The phase planning entails preparing the material, designing the storyboard, editing the background and locating the characters, adding background music and videos, and preparing the background material. The Interactive Multimedia has the desired effect on the students. It contains the necessary texts, images, audio, and explanations for students. All components were exported to a flash player to make it simpler for students and teachers to utilize. Interactive multimedia is highly recommended as learning media for teachers.

In the teaching procedure implemented under the scientific approach, the instructor initiated the instructional session by extending a greeting to the students, verifying their presence through attendance confirmation, and subsequently engaging in a prayer. Subsequently, the instructor provided a concise overview of the coming topics to be delivered. During this phase, the instructor initiated the deployment of the pre-existing Interactive Multimedia, which displayed the Home Menu. The Home Menu displayed many options such as the User Guide, Learning Goals, and Topic buttons. Students have the option to utilize the User Guide as a source of help when navigating the media platform. Additionally, they can refer to the Learning Goals to gain an understanding of the specific objectives they should strive to accomplish upon engaging with the media. Furthermore, students can access the Topic section, which provides descriptive text speaking materials, by simply clicking on the corresponding button. The visual representation of the Home Menu is provided here.

In order to implement the scientific approach, Ratnaningsih (2017) stated that Scientific Approach can be done in the following steps: (a) Observing, (b) Questioning, (c) Experimenting, (d) Associating, (e) Communicating. The observing phase enabled the students to visually examine the content of a detailed written explanation presented in a comic format. In this particular instance, the teacher facilitated the students' exploration and

understanding of the material contained inside the comic. The comic's explanatory content is clear and easily understandable. To enhance the teaching-learning process, it is imperative for teachers to exhibit creativity by actively engaging students rather than merely relying on comic reading. The visual representation of the comic is presented in the following manner.

Figure 2. Home Menu of the Interactive Multimedia

Figure 3. The Descriptive Text Explanation of the Interactive Multimedia

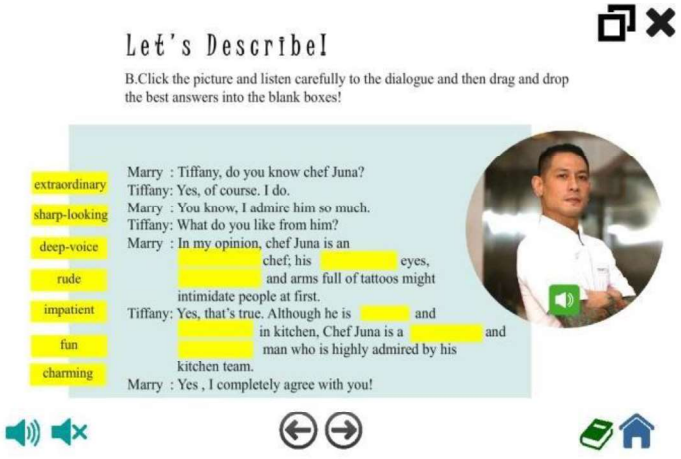

Figure 4. Describing People Activities

The subsequent stage involves the process of questioning. The teacher allowed the students to inquire about the descriptive text to the fullest extent feasible. The teacher has to find out whether the student comprehends the concepts related to the descriptive text. This approach enhanced the level of interactivity in the teaching-learning dynamic between the teacher and the students. Following the initial explanation of descriptive text, during the experimenting phase, the teacher instructed the students to select the category of Describing People. In this step, the teacher guided the students to understand more about the descriptive text by showing the example of dialogues. The appearance of the example of the text was given in Figure 4.

During the associating phase, the teacher aimed to stimulate the students' critical thinking abilities. This stage can be accomplished by providing students with a practical exercise. The teacher instructs the student to select the Topic Menu button and navigate to the Describing Food button in order to access an additional exercise on speaking descriptive text. The purpose of this exercise is to provide guidance and facilitate the development of the student's speaking skills. The visual representation of the practice is displayed in the image provided below.

Figure 5. Describing Food Activities

Finally, the communication stage served as the final stage of the students acquired information. During this phase, the teacher provided guidance to the students in order to facilitate their synthesis of the content and also offered feedback to address any errors made by the students. For instance, the teacher might conclude complex vocabularies extracted from the book, which can then be committed to memory.

Developing Interactive Multimedia as a Media

The media that has been developed has undergone validation by experts. The questionnaire was made based on rating scale. The scale are excellent (5), good (4), fair (3), less (2), very less (1). The questionnaire was completed by an English lecturer and an English teacher who has expertise in the field. The validation was done to approve the many elements and features present in the learning media, including but not limited to color, typeface, content, and instrument. The questionnaire administered by the experts encompassed three distinct aspects: content, media, and interactivity.

