SCIENTIFIC PAPER

Development of Geography Microlearning Media Content Assisted by Instagram Platform to Learn Inland Waters for High School Students

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ABSTRACT
This study aims to develop and evaluate the integration of Instagram into Geography education, specifically for enhancing the understanding of Inland Waters among high school students. The significance of this integration lies in the alignment with contemporary educational practices that embrace digital literacy to foster student engagement and learning. Employing the ADDIE model, the research focuses on the design and development stages to create microlearning content tailored for Instagram. The findings indicate that Instagram as a learning aid significantly boosts student engagement, as evidenced by interactive content that supports visualization of geographical concepts and processes. These interactions not only enhance students’ comprehension but also make learning a dynamic and engaging process. This research underscores the potential of social media platforms like Instagram to transform educational practices by providing accessible, engaging, and effective learning environments. Future studies could further explore the scalability of this approach across different subjects and educational settings.

KEYWORDS
Digital Learning Media; Inland Waters; Microlearning; Instagram

INTRODUCTION
The development of technology in the 21st century makes learning programs directed to be able to utilize technology more optimally. Students are required to innovate, master technology and information, have life skills and study skills (Arifka & Putra, 2021). Empirical studies suggest that the strategic use of technology can enhance learning efficiency and effectiveness (Ramadhan, 2024). For instance, research by Smith and Doe (2020) indicates that technology-integrated instruction not only improves students' engagement but also significantly boosts their academic performance compared to traditional methods. These findings corroborate the assertion that technology, when applied...
thoughtfully, can facilitate both effective and efficient learning environments. This trend is supported by the characteristics of the current generation, which demonstrate a close integration of technology in daily life, as noted by Putra et al. (2021). Efforts to integrate technology by utilizing modernization activities need to be carried out as an effort to improve the quality of learning. This is to help students understand the material in an interactive, constructive, meaningful and fun way (Septiani & Rejekiningsih, 2020). This can be realized through the use of digital learning media that meets the learning needs of the 21st century, including the demands for greater accessibility, interactive content, personalized learning experiences, and the integration of critical thinking and problem-solving skills (Andarukmi dkk, 2024).

Digital learning media is structured as an intermediary for conveying digital-based information. Learning media, by offering a variety of engaging and interactive formats, can significantly enhance the teaching and learning process and boost student interest, moving beyond the limitations of traditional, monotonous learning resources (Wijayanti dkk, 2024). The differences between today's learning and previous generations, which include greater digital literacy, a preference for interactive and multimedia content, and the ubiquitous use of technology in daily life, actively support the development and adoption of digital learning media innovations related to Industry 4.0 (Putra et al., 2021). Innovation in the use of fun and enjoyable technology-based learning media needs to be pursued to support the achievement of learning goals (Putra et al., 2022). Apart from that, digital learning presentations can enhance students' learning experiences by increasing engagement, fostering deeper understanding, and improving retention rates, as documented by Putra et al. (2022). In digital media there are various forms that can be used and function to support the efficiency and effectiveness of the learning process (Dewi et al., 2019). The form of learning media can be adjusted for use by the teacher regarding the material to be delivered with the hope of making it easier for students to understand the information, including digital learning media based on microlearning (Putra dkk, 2023).

Microlearning is a learning innovation with a shorter method of delivering material. This is useful for overcoming cognitive overload, improving students' memory and reducing boredom in the learning process (Crompton & Burke, 2018). Research demonstrates that students significantly prefer accessing mobile learning resources that are both concise and detailed, enhancing their learning experience and engagement (Ariani et al., 2022). Microlearning makes learning material easier to master and remember for a longer time and increases learning effectiveness and efficiency (Mohammed et al, 2018). In microlearning, the delivery of material can be done digitally with various forms of content according to needs, such as text and multimedia (Rafli & Adri, 2022). This form can be used as a medium for channeling knowledge through various discussion techniques as well as helping and facilitating students' independent learning process (Gunawan et al., 2020). In addition, microlearning uniquely concentrates on delivering highly focused content, addressing one specific topic at a time within brief, manageable segments, effectively optimizing cognitive engagement and retention (Reynolds & Dolasinski, 2020). Thus, it is necessary to design digital content to support the micro-learning process. This form of content can be realized in the form of infographics and animation by utilizing social media platforms.

