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Development of a Local Wisdom-Based Learning Video on Addictive Substances for Prospective Junior High Hchool Chemistry Teachers

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Abstract: This development research aims to assess the feasibility and responses to a local wisdom-based learning video on addictive substances as a learning resource for prospective junior high school Chemistry teachers. The ADDIE development model (analyze, design, develop, implement, evaluate) was used. Data were collected literature study, observation, interviews, and the use of feasibility instruments and response questionnaires. The video was validated by experts in material, language, and media aspects. Response questionnaires were conducted with 1 lecturer, 2 teachers, and 8 university students in a small-scale response questionnaires, and 36 university students in a large-scale response questionnaires. Feasibility results showed the video's material was 100% feasible, language 94.6%, and media 100%, with an average of 98.2%. The average responses from lecturers and teachers were 100% and 99.2%, respectively, categorized as strongly good. University student responses were 87.6% in the small-scale response questionnaires, increasing to 92.4% in the large-scale response questionnaires, both categorized as strongly good. Therefore, the learning video on addictive substances based on local wisdom is highly suitable as a supporting resource for junior high school Chemistry and received strongly good responses from lecturer and teachers, and university students.

Keywords: Addictive substances; Kratom; Learning video; Local wisdom

Introduction

Education is an integral part of life that is prepared to produce superior human resources, especially the youth generation in facing global challenges. This is in line with the Indonesian Vision for Education in 2035, which is to build Indonesian to become excellent lifelong learners, continue to develop, prosper, and have noble character by fostering Indonesian cultural values and Pancasila (Jayanti et al., 2021). Hairida (2017) stated that the achievement of the vision of education can be determined by the acquisition of student learning outcomes. Students learning outcomes can be improved through the use of learning media because it can provide the same experience as events in the environment, one of which is by utilizing videos that integrate local wisdom of a region in learning.

However, chemistry learning media integrated with local wisdom is still rarely developed at this time, and most existing learning resources only focus on abstract concepts without integrating with local wisdom, making them far from the daily experiences of students (Said-Ador & Norolayn, 2017). Whereas local wisdom, such as the use of local plants for beverage/food supplements and medicine integrated into chemistry learning, can provide meaningful learning because it is close to the daily experience of

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students as well as being able to introduce regional potential to students (Sudarmin, 2014).

West Kalimantan is one of the provinces that holds a wealth of various types of plants, one of which is the kratom plant, which can be used as a context or example of material in learning Chemistry subjects at the junior high school level, which is discussed in courses in the Department of Chemistry Education. Kratom is commonly found in Kapuas Hulu Regency, West Kalimantan (Wijayanti et al., 2023). Kratom leaves are the part of the kratom plant that is most widely used by the people of Kalimantan as herbal medicine, including to increase stamina, treat stomach pain, diarrhea, insomnia, diabetes, cholesterol, and uric acid. However, the use of kratom in high doses has a narcotic effect similar to morphine (Raini, 2017).

Information on the legality and dangers of kratom in Indonesia is still very limited. The National Narcotics Agency (BNN) categorizes kratom into a New Psychoactive Substances (NPS), while the latest Minister of Health Regulation Number 2 of 2017 concerning Changes in Narcotics Classification does not add kratom to the narcotics group (Raini, 2017). This is important for Chemistry Education students at the Faculty of Teacher Training and Education, Tanjungpura University to understand, as they are not only inheritors of West Kalimantan's local wisdom but also future educators, both as teachers and lecturers who have the responsibility to educate the wider community, including the students they will teach. Through this understanding, they can help the public address issues related to kratom and promote its wise and informed use.

Based on a preliminary study of Chemistry Education students at the Faculty of Teacher Training and Education, Tanjungpura University, who have taken the course for prospective junior high school Chemistry teachers, most of them stated that the learning media used by lecturers when delivering material on addictive substances was limited to PowerPoint (PPT) presentations. Although the media integrates the value of local wisdom in learning the material, as many as 61.9% of them feel uninterested in the learning media used. This is because PPT media only displays writing without being accompanied by attractive images, making it seem monotonous and boring. The questionnaire results show that university students want more interesting learning media, such as videos that contain audio-visual elements, to increase their desire to learn more about addictive substances. However, research that develops learning videos based on local wisdom is still rarely done, especially on addictive substances.

