



Stock and Sauce Teaching Materials for European Culinary Courses: Vocational Education

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ABSTRAK

Penelitian ini dilatarbelakangi oleh kegiatan pembelajaran yang kurang efektif, hal ini dikarenakan pendidik harus memberikan informasi yang detail sedangkan bahan ajar kurang mendukung. Selain itu, kurangnya bahan ajar akan membuat siswa kesulitan melakukan kegiatan pembelajaran di luar jam pembelajaran. Penelitian dilaksanakan dengan tujuan untuk mengembangkan materi pembelajaran terkait kaldu dan saus pada mata kuliah kuliner Eropa. Penelitian dilakukan dalam desain penelitian dan pengembangan dengan mengadaptasi model ADDIE (analysis, design, development, implementation, and evaluation). Subjek yang terlibat dalam penelitian ini adalah mahasiswa semester III program studi Tata Boga yang dipilih secara total sampling karena jumlah mahasiswanya kurang dari 100 orang. Metode pengumpulan data yang digunakan yaitu analisis dokumen, observasi, wawancara, dan penyebaran kuesioner. Kemudian, data dianalisis secara kuantitatif dan kualitatif. Temuan penelitian menunjukkan bahwa materi pembelajaran yang dikembangkan dalam bentuk e-modul mencakup sikap, kognisi, dan keterampilan siswa. Produk yang dikembangkan dikategorikan ke dalam kelayakan sangat tinggi dan dirasakan respon positif dari siswa.

ABSTRACT

This research is motivated by learning less effective activities because educators must provide detailed information while teaching materials could be more supportive. In addition, the lack of teaching materials will make it difficult for students to carry out learning activities outside of learning hours. The research aimed to develop learning materials related to broth and sauce in European culinary courses. The study used a research and development design adapted to the ADDIE model (analysis, design, development, implementation, and evaluation). The subjects involved in this study were third-semester students of the Tata Boga study program selected by total sampling because the number of students was less than 100. The data collection methods used were document analysis, observation, interview, and questionnaire distribution. Then, the data were analyzed quantitatively and qualitatively. The research findings show that the learning materials developed as e-modules cover students' attitudes, cognition, and skills. The developed product is very feasible and has positive student responses.

1. INTRODUCTION

A current learning process is demanded to be conducted along with the development of technology and information in 21st century ((Istri et al., 2022; Lestari, 2018). As a digital era, 21st century digitalizes the learning process through the involvement of technology as a fundamental role in conducted a relevant learning process with the current situation (Sumardi et al., 2020; Yulianto et al., 2019). 21st century is called as an economic-based science era indicated by the technology and information development emerging an industrial revolution 4.0 (Lase, 2019; Indarta, et al., 2021; Sholikha & Fitrayati, 2021). The people who live in technological era is indicated by the characteristic of accessing abundant information provided in technology that can change quickly based on the era development. The change rapidly occurs in this era in which it is difficult to be anticipated systematically, structurally, and measurably (Lestari, 2018; Redhana, 2019). The digital development brings a change in which the teachers not become the main learning source for the students. The teachers are supposed to lead students in finding information or learning sources through the integration of technology in which they only have a role as facilitator and motivator (Lase, 2019;

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Rahayu et al., 2022). The involvement of technology shifts the teacher-centered learning into students-centered learning as the demand of 21st century learning.

The integration of technology in 21st century has established students as the main center of learning process (Lestari, 2018; Yulianti & Wulandari, 2021). It is emphasized in all educational levels including higher education. Higher education is required to initiate the innovative teaching and learning process which is flexible for the students to explore their contextual knowledge through the integration of technology (Darma et al., 2020; Herawati & Muhtadi, 2018). The development of technology can be functioned to achieve the educational goals effectively and efficiently as a way to support the industrial evolution 4.0 since the higher education students tend to be prepared as competent graduates in industrial fields (Dharmayani et al., 2023; Tafonao, 2018). The students in higher education is demanded to be ready for adapting themselves to the use of technology in the learning process. Students are supposed to interact each other through the use of technology as their media to improve the learning achievement (Dewi & Handayani, 2021; Putri & Suartama, 2022). It means that technology bridges students and teachers to create students' centered learning.