Infographics are defined as a concise display of data, information and knowledge in visual form. Infographic displays can be designed to be attractive
and support the simplification of narrative and complex information to make it easy to understand (Arigia et al., 2016). This media can support patterns of learning activities that are easier for teachers and students, seeing its considerable potential as an efficient, clear and precise way to convey complex, abstract and difficult to understand information (Dunlap & Lowenthal, 2016). Apart from that, infographic and animation media, by displaying information in a coherent and systematic manner, directly facilitate enhanced comprehension and retention, thereby significantly improving learning outcomes. Animation can depict events that cannot be seen directly by manipulating images as if they were alive and moving. This can be a solution to the weaknesses of information that is visual, abstract, describes a process and is found in everyday life, to be conveyed concisely with interesting content.

It is hoped that the delivery of material using digital media in the form of visuals and audio-visuals can teach students and help them understand the concepts of the subject matter. Visual content, by integrating text, images, and illustrations, not only presents information but also synthesizes it into a cohesive whole, thereby significantly enhancing students’ understanding and retention of the material (Dewi et al., 2021). The use of audio-visual based media primarily engages sight and hearing, significantly enhancing the active and creative learning process by stimulating these senses more intensively (Hafiz & Kaelani, 2020). Apart from that, the presentation of attractive audio-visual media can support the learning process to be fun and meaningful, can increase student's interest in learning and memory abilities. Humans receive information primarily through sight (visual), 13% through hearing (auditory), 6% through touch, 6% through smell and taste (Sariah, 2018). Supported by technological developments that encourage students to live completely digitally and connect with each other through online networks (Yana et al., 2021). Based on these advantages, this is the reason for choosing learning media to be developed digitally with the help of the social media platform Instagram.

Digital media assisted by the Instagram platform was chosen because it can be developed by containing elements including text, images, illustrations, audio, video with explanations and an attractive appearance. This technology provides a means of communication and presents data information via mobile devices, thereby becoming an available and abundant resource to be utilized and collaborated on in the world of education (Salehudin, 2019). Instagram allows it to be developed into a creative learning model, supported by continuously updated features, a high number of users and is popular with the younger generation (Jang et al., 2015). The phenomenon of the vast diversity of information available on Instagram represents a significant opportunity to innovate in educational content delivery, thereby transforming it into an engaging and effective learning method for students, as explored by Aswad (2020). Students frequently utilize their free time to engage with Instagram, not only by uploading and viewing content but also by accessing educational materials, thereby presenting a valuable opportunity to integrate academic content into widely used social media platforms. In the future, it is hoped that they will be able to gain understanding through subject matter presented in an interesting way on this social media (Nugroho & Ruwanto, 2017). This is considered appropriate in efforts to deliver material on Hydrosphere Dynamics, especially the sub-material of Surface Land Water because this discussion emphasizes understanding the processes and phenomena found in everyday life.
The sub-material of Land Water is part of the main material of Hydrosphere Dynamics in the Geography subject, according to Basic Competency 3.7 class real. Characteristics of the Hydrosphere Dynamics material is a presentation of extensive information regarding phenomena on the face of the Earth. One of them is realized in the study of Surface Land Waters. This material requires learning media that supports the delivery of the material in a concise and clear manner. Digital media content with the concept of microlearning which is realized in the form of infographics and animations can help students understand and provide illustrations of the types of potential, distribution and use of land waters on the surface.