Based on the aforementioned background, this research focuses on the development of local wisdom-based learning videos on addictive substances to support the course for prospective junior high school Chemistry teachers in the Department of Chemistry Education. The purpose of this research is to measure the feasibility and gather responses from lecturers, teachers, and university students regarding local wisdom-based learning videos on addictive substances, so that they can support the course for prospective junior high school Chemistry teachers in the Department of Chemistry Education. It is hoped that the developed video can increase the motivation of Chemistry Education students as prospective teachers in studying addictive substances and can add insight to university students related to the local wisdom of the people of West Kalimantan, which can be used as a learning resource.

Method

The type of research applied in this study is Research and Development (R&D). The development model used is the ADDIE model, which stands for analyze, design, develop, implement, evaluate. Branch (2010) states that there are five stages of the ADDIE model in development research: analysis, design, development, implementation, and evaluation. However, this research is limited to three stages: analysis, design, and development. Although this research focuses on the three initial stages, the principle of evaluation is carried out continuously. This is because the product development in this study is limited to measuring the feasibility of the video and gathering responses from university students, lecturers, and teachers regarding the local wisdom-based learning video on addictive substances designed to support the course for prospective junior high school Chemistry teachers.

The first stage carried out in this research is the analysis stage. The main activity at this stage is a needs analysis consisting of literature studies, observation, and interviews. Observations were conducted by distributing questionnaires to Chemistry Education students to find out the learning media used and needed in junior high school Chemistry lectures. Then interviews were conducted with several sources to review the material that needed to be included in the video to be developed. This research is continued with the design stage which includes activities to prepare equipment and software that will be used in making videos, preparing draft instruments, preparing feasibility instruments and response questionnaires, and designing product storyboards. The final stage is the development stage, which involves producing a local wisdom-based learning video on addictive substances to support the course for prospective junior high school Chemistry teachers. The video that has been made is

then validated by 2 material experts, linguists, and media experts to determine the feasibility level of the video developed. Following this, a small-scale response questionnaire was distributed to 8 Chemistry Education students who had completed the course for prospective junior high school Chemistry teachers. A large-scale response questionnaire was then conducted involving 36 additional university students from the same department. Subsequently, a response questionnaire was administered involving 1 lecturer and 2 junior high school science teachers to obtain their feedback on the developed product.