In case, the recent issue indicates that there are still many teachers conducting conventional learning without involving any technology. It is found out that several teachers in higher education not implementing innovative teaching learning since they deliver the learning materials conventionally (Budi & Miaz, 2023; Dwiqi et al., 2020). A preliminary observation shows that a relevant problem shown in the learning process of European culinary course conducted at Culinary Study Program, Universitas Pendidikan Ganesha. It shows that the teacher still functions the conventional textbook to support the learning process. It leads to unoptimized learning process since the students are less introduced to the involvement of technology to attract their learning interest. It becomes an obstacle to guide students in achieving the learning objectives and developing their cognition and skills. Some teachers still face difficulty in digitalizing the learning materials and developing learning materials. Optimizing the use of digital learning material is essential to conduct an effective and innovative learning process since it is a supporting aspect of learning process (Abadi & Asmiati, 2020; Putri & Suartama, 2022).

As vocational students, an optimal learning process through a digitalization is required since they are prepared as skilled and competent human resources to fulfill the industrial demands. Vocational students are supposed to increase their adaptability towards the development of science and technology reflected on their actions in connecting their working performance and technology. It can be gradually realized by replacing the printed materials with the digital materials (Galih Pranowo, 2021; Winatha & Abubakar, 2018). Teachers are able to shift the printed materials in various forms by involving technology emerging an innovative teaching and learning materials in which it can be adjusted with the students' needs and characteristics (Tafonao, 2018; Wulandari & Wiarta, 2022). Therefore, the printed learning materials can be digitalized through functioning technology in which it is arranged based on the students' needs and current learning condition in vocational education.

Based on these problems, using E-modules can be one of the right solutions. E module is an innovative teaching material used as a substitute for printed teaching materials. E-module is an electronic media providing students with various learning materials completed with audio or video that can be accessed by students within it (Dwi Novita et al., 2022; Puspitasari et al., 2020). Many studies discuss about the development and effectiveness of e-module in optimizing the learning process. One of them is previous research, which shows that Android-based e-modules effectively improve students' problem-solving skills (Dwi Novita et al., 2022). In addition, there is research that develops e-modules for culinary learning in vocational high schools that can be accessed offline and online by students. The results showed that the e-modules developed effectively supported 21st-century learning, improving student learning outcomes (Indarta et al., 2021; R. Rahayu et al., 2022). Research also develops flip builder-based e-modules to teach East Asian food in vocational high schools. The results showed that the developed product was categorized as enjoyable and helped students learn East Asian food (Amanda et al., 2023; Istri et al., 2022). These studies show that the development of e-modules significantly impacts the learning process. Therefore, further development related to e-modules in culinary courses needs to be done to optimize the learning process in vocational education, especially in teaching stock and sauce in European culinary courses. Based on the above problems, this research was conducted to develop learning materials related to broth and sauce in European culinary courses. This research is expected to help improve students' culinary skills in making the basics of European cuisine.

2. METHOD

This study was conducted in the form of research and development (R&D) by adapting ADDIE model. It consisted of five stages; analysis, design, development, implementation, and evaluation (Amanda

et al., 2023; Branch, 2009). Analysis was the stage where needs analysis was conducted to find out the learning materials needed by students based on their characteristics and learning condition in European culinary course. Design was the stage where the learning materials were designed based on the result in the previous stage. Development was the stage for developing the designed learning materials. Implementation was the stage where the developed product was implemented to the research subjects. Evaluation was the stage for evaluating the developed product. The data were gained by involving (40) of third semester students in Culinary study program at Universitas Pendidikan Ganesha. They were selected by using simple random sampling technique. The data were gathered by conducting observation, interview, document analysis, questionnaire distribution, and expert judgements. The data were analyzed quantitatively and qualitatively. The quantitative data were analyzed through descriptive quantitative analysis meanwhile qualitative data were analyzed by using Qualitative Data Analysis.

3. RESULT AND DISCUSSION

Result

This study resulted the learning materials which were developed in the form of e-module based-android for teaching stock and sauce in European culinary course. The result covered the students' needs, the development process, and the quality of developed product.

The first stage is analysis. The analysis stage was conducted by analyzing the syllabus and curriculum used by the teacher in teaching stock and sauce in European culinary course for third semester students. The analysis resulted that there was no current learning material used by the teachers with the integration of technology. It was also found out that the learning materials used by the teachers were not fulfilling the needs of students related to the interactive activities which more developed students' psychomotor or skills. Therefore, the learning materials were required to cover students' cognition, behavior, and skill related to European culinary particularly the topic of sauce and stock.