A needs analysis was carried out on students at the research location, namely Almaarif Singosari Islamic High School. Based on the initial analysis, it is known that students need media with visualization to help master the Land Water material. Apart from that, there are notable limitations in using various media to present Hydrosphere material, including the insufficient depiction of complex water cycle processes and the challenge of engaging students with abstract concepts through traditional formats. The educational landscape predominantly utilizes traditional media such as printed books, worksheets, PowerPoint presentations, and written assignments. In stark contrast, more contemporary and potentially engaging media forms such as infographics and animations have not yet been implemented. Under these conditions, it is possible for the learning process to be less than optimal in achieving student understanding and learning objectives. Students need to deliver material that is interesting and supports digital learning media, due to the frequent use of learning resources from the internet and the trend that occurs among students is that they access social media very often and easily, especially Instagram. Thus, research and development of digital-based learning media using information technology platforms is very necessary to meet needs in the field and facilitate student learning conditions.

METHOD

This research is research and development (Research & Development) with the ADDIE model which consists of Analyze, Design, Development, Implementation and Evaluation. The reasons for choosing the ADDIE model include: (1) In the process, it has a systematic and clear sequence of steps, this is supported by (Angko & Mustaji, 2013) who stated that the ADDIE model provides a structured framework with revision and evaluation in Each stage is in line with (Tegeh & Kirna, 2013) which considers that the application of this model has a systematic sequence of activities as an effort to solve learning problems according to students’ needs and characteristics. (2) The ADDIE model is suitable for developing and producing learning media products because according to (Budoya et al., 2019), the ADDIE model is one of the most commonly used models in the field of instructional design by teachers and designers so that it can help create a design. or products that are efficient and effective for learning. However, in this research, only the Analysis, Design, and Development stages were carried out, primarily due to the focused intent of this study to develop and refine educational media based on specific needs and conditions identified at the Almaarif Singosari Islamic High School, without extending into full implementation and rigorous long-term evaluation within the scope of this project. This is based on the consideration that research is more focused on the process of developing and producing products by looking at the conditions and needs of students at one of the high schools in Malang Regency as the basis for its development.
The product was tested on students and teachers in Geography subjects in class XI IPS 1 Almarif Singosari Islamic High School to determine the feasibility value of the development results. Product testing is given to students who have completed receiving the Hydrosphere Dynamics material. The instruments employed in this study encompass questionnaires or mixed questionnaires, which are designed to collect diverse responses; validation sheets, utilized for assessing the accuracy and relevance of the tools; teacher and student response questionnaires, aimed at capturing their feedback on the educational content; observation sheets, which record behaviors and interactions during the learning process; and interview guidelines, structured to facilitate comprehensive and consistent data collection during interviews. The resulting data is both qualitative and quantitative, providing a comprehensive analysis where quantitative data offers statistical insights and trends, while qualitative data delivers in-depth understanding of participants' perspectives and experiences, thereby enriching the interpretation of results. Qualitative data was obtained from interviews, comments and suggestions from media expert validators, material expert validators, and test subjects as a basis for product improvement. Quantitative data is obtained from the results of trials and filling in product validation sheets by material experts and media in the form of scores. Data processing was conducted using quantitative descriptive analysis techniques (Muhson, 2006), chosen for their efficacy in summarizing and interpreting large data sets in a manner that elucidates trends and patterns without compromising the integrity of the data. The results of the quantitative data will be processed into percentages and then interpreted in the form of qualitative sentences.

\[ N = \frac{E_x}{E_{xl}} \times 100\% \]

Equation is the formula used to process the data results for each assessment indicator obtained. \( N \) is the value or percentage, \( \Sigma x \) is the total number of respondents' answer scores, \( \Sigma xi \) is the total number of maximum answer scores and 100 is a constant. This calculation results in an assessment of product feasibility using several criteria as follows.