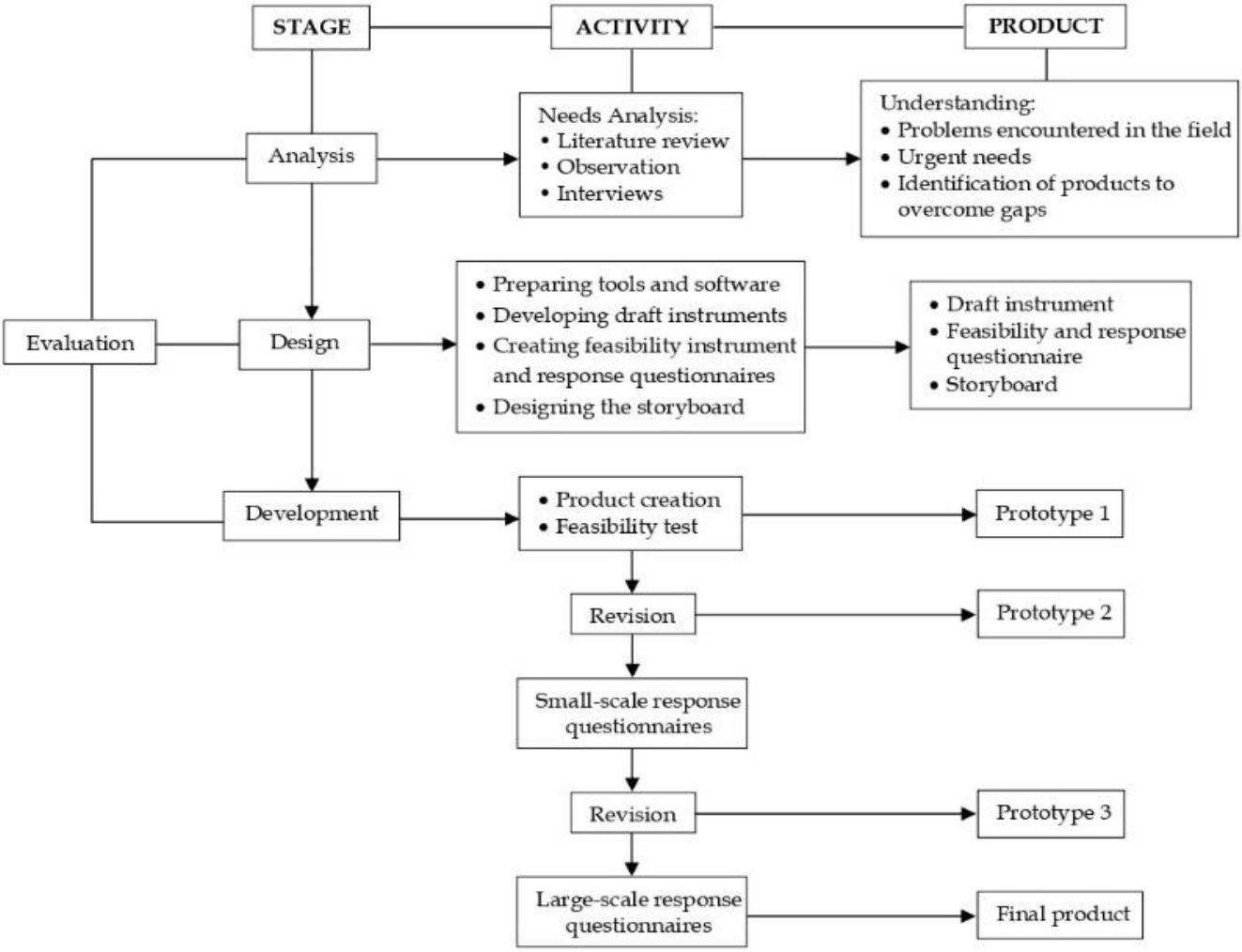


Figure 1. Product development framework diagram

The tool for collecting data is in the form of a product feasibility assessment instrument and a response questionnaire using a slightly modified Likert scale by removing the "moderately agree" category. The goal is to avoid neutral responses from respondents, so there are 4 types of assessment criteria contained in Table 1.

Table 1. Modified Likert Scale Scoring Provisions (Sugiono, 2016)

Category	Score
Strongly Agree	4
Agree	3
Disagree	2
Stongly Disagree	1

The steps of data processing of the feasibility assessment sheet for local wisdom-based addictive substance learning videos are as follows: 1) Calculate the total score of each statement, 2) calculate the percentage of the total score of each statement, 3) calculate the average percentage of the feasibility of the learning video as a whole with the following formula (Riduwan, 2015).

$$P = \frac{\Sigma X}{\Sigma Xi} \times 100\% \quad (1)$$

Description:
P = Percentage of score
$\sum X$ = Number of scores (total score) per statement
$\sum Xi$ = Number of ideal scores (highest score)

The results of the calculation are interpreted according to the video feasibility criteria in Table 2.