The second stage is design. The draft of learning materials was designed in this stage in which it was designed based on the competencies and sub-competencies analyzed from the previous stages. The draft was also underlined by the approach covering; 1) title (*judul bahan ajar*), 2) preface (*kata pengantar*), 3) table of content (*daftar isi*), 4) roadmaps of learning materials (*peta kedudukan bahan ajar*), 5) glossaries (*glosarium*), 6) chapter I; introduction, description, requirement, instruction, learning objective, main and base competency, and brainstorming or input (*Bab I; Pendahuluan, Deskripsi, Prayarat, Petunjuk Penggunaan Bahan ajar, Tujuan Akhir, Kompetensi Inti dan Kompetensi Dasar dan Cek Kemampuan Awal*), 7) chapter II; learning activity covering learning objective, materials, summary, assignments, and formative assessment (*Bab II: Pembelajaran mencakup Deskripsi, Kegiatan belajar yang mencakup tujuan pembelajaran, uraian materi, rangkuman, tugas, tes formatif*), 8) chapter III; evaluation covering attitude, cognition and skill, product based on standardized criteria, time allotment, and key answers, (*Bab III; Evaluasi yang mencakup attitude skills, kognitif skills, psikomotorik skills, Produk/ benda kerja sesuai kriteria standar, Batasan waktu yang telah ditetapkan dan kunci jawaban ter formatif*), 9) chapter IV; closure and references (*Bab IV Penutup dan Daftar Pustaka*).

The third stage is development. At this stage, the learning materials were developed into four main components, such as; introduction, learning process, evaluation, and closure. Each component had its own parts. Chapter I: Introduction. Introduction was developed into many parts. Description was the first part showing the overview of the learning materials. Requirement was the second part containing the competencies that should be mastered by the students before learning the stock and sauce materials. Instruction was a part of presenting the guidance for the students in using the developed learning materials. Learning objective contained the competencies should be mastered by the students. Meanwhile the basic and main competence showed the competencies should be mastered by the students based on the standard mentioned in syllabus and curriculum. Brainstorming or input was the last part to measure students' prior knowledge.

Chapter II: Learning Process. This chapter consisted of two parts. Description presented the scope of stock and sauce materials including the competencies should be achieved by the students related to this topic. Learning activity covered; a) the learning objectives covering knowledge and skill expected to be mastered by the students, b) materials elaboration where the students were led to gathered and analyzed the data from the previous questions. The materials of stock and sauce were presented to provide the information needed by students in answering the questions. The students' answers would be presented by them in communicative activity. c) summary provided students a brief and concise information related to the whole materials discussed in this chapter. d) assignments or tasks consisted of the practice in which students were supposed to summarize the materials that they had learnt. e) formative test provided the multiple choice and essay that should be finished by the students to assess their comprehension. f)

performance worksheet was a part in which students could practice their comprehension by working in a group of 5 and making a practical planning relevant to the receipt and materials that had been explained. Chapter III: Evaluation. Evaluation assessed several aspects; attitude, cognition, and skills. Attitude assessment dealt with students' collaborative behaviors in which they work together. It also dealt with students' discipline, initiative, and responsibility. Chapter IV: Closure. Closure provided students with the summary in which it helped students to understand the whole materials related to the programmed competencies.

The fourth stage is the implementation stage. Implementation was a step for implementing the developed product. This step was conducted after expert judgements. The expert judgement was conducted into three main points in which it was purposed for validating the developed product by obtaining its materials, learning design, and media. There were six experts involved in validating the developed product. The expert judgements result was presented in [Table 1](#).

Table 1. The Result of Expert Judgements

No.	The Validated Subjects	Expert Judgements	Criteria
1	Material Expert Judgement	95%	Excellent
2	Learning Design Expert Judgement	95.7%	Excellent
3	Media Expert Judgement	97.9%	Excellent

The expert judgements showed that the developed product was categorized into excellent criteria. The material expert judgement indicated that the developed product had excellent materials with the percentage of 95%. The learning design expert judgement showed that the developed product had excellent learning design with the percentage of 95.7%. Meanwhile, the media expert judgement revealed that the e-module had fulfilled the criteria of good learning media with the percentage of 97.9% categorized as an excellent media. In addition, the developed product was also distributed to a small group of students and for individual testing. The subjects were who the third semester students studying European culinary in which the result was presented in [Table 2](#).