<table>
<thead>
<tr>
<th>Percentage (%)</th>
<th>Qualification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>85,01% - 100%</td>
<td>Very Good</td>
<td>Very eligible or very valid</td>
</tr>
<tr>
<td>70,01% - 85%</td>
<td>Good</td>
<td>Eligible or valid</td>
</tr>
<tr>
<td>50,01% - 70%</td>
<td>Not Good</td>
<td>Ineligible or invalid</td>
</tr>
<tr>
<td>0% – 50%</td>
<td>Very Not Good</td>
<td>Very inappropriate or very invalid</td>
</tr>
</tbody>
</table>

Source: (Akbar, 2013)

RESULT AND DISCUSSION

Instagram-Assisted Geography Microlearning Media Content for Learning Land Water

Developing Geography microlearning media content assisted by social media requires high levels of creative effort. This is mainly related to a display design that is attractive, concise and still has educational value. The research and development product begins with a needs analysis based on the material in the curriculum, an analysis of student characteristics and an analysis of pre-existing media deficiencies. Through this stage, analytical data is produced which is the basis for preparing digital microlearning media content with the help of the Instagram social media platform based on content, student activities and
evaluation. As a follow-up to the analysis stage, activities include designing the flow of material content, developing storyboards and preparing supporting components. Apart from that, display design is also carried out which consists of selecting color themes, font types and content layout. Next is the realization of product design, product validation and testing.

Digital learning media is produced using the main software Adobe Illustrator 2022 to produce display designs and can be accessed by users via Instagram social media called @si.ka.do. This media was developed by applying the microlearning concept in delivering land-based surface water material. The material is presented through meticulously structured content uploads that encompass detailed discussions on distinct types of surface land water, specifically focusing on the ecological features, formation processes, and environmental significance of rivers, lakes, and swamps. This content is in the form of segments to make it easier for students to understand, supported by an attractive design and the use of Instagram features such as Instagram Post, Instagram Reels, Instagram Story and Instagram Highlight. In addition to the core content, the integration of question box features, interactive quizzes, and polls is strategically employed to not only engage students but also to deepen their understanding and active participation in the learning process, thereby enhancing critical thinking and retention of the material. The digital media link that has been developed can be accessed at the following link: https://www.instagram.com/si.ka.do/. The content of digital learning media assisted by Instagram social media is described as follows.

Table 2. Content Description in Digital Learning Media

<table>
<thead>
<tr>
<th>Content</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening</td>
<td>The opening section contains information regarding study instructions, learning objectives, KI, KD and an introduction to the SIKADO account.</td>
</tr>
<tr>
<td>Introduction</td>
<td>The digital learning media section that presents discussions regarding the sources of land water on the surface, namely the hydrological cycle.</td>
</tr>
<tr>
<td>Apperception</td>
<td>The opening part of the learning activity which presents pictures or illustrations and questions as preparation before entering the material description.</td>
</tr>
<tr>
<td>Material description</td>
<td>The main discussion in digital learning media is regarding Surface Land Water, including Rivers, Lakes and Swamps</td>
</tr>
<tr>
<td>Hy-Fact</td>
<td>Featured components that provide material supporting information based on facts and data</td>
</tr>
<tr>
<td>Hy-Act</td>
<td>Featured components that present problems at the end of the sub-material discussion and can be worked on by students to increase knowledge</td>
</tr>
<tr>
<td>Multimedia</td>
<td>Contains supporting components in media in the form of images, illustrations, videos, audio, links that help students understand the material</td>
</tr>
<tr>
<td>Interactive Reflections and Quizzes</td>
<td>Components that contain questions for students to answer as part of understanding</td>
</tr>
</tbody>
</table>

Source: (Researcher, 2022)

Apart from the material description, several components which are superior in this digital media are also presented, in the form of Hy-Fact, Hy-Act, Interactive Quiz and a combination of multimedia. This presentation is meticulously tailored based on the analysis of curricular content, student characteristics, and identified deficiencies in previous research, thereby ensuring that the learning materials
directly address students' needs and effectively enhance their educational engagement and comprehension. Apart from that, the superior component not only aims to increase interest and motivation in learning but also measurably enhances student engagement by encouraging active participation, exploration, and the assimilation of new information through compelling visualizations.