Table 2. Video Feasibility Criteria (Riduwan, 2015)

Interval	Criteria
0%-20%	Strongly unfeasible
21%-40%	Unfeasible
41%-60%	Moderate feasible
61%-80%	Feasible
81%-100%	Strongly feasible

The steps of processing the data of student, lecturer, and teacher response questionnaires in this study are as follows: 1) Calculating the total score of each statement, 2) calculating the percentage of the total score of each statement, 3) calculating the average percentage of response to the learning video as a whole based on Riduwan's calculation (2015).

$$P_{total} = \frac{\Sigma X}{\Sigma Xi} \times 100\% \quad (2)$$

Description:
P = Percentage of score
∑X = Number of scores (total score) per statement
∑Xi = Number of ideal scores (highest score)

Then the response criteria were determined using the following interpretation.

Table 3. Criteria for Assessment of Lecturer, Teachers, and University Students Responses (Arikunto, 2010)

Interval	Criteria
<20%	Strongly bad
21%-40%	Insufficient
41%-60%	Good moderate
61%-80%	Good
81%-100%	Strongly good

Result and Discussion

Analysis

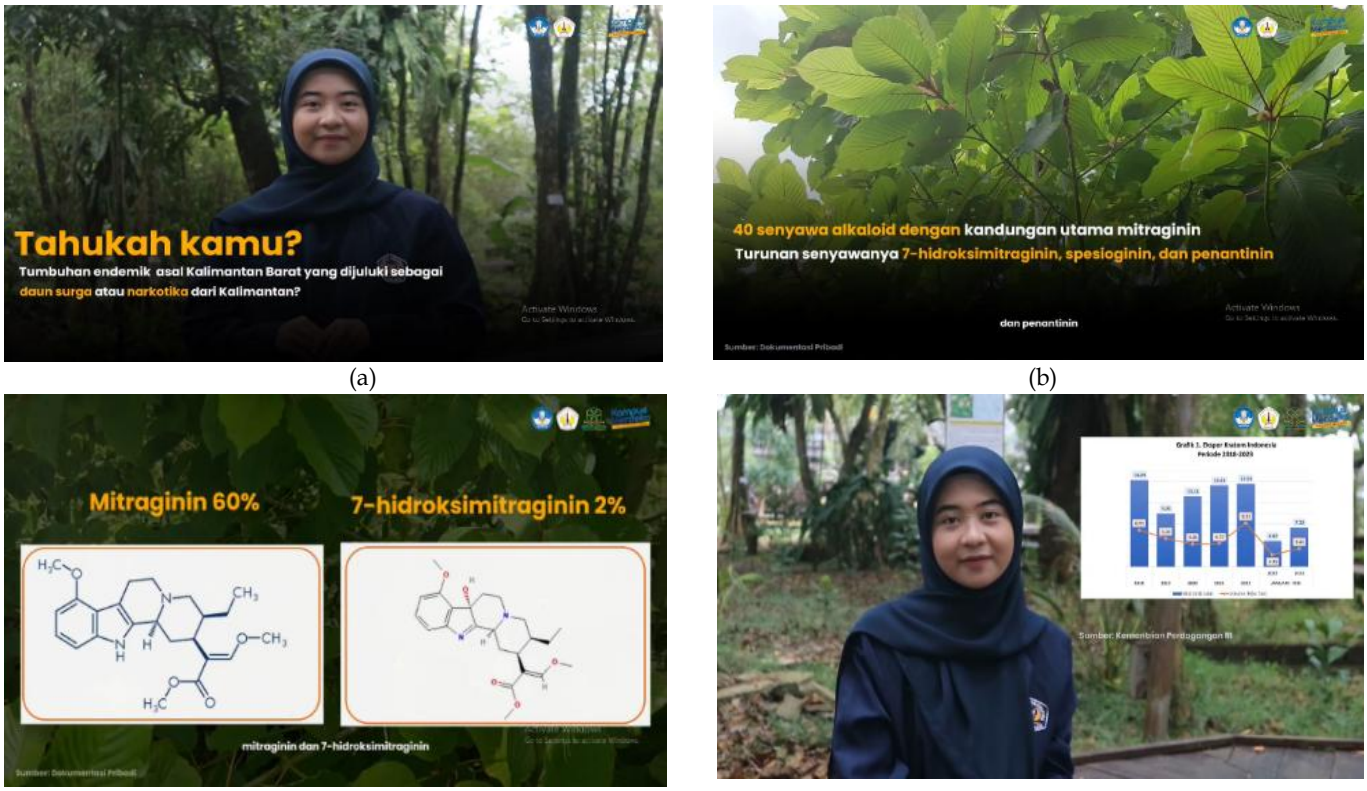
This development research begins with a needs analysis, which is conducted by reviewing relevant literature from previous studies, both sourced from within and outside the country. The goal is to find out the types of learning media that have been and are often used in learning addictive substances and their advantages and disadvantages. After that, observations were carried out by distributing questionnaires to 22 Chemistry Education students from the Faculty of Teacher Training and Education, class of 2020, who had taken the course for prospective junior high school Chemistry teachers. Observation was made to find out the type of learning media that lecturers often use when explaining addictive substance material. The result is that most university students answer that the media that is often used is Powerpoint (PPT). They feel uninterested in the learning media because there is too much writing without being accompanied by interesting audio-visuals so that it seems monotonous and boring. Observation was also made to find out the type of learning media needed by university students when studying addictive substances. The results were 77.3% of university students chose video as the media used in learning the material. There are several reasons that underlie it, including videos are not boring, attract univeristy students' attention in learning, make it easier for them to understand the material, and increase their desire to learn more about addictive substances.