Table 2. The Data of Expert's Validation to Content Aspect

Items Assessed	Experts		Percentages	Criteria
	I	II		
The material is in accordance with the learning objectives in interactive multimedia	5	5	100	Excellent
The material is in accordance with the needs of students in learning English	5	5	100	Excellent
The use of grammar, spelling, and sentence structure is correctand easy to understand	5	5	100	Excellent
The difficulty level of the evaluation questions is in accordance with the students' abilities	4	4	80	Good
The material is useful in students' life	4	5	90	Excellent
Feedback is sufficient (Response to right/wrong answers)	4	5	90	Excellent
An overall assessment	27	29	93.3	Excellent

Based on the data presented in the aforementioned table, it is evident that the average score obtained from expert validation of the linguistic aspect is 93.3%. This indicates that the assessment of the indicators is excellent. The first aspect was to identify whether the learning media already fulfilled the standard to be used in explaining the descriptive text, which already categorized as excellent by the experts, which meant the learning media was appropriate for the class.

Table 3. The Data of Expert's Validation to Media Aspect

Items Assessed	Experts		Percentages	Criteria
	I	II		
The font/font design is correct in style and size	4	5	90	Excellent
Text is clear and easy to read	4	5	90	Excellent
The composition and color combination are good	5	4	90	Excellent
Image display is good	4	4	80	Good
Easy to use software (interactive multimedia)	5	5	100	Excellent
The instructions for using the software are clear	5	5	100	Excellent
Easy to operate the available buttons	5	4	90	Excellent
Students are free to choose the menu	5	4	90	Excellent
Sound and music are in accordance with the screen display	5	5	100	Excellent
Conversational voice (dialogues) and pronunciation are clear	5	4	90	Excellent
Media helps students to understand the material easily and interestingly	5	5	100	Excellent
Media can generate students' motivation in learning English	5	5	100	Excellent
An overall assessment	62	59	93	Excellent

Based on the aforementioned table showing experts' validation of media aspects, it is evident that the average score assigned by the experts for the media aspect is 93%. This aspect was used to identify the relevancy of the layout, including the fonts, backgrounds and also characters used in the learning media. Another component that was noticed was the arrangement of the fonts and the design materials, and whether they were suitable for students or not. Additionally, it assessed the effectiveness of the visualization and the overall quality of the instructional materials. The experts classified the components as excellent overall.

Table 4. The Data of Expert's Validation to Interactivity Aspect

Items Assessed	Experts		Percentages	Criteria
	I	II		
The interactivity of the media is in accordance with the students' ability	4	5	90	Excellent
This interactive media provides an opportunity to interactwith icons or buttons	4	5	90	Excellent
This interactive media asks students to apply what studentshave learnt rather than memorize it	4	5	90	Excellent
Students can operate the media independently	4	4	90	Excellent
Students can learn independently using the interactive media	4	5	90	Excellent
An overall assessment	20	24	90	Excellent

Based on the analysis of expert validation of the interactivity aspect, it is evident that the average score assigned by experts for the interactivity element is 90%. This indicates a good assessment of the indicators. The utilization of interactivity is employed to determine whether the learning media has successfully facilitated interaction between students and the media, as well as whether the learning media has provided opportunities for autonomous study for the students. Upon conducting revisions to the media, the ultimate version of the product was successfully accomplished. The media utilized in the teaching and learning process was designed to meet the needs of the students and considered suitable. This implementation effectively enhanced the students' interest and speaking performance.

Findings

The creation of Interactive Multimedia was achieved through the implementation of research and development phases, as outlined by Gall et al. (2003:407). The material created is considered suitable and relevant to the students' interests, as it is grounded in their needs analysis. One method to enhance students' motivation in learning English, particularly in developing their speaking skills, is to analyze their needs through their own interests. In accordance with the findings of Wang (2022), it is asserted that the utilization of media holds significant importance in facilitating speaking activities within the classroom setting. Additionally, the utilization of learning media can enhance students' motivation to engage in the learning process by incorporating

engaging and attractive media.The validation outcome encompassed three distinct aspects, namely the content aspect, media aspect, and interactivity aspect. The average score for expert validation of the content component was 93.3%, and the criteria used for evaluation were considered excellent. The average score for expert validation of media element was 93%. The criteria used for evaluation proved outstanding. The average score for expert validation of the interactive feature was 90%. Furthermore, the experts' validation of the average scores for the content aspect, media aspect, and interactivity aspect is 92%, indicating an outstanding assessment of these factors. Overall, the outcomes of expert validation on Interactive Multimedia are highly positive. According to the validation sheets provided to the lecturer and teacher, the text that is highly appropriate for classroom implementation is a descriptive text concerning people, food, and places that are relevant to the culinary syllabus. A suitable culinary material facilitated students in effectively capturing the essentials of their everyday experiences. Ultimately, compiling the English learning strategies with the aid of interesting, effective, and efficient learning media based on the students' needs is supported.