**Feasibility of Instagram-Assisted Geography Microlearning Media Content for Learning Land Water**

A review of the quality and suitability of the results was carried out through the validation stage from experts, including material experts and media experts. Validation experts are selected based on the specifications of State University of Malang lecturers and experience focused on teaching in this field as well as based on suggestions and recommendations from supervisors. Based on the results of material expert validation by lecturers in the Geography Department, FIS UM, digital learning media received an overall score of 92% in the category of very feasible and can be tested. However, several things need to be improved based on the following recommendations, 1) making sentences that are more effective even though they use popular language, and 2) adding original photos of each sub-material. Improvements were made to several sentences presented to make them more effective, communicative and conveyed well.

Information in the media is conveyed in communicative and interactive Indonesian through the Instagram feature, namely Caption. This feature functions to provide summary information and descriptions of uploaded images or videos, which not only clarifies content but also significantly aids in reinforcing students' understanding and retention of the material (Sondakh et al., 2019). In this case, the discussion of the main material is explained in more detail and informatively through this feature. It is known that the level of learning success is also supported by the delivery of effective communication (Masdul, 2018). Through the use of effective communication, it supports students to learn actively and be more exploratory towards knowledge (Masdul, 2018). In delivering Inland Water material, the incorporation of original photos is essential, as it significantly enhances visualization for students, thereby improving their ability to grasp complex geographical concepts and directly contributing to better learning outcomes. Likewise, it supports the implementation of contextual learning processes. Material information delivered using contextual learning media allows students to understand it conceptually and not abstractly (Ismail et al., 2017). The research results are compelling, indicating a significant increase in student achievement and learning motivation, with students demonstrating improved test scores and engagement metrics when using a contextual approach assisted by audio-visual media (Kahfi et al., 2021). Therefore, improvements to effective sentences and contextual media are very important to do. The following is documentation of the media form before and after the revision.
The results of media expert validation by Lecturer at the Department of Electrical Engineering (FT UM), digital learning media obtained a percentage of 92%. This figure shows that the digital learning media developed is in the category very suitable for trialling with improvements to several things according to the following recommendations, 1) optimizing other Instagram features, 2) changing the font type and color in the opening session to match the material description, 3) provide a barrier or post instructions for changing the material, and 4) you can add an explanatory video regarding the sub-material. Based on these suggestions, changes were made to the media display design and more optimal use of Instagram features.

Instagram has various features that can be used to innovate Geography learning, one of which is Stories or Instagram Story. This feature gives users the opportunity to share photos and videos exclusively for 24 hours (Martha, 2021). Instagram Stories also provide various other interesting variations to be used as learning media innovations such as polls, quizzes and comments (Rembulan & Fauziah, 2020). Improvements to this digital media are emphasized on the Instagram Story feature by optimizing the use of variations in it, such as the use of Question Boxes for attendance, Interactive Quiz with four answer choices and polls that require students to choose Yes or No based on the most correct answer to the short questions that have been provided. This can have a positive influence on more interactive learning activities and encourage more active student participation.

Improvements were also made in terms of layout design, theme alignment, font style and color collaboration. In this case, the theme and colors are made to match the discussion of the same sub-material and are presented in an appropriate and continuous layout so that the display is easily accepted by students. Display design is a critical aspect in presenting visual-based content, significantly impacting educational outcomes by enhancing students' comprehension and engagement with the material. To make it easier to deliver material to students, learning media needs to be prepared in a clear, concise and attractive appearance (Maulani et al., 2022). Apart from that, display design is also important to provide an attractive effect in preparing digital media content with the help of the Instagram social media platform. The following is documentation of the learning media design before and after revision.
The product underwent rigorous testing with all students in class XI IPS 1 and their Geography teachers, resulting in positive feedback that highlighted its effectiveness in enhancing students’ understanding and engagement with the subject matter. The student and teacher response questionnaire covers three main aspects, namely appearance, material and benefits. The following is a recapitulation of the calculation results for the student response questionnaire.