The analysis stage continued by conducting interviews with several farmers and kratom users in West Kalimantan, especially in Kapuas Hulu and Kubu Raya districts. This activity is carried out to review the material or content that needs to be included in the video to be developed by referring to the learning objective (CPMK). The materials studied included the use of kratom leaves in the West Kalimantan community, the content, benefits and effects of kratom leaves, and the legality of kratom leaves and products in Indonesia.

Design

The design stage is the stage of designing products and assessment instruments in accordance with what is being studied (Rayanto e al., 2020). The design stage in this study begins with preparing equipment in the form of cameras, tripods, and smartphones to record narrators and software that will be used in the form of the Capcut application for the video editing process. Capcut is a video editing application with various features so that it can add effects and filters, change duration, include text, and add backsound and sound effects (Nurdiansyah et al., 2023).

The next activity includes the preparation of a draft instrument to measure product performance followed by the making of feasibility instruments and response questionnaires. The feasibility instruments was made to assess the feasibility of the developed video which was assessed by 3 aspects, namely media aspects, material aspects, and language aspects. Then a response questionnaire was made covering 3 aspects, including aspects of media, material, and advantage. The feasibility feasibility instruments and response questionnaires that have been made are then validated by 2 expert lecturers. Setyaningrum et al., (2023) states that validation of research instruments is carried out to ensure their reliability so that they can provide accurate and consistent data. This design stage ends with sketching (storyboard) the video to be developed. The developed local wisdom-based addictive substance learning video can be seen in Figure 2.



(a) (b) (c) (d)

Figure 2. (a), (b), (c), (d) Display of local wisdom-based addictive substances learning video

Development

The development stage in the ADDIE model involves the activity of implementing a product design that has been previously compiled and then validated and tested (Branch, 2010). The development stage is carried out by compiling a conceptual framework for making products that are realized into products that are ready to be implemented. Products that have been made are then validated by experts to measure their feasibility and benefits in improving the quality of learning (Ibrahim et al., 2018). The expert appraisal team that assesses the feasibility of the video consists of material experts, media experts, and linguists (Anggraini et al., 2022). Herefore, the video developed was then validated by 2 lecturers of material experts, 2 teachers of language experts, and 2 lecturers of media experts to determine the level of feasibility. Before obtaining the value of the feasibility instruments, the validators provided some suggestions and input, including suggestions from material experts to add an explanation of the definition of addictive substances and examples of addictive substances that are prohibited and allowed to use. Advice from media experts is to improve the writing of video sources included in the developed video. Therefore, revisions were made by adding the definition of addictive substances and the text of the classification of addictive substances, as well as improving the writing of video reference sources used so that the videos developed have a high level of feasibility. After being revised, the results of validation from several validators can be seen in Table 4.