Table 2. The Result of Trial Test

No	Subjects	Responses	Criteria
1	Individual Testing	93.3%	Very High
2	Small Group Testing	91.1%	Very High

[Table 2](#) showed the results of individual testing and small group testing indicated the students' response towards the developed product. The individual testing showed that the developed product was categorized into a very high criteria with the percentage 93.3%. Meanwhile small group testing indicated the developed product in a very high criteria shown on percentage 91.1%. Lastly, the evaluation stage. Evaluation was conducted by considering the revision and the responses gathered from the previous stages. The developed product was revised for the cover in which it suggested to color-up the cover for attracting students

Discussion

Generally, the current study showed that the learning materials for stock and sauce in European culinary were developed in the form of e-book. This is relevant to previous research which also developed culinary learning materials in East Asian Food courses in the form of e-modules ([Amanda et al., 2023](#); [Istri et al., 2022](#)). This reinforces the integration of technology in vocational education which states that technology can be integrated by transferring printed materials to electronic materials ([Lestari, 2018](#); [Winatha & Abubakar, 2018](#)). This study also found that e-modules were developed based on student needs which include knowledge, attitudes, and skills. It was supported the previous study discovering that the e-module consisting of learning activities which focused on students' cognition, attitude and skills as mentioned in the curriculum ([Dwi Novita et al., 2022](#); [Rahmatunisa et al., 2022](#)). The e-module was developed with the setting of android-based in which it was similar to the e-module developed by ([Herawati & Muhtadi, 2018](#); [Indarta et al., 2021](#)). The difference was found in the content of developed product since it was specifically for vocational high school students

The second finding revealed that the developed product achieved an excellent feasibility from the expert judgements. The feasibility was obtained from the content, learning design, and the media. It was found out that the design was interactive to attract students' learning interest. It supported the previous study which approved that an interactive appearance of learning materials was effective to improve

students' learning interest (Dharmayani et al., 2023; Sulistianingsih & Carina, 2019). Previous research found that learning materials developed as e-books using flipbook makers were also considered excellent learning materials for media expert assessment (Apsari & Kustijono, 2017; Yulianti & Wulandari, 2021). This is similar to the e-modules developed by previous research, which revealed that the products developed achieved high feasibility in material validation. This is reinforced by the e-modules developed in this study, which also reached the excellent category in material validation (Indarta et al., 2021; Sari et al., 2021).

The third finding indicated that the developed product was responded positively by the students since their responses were categorized into very high criteria. It showed that the developed product was effective for teaching stock and sauce in European culinary course since the teachers and students responded it positively. This reinforces previous research showing that the implementation of e-modules received a positive response from students (Herawati & Muhtadi, 2018; Indarta et al., 2021). It was also discovered that the developed product increased students' problem-solving skills. It supported the previous studies which revealed that e-module increased students' thinking skills (Apsari & Kustijono, 2017; Dwi Novita et al., 2022). The development of learning materials presented in the form of pictures and audio-visual in the e-module covering the summary helping students in understanding the learning materials. It led students to give positive responses to the developed product during the implementation. It became a further action given to the previous study showing that the learning materials developed with image, audio visual, and completed with summarize increasing students' learning comprehension (Putri & Suartama, 2022; Sarwandi et al., 2019). It also supported the earlier studies revealing that e-module was highly practical (Maulana et al., 2022; I. Rahayu & Sukardi, 2021).

This research has the advantage of providing practical and applicable teaching materials, which can significantly improve students' culinary skills through a hands-on understanding of making the basics of European cuisine (Amanda et al., 2023; Indarta et al., 2021). The implication is that the results of this study can enrich the culinary curriculum with more in-depth teaching materials, thus preparing students with more competitive skills in the culinary industry. But of course, this study still needs to improve, as there are limitations in the variety of recipes and ingredients used, which can limit students' understanding of the diversity of European cuisine. Suggestions for future research include expanding the scope of recipes and techniques taught and integrating more case studies from various European countries to provide a more holistic understanding.

4. CONCLUSION

This current study concludes that the learning materials related to stock and sauce in European culinary is developed by adapting ADDIE model achieving high feasibility and positive responses from the third semester students in Culinary study program at Universitas Pendidikan Ganesha. It reveals that the developed achieved an excellent category obtained from expert judgements results covering the content expert judgement, learning design expert judgement, and media expert judgement. In addition, the individual and small group testing indicated that the students give positive responses to the developed product since the developed product was categorized into very high criteria. This finding implicates the practical usage of e-module in vocational education in which it can be used as a digital learning material to support the integration of technology. Theoretically, the finding strengthens the existence of technology in the learning process. Further study is suggested to be conducted to examine the developed product in more depth experimental study.

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