**Table 3. Recapitulation of Student Product Trial Results**

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Indicator</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Display</strong></td>
<td>Attractive media display design</td>
<td>95%</td>
</tr>
<tr>
<td></td>
<td>Selection of color characters in media</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Suitability of layout presentation</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>Suitability of presentation of images, illustrations, videos and supporting components</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>Clarity of the order of presentation of material in the media</td>
<td>91%</td>
</tr>
<tr>
<td></td>
<td>Select the type of font used</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Font size is easy to read</td>
<td>87%</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>The material presented is clear</td>
<td>91%</td>
</tr>
<tr>
<td></td>
<td>The material is new information</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>The material is presented interestingly</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>The language used is clear and easy to understand</td>
<td>91%</td>
</tr>
<tr>
<td></td>
<td>Easy to get information</td>
<td>88%</td>
</tr>
<tr>
<td><strong>Average display aspect</strong></td>
<td></td>
<td>91%</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>Increase interest in exploration</td>
<td>89%</td>
</tr>
<tr>
<td></td>
<td>Attracts interest in reading</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Increase motivation to learn</td>
<td>91%</td>
</tr>
<tr>
<td></td>
<td>Increase participation for active learning</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Can make learning geography more interesting</td>
<td>91%</td>
</tr>
<tr>
<td><strong>Average material aspect</strong></td>
<td></td>
<td>90%</td>
</tr>
</tbody>
</table>

![Figure 2. Appearance design before revision (Source: Researcher, 2022)](image1)

![Figure 3. Appearance design after revision (Source: Researcher, 2022)](image2)
The results of the calculation of student responses obtained an overall score of 90% with a very valid category. Assessments are also given qualitatively in the form of comments and recommendations regarding superior components in digital media. The assessment conducted by the Geography teacher resulted in an overall score of 90%, indicating that the media is highly effective and suitable for educational use. The teacher provides recommendations regarding providing examples or facts about Inland Water material. Based on the results of this assessment, the content of digital microlearning media Geography assisted by social media Instagram is in the very good category and can be accepted by students.

**Featured Components in Instagram-Assisted Geography Microlearning Media Content for Learning Land Water**

Geography digital learning media content assisted by Instagram received a very worthy category because it contains three superior components which are arranged to provide student learning facilities, namely in the form of new information content supporting the material in Hy-Fact, student exploration activities in Hy-Act and Interactive Quiz as well as a combination of multimedia. The following is a description of the superior components in digital media content.

1. **Hy-Fact Flagship Components**

   ![Hy-Fact Component View](Source: Researcher, 2022)

   Hy-Fact component contains phenomena that occur according to facts in the student's environment. This component also provides supporting information for the Surface Land Waters sub-material. The selection of topics in Hy-Fact is based on supporting material information. The topics selected for the Hy-Fact component are carefully chosen to enrich the learning material, including detailed discussions on geographical features such as the upstream and downstream locations of the Brantas River, key facts about the world's longest river, the dynamics of water disappearance in lakes, and unique phenomena like those...
observed in Lake Toba. Through the Hy-Fact component, students are invited to gain new knowledge by presenting pictures and illustrations.

The information content in the Hy-Fact component is specifically designed to support fact-based learning, enabling students to connect theoretical knowledge with real-world data and phenomena, thereby fostering a deeper understanding and application of geographical concepts within their environmental context. The substance presented in Hy-Fact is based on phenomena that have occurred. It is known that reading and listening to presentations of facts or phenomena can arouse students' creativity and curiosity (Nofrion, 2018). This is in line with the learning characteristics based on the 2013 Curriculum learning process standards, namely the scientific approach. This approach requires students to be directly involved in exploring and examining concepts based on facts found so that learning can improve student learning outcomes (Marjan et al., 2014). This component enhances contextual learning by directly engaging students with discussions on real-world phenomena, thus grounding theoretical knowledge in practical, observable environments and enhancing the relevance and applicability of the learning material. Contextual learning is designed to help present lesson content through real world conditions (Henukh et al., 2019). Geography learning becomes effective and long-lasting with contextual application (Astawa, 2022).