Table 4. Video Feasibility Criteria

Validator	Score (%)	Criteria
Material expert	100.0	Strongly feasible
Linguist	94.6	Strongly feasible
Media expert	100.0	Strongly feasible
Average	98.2	Strongly feasible

Based on Table 4, it is known the percentage of video feasibility by material experts is 100% with a strongly feasible category. The aspects assessed in terms of material consist of 3 parts, namely curriculum, content quality, and presentation techniques. According to Apriliani et al. (2022) the delivery of material in learning videos is assessed from the quality of content and presentation. The curriculum aspect assesses the suitability of the video material developed with the learning objective (CPMK). Based on the material expert's assessment, the developed video effectively explains the content of the learning objective indicator (sub-CPMK) in the Kimia SMP course, namely: university 'students can explain drug substances that are often misused and their side effects on body health'. The curriculum aspect has an important role in making it easier for students to understand the value of local

wisdom through local plants around them. Local wisdom-based learning allows learners to recognize and understand local plants more deeply, including the cultural values associated with them. This can improve learners' understanding of their local context and make it easier for them to understand the material presented (Kurniawan & Halim, 2022). Curriculum aspects can also be designed to develop learners' skills in recognizing and utilizing local plants. The material presented should include practices that can be applied in daily life, such as the use of local plants for traditional medicines (Nugraha & Deta, 2023). This ensures that learners have skills that can be applied in their local context.

The quality of the content in the developed video is also an important part that must be considered. The quality of the content has an indicator in the form of the accuracy of the material which is considered very feasible with several assessment items, including the concepts and definitions presented in the material do not cause many interpretations and are in accordance with the concepts and definitions that apply in the field/ science of functions, facts and data are presented in accordance with reality and support student understanding, as well as examples and cases presented in accordance with reality and support student understanding. Learning videos integrated with local wisdom make it easier for students to relate learning to the reality around them, thus creating a deeper connection with the subject matter (Darni et al., 2024).

The video presentation technique developed is also considered very feasible because it meets several indicators, namely the order of the material, the recency of the material, the ease of understanding the material, and the usefulness. Up-to-date learning videos can provide better contextuality and actuality so that they can maintain students' attention and improve their understanding (Cahyadi, 2019). This contextuality and actuality allows students to connect the material taught with their real life, making it easier to understand and remember.

The percentage result of video feasibility by linguists was 94.6% with a strongly feasible category. The percentage shows that the video developed has met the criteria set in each aspect of language on the validation instrument, both from language quality and communicative (understanding of the information/message conveyed). The language quality aspect has met the feasibility of several indicators, including the accuracy of sentence structure, sentence effectiveness, term rigor, grammatical accuracy, and spelling accuracy, as well as the appropriateness of word or sentence selection. In addition, the developed video conveys messages or information with language that is easy and commonly understood in communication using Indonesian. Learning media that meet the aspects of language quality represent the content of the message or information to be conveyed while still following Indonesian grammar, using terms that are appropriate and in accordance with the context, and grammar that is in accordance with the rules of the Indonesian language (Thoibah et al., 2022; Dewi, 2020).

The percentage result of video feasibility by media experts is 100% which is categorized as strongly feasible. Riyana (2007) explains that there are several characteristics of learning videos, including stand alone or stand alone, the message is conveyed clearly (clarity of massage), the material is truly representative, easy to use (user friendly), visualization with media, quality has high resolution, can be used individually or classically. The video developed with the very worthy category has fulfilled the criteria aspects set out in the media expert validation instrument, both from the aspects of message clarity, user friendly, content representation, video quality, and ease of use. The developed video does not depend on other teaching materials or does not have to be used together with other teaching materials (Khairani et al., 2019).

