Need Assessment of Video Learning Media as The Supporting Media for Nutrients Analysis Practice

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Abstract. Nutrition Study Program of Universitas Negeri Medan, as a newly formed study program, still has limited laboratory facilities for Nutrient Analysis Course, especially expensive instruments. The video containing the nutrition analysis process can be used as a learning media. The objective of the study was to assess the needs for a video as supporting learning media for nutrients analysis practice. The study used the research and development (R&D) method and Four-D model (define, design, develop, and disseminate). This study only presents the results of the need assessment for the define stage. Needs assessment of video learning media as a define stage results showed that an alternative teaching material was needed to complete the textbook and other learning media. Video learning media that feature contextual problems are excellent alternative teaching materials used. Therefore, the students can repeat the material independently.

Keywords: Learning media, nutrients analysis, teaching materials, video.

1. Introduction

Nutrition Study Program of Universitas Negeri Medan (Unimed) as a newly formed study program still has limited laboratory facilities for Nutrient Analysis Course, especially expensive instruments. Meanwhile, it has much interest from prospective students. Therefore, Unimed always tries to optimize the available facilities to provide the best service for students. The method used to support practice activities by presenting the nutrition analysis process in video learning media.

In the last few decades, the use of instructional videos in education has increased so massively. They are considered to be the most popular ways of conveying instruction. Students from all education levels watch instructional videos such as brief knowledge clips, web lectures, and video demonstrations for informal learning purposes on websites such as YouTube and Vimeo [1][2]. Instructional videos are also increasingly used in formal learning environments. For example, instructional videos are often used both in conventional learning and blended learning (conventional and online learning) as well as the main tools of presenting information in massive online open courses (MOOCs), flipped classrooms [3], and Google Classroom. Research on the effectiveness of video as a learning media has been carried out since the 1960s with the main focus on video modeling examples to investigate the extent to which model behavior and characteristics influence learning and self-efficacy [4]. The use of instructional video is increasing with the development of better computer technology and new tools for

ACEIVE 2019, November 16, Medan, Indonesia

DOI 10.4108/eai.16-11-2019.2293234

recording and playing videos. Since then, the popularity of instructional videos, including instructional animation in education, has grown rapidly. Rapid technological advances in hardware (such as computers, video cameras, smartphones) and software (such as video recording and video editing applications) and increased access to fast Internet, allowing learning videos to be made relatively easily and at a low cost, and shared with others on online learning environment with minimal effort [5]. So far, most teaching videos are still based on the intuition of the writer or designer instead of relying on documented principles that originate from scientific research [6] or theoretical considerations from instructional design theories, such as Cognitive Load Theory [7] and Cognitive Theory of Multimedia Learning [8], as well as observational learning theories such as Social Learning Theory and basic cognitive processing theories such as the theory of embodied cognition [9]. More research is needed to design learning videos based on scientific research. Therefore, the study was to assess the needs for a video as supporting learning media for nutrients analysis practice.

2. Research Method

The study used the research and development (R&D) method and Four-D model (define, design, develop, and disseminate). The define stage is focused on the need assessment, while the next stage is focused on development and implementation. This study only presents the results of the need assessment. It is conducting a needs analysis to determine problems and solutions that are appropriate to improve student competence in nutrition analysis courses. Data collection methods are interview by questionnaire. The research instrument was a questionnaire consisting of 10 statements in which students answered each statement by Likert scale of Strongly Disagree, Disagree, Undecided, Agree, and Strongly Agree. The subjects were third and 5th-semester students who had taken nutrition analysis courses, a total of 80 subjects. Data analysis was performed with how to calculate the percentage of student answers on each item and describe it.

3. Results and discussion

The define stage is carried out to assess the potential problems and the needs for developing nutrient analysis teaching materials. It is done through observation of the ongoing nutrient analysis learning activities, standard analysis of curriculum content used in the KKNI (Kerangka Kualifikasi Nasional Indonesia) orientation, and analysis of nutrient analysis learning media needs. Nutrients analysis courses are divided into two semesters based on nutrient type, namely macronutrient and micronutrient analysis courses as much as two credits per semester (1 credit is theory and another is a practice).

Nutrients analysis learning activities in the Nutrition Study Program of Unimed, which are currently taking place, still have more theories compared to practice. The material practiced is about 20% of the total material. It is due to the limited facilities and infrastructure of the nutrient analysis laboratory. The rest of the practice material is carried out with the help of practical manuals and videos containing the stages of nutrient analysis. However, nutrient analysis videos available online are mostly in English or other foreign languages, and some content is not following the learning outcomes of the courses that have been prepared.

The next stage is the analysis of curriculum content standards to determine the framework of the development of video learning media that are tailored to the learning outcomes of graduates that must be achieved by students according to the KKNI levels (level 6). The preparation of learning outcomes of Nutrients Analysis Course refers to the curriculum of nutrition undergraduate programs compiled by AIPGI (Association of Indonesian Nutrition Higher Education Institutions) through Decree Number 003/SK/AIPGI/V/2016 concerning the Determination of Nutrition Undergraduate Curriculum and National Higher Education Standards (SN Dikti) through Republic of Indonesia Minister of Research and Technology Regulation No. 44 of 2015 and Amendment to Ministry of Research and Technology Republic of Indonesia Number 50 of 2018.