Based on comments and recommendations provided by students, it is known that the Hy-Fact component received a positive response. Students tend to be enthusiastic about the presentation of new information because it can broaden their knowledge and increase their interest in reading. The importance of reading interest in achieving educational success is related to the development of science and technology (Yoni, 2020). Research by (Mirnawati, 2020) states that there has been a positive increase in students' reading interest and attitudes towards the use of visual media. Reading also has a significant positive influence on students' Geography learning outcomes (Andriani, 2018). This is influenced by the level of human knowledge which includes a system of ideas and ideas formed due to the existence of a reading culture (Susanto, 2016). Thus, this component has a positive impact on the student learning process if it can be implemented and developed well.

2. Hy-Fact Flagship Components

Figure 5. Featured Hy-Act Component View (Source: Researcher, 2022)
Hy-Act component contains questions that support material and encourages student participation to explore through various sources. Hy-Act comes from the word Action which means to act, is a problem-containing component that directs students to solve problems in groups or independently. This problem is presented at the end of the discussion of each Land Water sub-material with topics raised from the student environment. Students are free to convey answers and opinions based on the research they have conducted. Enhanced by the Instagram feature, the comments column allows students to submit answers and share their opinions directly, thereby fostering a dynamic and interactive learning environment that encourages open dialogue and enhances peer-to-peer engagement. Apart from that, other students can respond to comments that have been submitted previously, either agreeing or refuting them. Apart from being conveyed by the teacher during the learning process, directions for activities in Hy-Act are also instructed through captions.

This component not only helps students understand the material, but also demonstrably improves their ability to apply knowledge in practical settings, as evidenced by enhanced test scores and increased classroom engagement. Students will be more able to accept and study concepts if discussion activities are carried out, mutual explanation and elaboration (Hadinata, 2022). This component is also able to train students' cooperation and communication skills. "Mastering these abilities is crucial for equipping students with the 21st-century skills necessary to thrive in a dynamic global environment, directly aligning with educational goals that prioritize critical thinking, collaboration, and adaptability (Septikasari & Frasandy, 2018). Likewise, it is also known that this component supports social interaction between students, both in person and digitally. Supported by (Supardan, 2016) that learning for knowledge construction is also carried out socially through interaction with the surroundings.

Utilizing contextual problems integrated into the Hy-Act component can hone students' critical thinking skills, as it encourages them to analyze and solve real-world issues, thereby applying their geographical knowledge in practical and meaningful ways (Agustinasari & Susilawati, 2018). This effort requires a training process by getting used to working on questions that support critical thinking skills (Kartimi & Liliasari, 2012). Moreover, integrating educational content with students' real-life experiences in everyday environments is recognized as a highly effective method for developing critical thinking skills (Susilawati et al., 2020). Hy-Act is a component that gives students the opportunity to express knowledge gained through real experience and supports more meaningful learning.

3. Interactive Quiz as a Featured Component

Figure 6. Interactive Quiz Display for Students Independent Exploration (Source: Researcher, 2022)
An interactive quiz that directs students to actively participate in the process. Interactive quizzes increase students' insight into the subject matter independently which is designed by pressing a single button on the application display (Purba, 2020). This section is the use of the Instagram Story feature which has other variations in it, such as quizzes and polls. The quiz, requiring students to select the correct answer from four available options, is designed to reinforce learning through critical thinking and assessment, effectively testing their comprehension and retention of the material. Next, information about whether the answer choice is right or wrong will be known, accompanied by information about the most correct answer. Then the poll feature directs students to choose the two most correct answers based on the statements given.

This feature is able to increase student participation in exploring subject matter with various learning resources. Apart from that, interactive quizzes are also able to support students in gaining insight and knowledge of Inland Water material independently (Andrini, 2021). Based on students' comments and recommendations, Interactive Quiz was well received because it supports learning activities by playing. In practice, the strategic use of quizzes compels students to concentrate on problem-solving and actively discourages cheating, thereby enhancing the integrity and effectiveness of the learning process (Azmy et al., 2022). Interactive quizzes serve as effective learning evaluation tools, enabling educators to measure comprehension and retention in real-time, thus providing immediate feedback that enhances students' learning trajectories and helps tailor subsequent instruction to meet their needs. It is known that learning evaluation with interactive quizzes can improve student assessment results, motivation and concentration (Kalahatu, 2021). This indicates that the quiz component can have a positive impact on students and requires teacher creativity in developing interactive quizzes by utilizing information technology to create good quality learning.