Based on the overall assessment of the material experts, linguists, and media experts, the overall average percentage is 98.2% with strongly feasible criteria. Therefore, it can be concluded that the learning video of local wisdom-based addictive substances to support junior high school Chemistry learning is suitable for use in small class trials. Digital teaching materials with a high validity value is considered feasible to use in the learning process (Setyaningrum et al., 2023). After validation, the developed video was implemented on a small scale involving 8 students from the Chemistry Education Department who had completed the course for prospective junior high school Chemistry teachers. Small-scale trials were conducted to review the results of validation from experts and ensure the feasibility of the learning media developed (Putri & Widihastuti, 2018). The results of university students assessment of the developed video can be seen in Table 5.

Table 5. Small Scale Response Questionnaires Results

Aspects	Average Score (%)	Criteria
Media	88.8	Strongly good
Material	88.1	Strongly good
Advantage	85.9	Strongly good
Average	87.6	Strongly good

Based on Table 5, the average percentage score of the small-scale response questionnaires on the media aspect is 88.8%, which is included in the strongly good criteria. The media aspect statement points consist of the attractiveness of the video display, the harmony of the layout of the video constituent elements, the sound

quality, the use of fonts, and the harmony between the narrator's voice and the backsound. There are suggestions and input from univeristy students, namely to clear the narrator's voice so that it sounds clearer. Revisions were made by removing noise in the narrator's voice using the built-in features of Capcut so that the resulting sound is clearer. The average score of the material aspect obtained a percentage of 88.1% with strongly good criteria. The material aspect consists of several statements, including: (1) the material in the video covers a comprehensive understanding of addictive substances, (2) the material presented in the video aligns with the material taught by the lecturer in class, (3) the language used in the video is easy to understand, (4) the illustrations, images, text, and narration in the video aid in understanding the material, and (5) the learning material discussed in the video is communicated clearly. Students' interest in the learning process can affect their learning achievement so that they are more and faster in carrying out activities than students who are less motivated (Wati et al., 2019).

From the benefit aspect, the percentage of the average score of the small-scale response questionnaires obtained a value of 85.9% which means it is also strongly good. The advantage aspect consists of several statements, including: (1) the learning video on addictive substances based on local wisdom makes me more interested in learning about addictive substances, (2) this learning video helps me understand kratom as an example of local wisdom in West Kalimantan, (3) this learning video encourages me to study SMP chemistry topics more deeply, (4) this video inspires me to better understand and utilize kratom as local wisdom in West Kalimantan. University students feel that the local wisdom-based learning video on addictive substances increases their interest in learning the topic and can be used to support the course for prospective junior high school Chemistry teachers. Videos are also considered to be a fun medium when studying addictive substance material. This is in line with research conducted by Nuranggraini et al. (2022) which states that learning videos can improve students' cognitive learning outcomes and provide a pleasant and not boring atmosphere so that students' attention is focused on videos that contain information about learning materials. Videos used in the learning process provide positive effects such as multi-sensory, dynamic and able to attract the attention of students (Khairani et al., 2019).

Based on the average percentage of assessment of all aspects of the small-scale response questionnaires, which is 87.6% with strongly good criteria, the video can be tested for response to lecturer and teachers, and large-scale response questionnaires to university students. The response questionnaires on educators was conducted on a lecturer who teaches junior high school chemistry from the Department of Chemistry Education, FKIP, Tanjungpura University and 2 junior high school science teachers. The results of the lecturer and teachers response questionnaires to the local wisdom-based addictive substance learning video for Prospective junior high school Chemistry Teachers can be seen in Tables 6 and 7.

Table 6. Results of Response Questionnaires to Lecturer

Aspects	Average Score (%)	Criteria
Media	100.0	Strongly good
Material	100.0	Strongly good
Advantage	100.0	Strongly good
Average	100.0	Strongly good

Table 7. Teachers Response Questionnaires Results

Aspects	Average Score (%)	Criteria
Media	97.6	Strongly good
Material	100.0	Strongly good
Advantage	100.0	Strongly good
Average	99.2	Strongly good

Based on Table 6, it is known that the lecturer gave a strongly good assessment in each aspect, thus obtaining an average percentage score of 100%. This indicates that the developed video can assist lecturers in delivering material on addictive substances in the course for prospective junior high school Chemistry teachers. Berk (2009) states that the use of videos in education can increase learner motivation and participation, as well as offer variations in teaching methods that make the learning process more interesting and dynamic.