Course Learning Outcomes (CPMK) of Nutrient Analysis Course is the student who can analyze the content of carbohydrates, fats, proteins, ash, water, vitamins, minerals, phytochemicals, and food additives in the food according to their characteristics. To achieve its goal, the course discusses the structure and chemical properties of various macro and micronutrients in food. It includes the basic principles of chemical analysis of macronutrients such as carbohydrate, fat, protein, ashes and water analysis as well as micronutrient analysis that including vitamins, minerals, and other chemical components such as phytochemicals, nutritional components, and food additives.

The video learning media for nutrients analysis course is designed to complement practice activities. It was a supporting media for material that cannot be implemented directly in the laboratory. A needs assessment can be a reference in developing video learning media for nutrients analysis following the needs and characteristics of students. This stage aims to analyze what components are contained in the video learning media and to find out the weaknesses and strengths of the textbooks used in nutrient analysis material. The statement items in this study were compiled to obtain a description of the need for teaching materials for nutrient analysis video presented in Table 1.

Table 1. Student responses to statements related to nutrition analysis video.

No	Statements	Strongly agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly disagree (%)
1	Nutrients analysis courses are important subjects	37.50	61.25	1.25	0.00	0.00
2	Nutrients analysis courses are difficult subjects	2.50	5.00	37.50	48.75	6.25
3	Nutrients analysis courses can be studied using books / teaching modules only	0.00	0.00	2.50	62.50	35.00
4	Learning activities of nutrients analysis courses requires a practicum	47.50	45.00	7.50	0.00	0.00
5	Learning activities of nutrients analysis courses should use technology	15.00	42.50	38.75	3.75	0.00
6	Learning activities of nutrients analysis courses using videos learning media is more interesting than other learning media	65.00	28.80	6.25	0.00	0.00

No	Statements	Strongly agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly disagree (%)
7	Another learning resource that can be used by students is the internet	30.00	41.30	25.00	3.75	0.00
8	Video learning media should present a contextual problem	17.50	58.80	23.75	0.00	0.00
9	Video learning media display should focus on the material to be conveyed rather than highlighting the tutor	61.25	38.80	0.00	0.00	0.00
10	Video learning media are an effective learning resource	55.00	42.50	2.50	0.00	0.00
11	Video learning media should be accessible via the internet	15.00	46.30	26.25	6.25	6.25

In the first statement, students are asked to respond to the statement that nutrient analysis is an important subject, while the second statement item is asked for a response that nutrient analysis is a difficult subject. Almost all respondents agreed that the nutrient analysis course was an important subject, and most disagreed that it was a difficult subject. Subsequent statements were made to identify the learning resources for the nutrient analysis course. As many as 97.5% of students disagree and strongly disagree that nutrient analysis courses can be learned using books or teaching modules only and some students (92.5%) feel the need for practice in this course. It shows that another alternative is needed as a learning resource that can be used to support the learning of the nutrient analysis course. Problem-solving efforts in learning can be made by utilizing various learning resources and the form is not only limited to printed forms such as textbooks or modules. Other learning resources use technology, such as teaching videos, interactive presentation, teaching materials in the form of softcopy and so on. Also, one of the characteristics of educational technology is the use of all the potential that can be used as a source of learning in order to obtain maximum learning outcomes [10].

Alternative learning resources should be integrated with technology. It is reflected in point five, as many as 57.5% of students agreed and strongly agreed that learning the analysis of nutrients should use technology. One of the integrated learning technologies is learning to use video learning media. Furthermore, a statement was prepared to analyze whether the teaching material of the video was interesting for students. As many as 93.75% of students agreed and strongly agreed with the statement that learning to analyze nutrients using video learning media was more interesting. It shows that video learning media can be used as an alternative to learning nutrient analysis. Responses to further statements relate to other learning resources that can be used by students. Most students agree that learning nutrient analysis can be done sourced from the internet. It shows that the internet is a very basic requirement for students.

In the next statement, students are asked to respond if the teaching material is in the form of video, it is better to present contextual problems. The result was 86.25% of students agreed and strongly agreed with the statement, and as many as 90% of students agreed and strongly agreed that the learning video display should focus more on what the tutor wants to convey rather than the video that highlights the tutor. Display teaching materials also determine the response of users of teaching materials. The more attractive it looks, the more people want to watch it. In instructional videos, there are instructional videos that always feature the instructor or tutor, but some are only displaying something written or explained by the instructor.

Video learning media are an effective source of learning and there are 92.5% of students agreeing with the statement. It shows that the potential of teaching videos to be an effective alternative source of learning. Learning using video can saving time up to 40% and can increase retention from 14% to 38% [11]. In the digital era, learning should be accessible anywhere, both in the form of written material and video. Easy access and broad coverage can be obtained by using the internet. The last statement was made to identify it. The results obtained that 71.25% of students agreed with the statement. Nowadays, the internet is a primary need for many people. Learning resources when presented via the internet, will make it easier for learners to access them. They can access anywhere and anytime, unlimited time and place.

4. Conclusion

The Nutrition's Analysis Course requires alternative teaching materials besides books or learning modules that should be integrated with technology. Video learning media that feature contextual problems are excellent alternative teaching materials used. Therefore, the students can repeat the material independently.

Acknowledgments. This study was supported by grants from the Research and Community Services Institute of Universitas Negeri Medan (LPPM UNIMED).

5. References

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