Conclusion

Upon careful analysis of the data, it has arrived at the conclusion that the students' current speaking media lack interest. Furthermore, it has been determined that the media employed by the teacher does not sufficiently facilitate students' understanding of descriptive text speaking. Many students encounter challenges while attempting to articulate their thoughts and communicate fluently, leading them to choose a passive learning approach. Students express a desire to engage with fascinating and impacting media that serves as a source of motivation for their learning aspirations and facilitates the development of descriptive speaking skills. A potential option for addressing their needs is the development of innovative forms of multimedia. The process of developing Interactive Multimedia follows research and development (R&D) phases proposed by Gall et al. (2003). These phases can be summarized as follows: (1) Gathering Data and Information; (2) Need Analysis; (3) Design Media; (4) Validate by expert; (5) Revision; (6) Final Product. The validation score assigned by the validators was 92%, indicating an excellent categorization. This implies that the media utilized proved valid and suitable for descriptive speaking learning among students.

Recommendation

This study did not look at how the media affects the students. So, for the next research and development, testing and evaluating should be done not only with the experts but also with students who are learning how to talk about descriptive text in the classroom. This will give a more accurate evaluation.

Acknowledgements

The researcher would like to thank to the Indonesia Endowment Fund for Education/ Lembaga Pengelola Dana Pendidikan Indonesia (LPDP) for the support in this research funding process.

References

Abrar, M., Mukminin, A., Habibi, A., Asyrafi, F., Makmur, M., & Marzulina, L. (2018). "If our English isn't a language, what is it?" Indonesian EFL Student Teachers' Challenges Speaking English. *The Qualitative Report.* 23. 129-145. 10.46743/2160-3715/2018.3013.

Elviana, R., Inderawati, R., & Mirizon, S. (2020). Developing interactive multimedia for teaching descriptive texts based on Palembang local culture. *Indonesian EFL Journal, 6*(1), 19-26. doi: 10.25134/ieflj.v6i1.2634

Erben, T., Ban, R., & Castañeda, M. (2008). *Teaching English Language Learners through Technology (1st ed.).* Routledge. https://doi.org/10.4324/9780203894422

Fachrunnisa, N., & Nuraeni, N. (2022). Speaking Interaction Problems among Indonesian EFL Students. *ETERNAL (English, Teaching, Learning, and Research Journal), 8*(1), 108–120. https://doi.org/10.24252/eternal.v81.2022.a7

Irawan, Y. (2021). Developing Multimedia-Based English Listening Material for Islamic Senior High School. *Ta'dib,* 24(1), 1-8

Islam, F.S.P. (2020). The Use of Multimedia and its Impact on Bangladeshi EFL Learners at Tertiary Level. *International Journal of Language Education*, 4(1), 150-157, DOI: 10.26858/ijole.v4i2.12150

Mayer, R. (2009). *Multimedia Learning* (2nd ed.). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511811678

Noetel, M., Griffith, S., Delaney, O., Harris, N. R., Sanders, T., Parker, P., del Pozo Cruz, B., & Lonsdale, C. (2022). Multimedia Design for Learning: An Overview of Reviews With Meta-Meta-Analysis. *Review of Educational Research*, 92(3), 413–454. https://doi.org/10.3102/00346543211052329

Nugraha, I., & Suherdi, D. (2018). Scientific Approach: An English Learning-Teaching (Elt) Approach in the 2013 Curriculum. *Journal of English and Education, 5(*2), 120-135. Retrieved from https://ejournal.upi.edu/index.php/L-E/article/view/9941

Permendikbud No. 16 tahun 2022 tentang Standar Proses pada Pendidikan Anak Usia Dini, Jenjang Pendidikan Dasar, dan Jenjang Pendidikan Menengah

Ratnaningsih, S. (2017). Scientific approach of 2013 curriculum: Teachers' implementation in English language teaching. *English Review: Journal of English Education, 6*(1), 33-40. DOI: 10.25134/erjee.v6i1.768.

Richard E. Mayer & Roxana Moreno (2003) Nine Ways to Reduce Cognitive Load in Multimedia Learning, *Educational Psychologist,* 38(1), 43-52, DOI: 10.1207/S15326985EP3801_6

Sari, N., Mirizon, S., & Inderawati, R. (2021). Developing learning media of recount texts for vocational high school students. *English Review: Journal of English Education*, *9*(2), 263-276. https://doi.org/10.25134/erjee.v9i2.4351

Saville-Troike, M. (2012). *Introducing Second Language Acquisition* (2nd ed., Cambridge Introductions to Language and Linguistics). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511888830

Suryani, I., Suarnajaya, W., & Pratiwi, A. (2020). Investigating the Inhibiting Factors in Speaking English

Faced by Senior High School Students in Singaraja. *International Journal of Language Education*, 4(1), 48-58. https://doi.org/10.26858/ijole.v4i2.10054

Wang, H. (2022). A Survey of Multimedia-Assisted English Classroom Teaching Based on Statistical Analysis. *Journal of Mathematics*. DOI: 10.1155/2022/4458478