The results of the teacher response questionnaires on Table 7 show that the average score obtained is 97.6% for the media aspect, 100% for the material aspect, and 100% for the advantage aspect. The total percentage obtained for all aspects of the teacher response questionnaires was 99.2% with strongly good criteria. The developed video provides a more in-depth explanation of kratom as an example of a West Kalimantan plant that is not sufficiently discussed in textbooks or classroom lessons. This helps students gain a more comprehensive understanding of the material. This means that the developed video can be used as additional teaching material in schools while introducing existing local wisdom. Educators must design the learning process innovatively to facilitate the delivery of material through learning media integrated with local wisdom and shape the noble character values of local culture (Ismiyanti & Afandi, 2022).

The final stage of this research is a large-scale response questionnaires involving 8 students from the Chemistry Education Department, Faculty of Teacher Training and Education, Tanjungpura University, class of 2020–2021, who have taken the course for prospective

junior high school Chemistry teachers. The results can be seen in Table 8.

Table 8. Large Scale Response Questionnaires Results

Aspects	Average Score (%)	Criteria
Media	92.9	Strongly good
Material	91.7	Strongly good
Advantage	92.5	Strongly good
Average	92.4	Strongly good

Based on Table 8, the average percentage of media aspects is 92.9%, which identifies that the developed video is interesting for university students as a learning medium in learning addictive substances material. The material aspect received a percentage of 91.7% which showed that university students felt that the addictive substance material could be conveyed well. Through illustrations, images, and text, as well as narration on videos can make it easier for university students to understand addictive substances material well. Through audio-visual content or how to deliver material with interesting narration in this video can captivate university students' attention and make them more interested in watching and learning the material presented. Mayer (2001) explains that good visuals and supporting narratives can attract the attention of students and make them more focused on the material being taught. The average percentage of the advantage aspect assessment is 92.5%, which indicates that university students feel more interested in learning about addictive substances in greater depth, particularly kratom as a local wisdom of West Kalimantan. Furthermore, this video inspires university students to better understand and utilize kratom as a local wisdom in West Kalimantan. Overall, the average percentage of assessment of all aspects in the large-scale response questionnaires increased to 92.4% with strongly good criteria. Students need to be equipped with local wisdom-based education so that their intellectual potential is balanced with emotional, spiritual, and social intelligence that is important for competition (Effendy et al., 2011). Based on the results of this study, it can be concluded that the local wisdom-based learning video on addictive substances is suitable for supporting the learning process in the course for prospective junior high school Chemistry teachers.

Conclusion

Based on the results of the research and development carried out, it can be concluded that the local wisdom-based learning video on addictive substances is strongly feasible to be used As a learning resource for prospective junior high school Chemistry teachers in the Chemistry Education Department. The feasibility results showed a score of 100% for the material aspect, 94.6% for the language aspect, and 100% for the media aspect, with an overall average of 98.2%. The responses from the lecturer and teachers were categorized as strongly good, with average scores of 100% and 99.2%, respectively. University students responses were also categorized as strongly good, with an average score of 87.6% in the small-scale response questionnaires, which increased to 92.4% in the large-scale response questionnaires. Therefore, the developed video is highly feasible and received strongly good responses from lecturers, teachers, and university students.

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Author Contributions

D.A, conceptualizing research ideas, methodology design, data analysis, obtaining data analysis results, making conclusions, and looking for references. M and E.E, guide, supervise, and provide advice and input. H and E checked and reviewed the articles.

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Researchers declare there is no conflict of interest. The data published in this article is good in writing articles, collecting data, analyzing data, and deciding to publish research results without conflict of interest with any party.

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