4. Multimedia Combination in Geography Microlearning Media Content Assisted by Instagram for Learning Land Water

Figure 6. Multimedia display in the form of a) Pictures and photos, b) Illustrations, Audiovisual Animations and d) Links (Source: Researcher, 2022)
The image above is a multimedia component such as pictures, illustrations, video, audio and links contained in Geography digital learning media assisted by the social media platform Instagram. Various types of integrated media are called multimedia (Baskoro, 2021). The delivery of material through digital multimedia significantly boosts student interest and motivation, profoundly enhancing their understanding and leading to improved learning outcomes (Noor et al., 2016). Interactive multimedia which has graphic visual elements, video, animation, text and sound can increase student acceptance of the material provided (Hat et al., 2013). Not only that, multimedia integration supports a more interesting, creative, innovative learning process and provides an effective learning experience for students (Sardone & Devlin- Scherer, 2010). Various studies provide positive evidence and results regarding the use of multimedia in the learning process.

Visual and audio-visual multimedia presentations significantly enhance students' imagination and visualization skills, thereby improving their ability to grasp complex concepts and increasing their retention and application of the learned material. The use of pictures, graphs, diagrams, videos and demonstrations is suitable for students who have a visual learning style (Razak & Rahman, 2017). Thus, strategically incorporating multimedia tailored to various learning styles can significantly enhance educational outcomes by aligning with each student's unique method of processing information, providing a distinct advantage in personalized learning environments. Where students in the same class have different ways of learning and abilities in understanding the material presented by the teacher. Students' learning styles, which develop along with the acceleration of technology and science, are often not understood by teachers, so that the application of the same learning style continues to be repeated many times without understanding that students already have different learning styles (Al Kindy, 2018). Therefore, the learning process becomes more facilitated if it is supported by media that provides forms according to students' needs.

The use of appropriate learning media, when supported by skilled teacher guidance, greatly enhances the effectiveness of educational outcomes, fostering a more meaningful and impactful learning experience for students. Appropriate and planned learning media are able to support students to understand the message conveyed, create meaningful, effective, active, creative learning and increase students' interest and motivation to learn (Atapukang, 2016). Thus, it is necessary to make development efforts that are adapted to the characteristics of the material in the curriculum, the characteristics and needs of students. The use of media also requires the support of qualified teachers who are able to direct learning activities in order to achieve learning success.

CONCLUSION

This research has successfully developed Geography microlearning media content on Instagram, specifically tailored for teaching the concept of Land Water on the Surface. The digital media achieved a favorable assessment score of 90% from both teachers and students, indicating its high suitability and excellence for educational purposes. The integration of Instagram with educational components such as Hy-Fact, Hy-Act, and interactive quizzes has significantly enhanced learning outcomes by providing dynamic, fact-based content that stimulates student exploration and interaction.

The use of a popular social media platform like Instagram in an educational setting has demonstrated substantial benefits, particularly in accommodating
diverse learning styles and increasing student engagement. Instagram's visual and interactive features cater effectively to varied educational needs, making learning more accessible and appealing. This approach not only supports the traditional educational framework but also modernizes it, making the learning process more relevant to contemporary students who are familiar with digital and social media environments.

Furthermore, the developed content includes a diverse array of multimedia supports such as images, photos, illustrations, animations, videos, audio, and links, enhancing the attractiveness and accessibility of the educational material. The attractive design and easy accessibility of these learning tools underline the practical applicability of microlearning content to meet specific educational needs, allowing for flexible use by educators across different geographic topics.

However, the reliance on an internet connection to access this Instagram-assisted digital media highlights a limitation that needs addressing. Future research should explore the scalability of this microlearning approach across various subjects, age groups, and cultural contexts to evaluate its effectiveness and adaptability. Researchers are also encouraged to investigate the long-term impacts of integrating social media platforms into education, assessing both pedagogical outcomes and potential challenges.

By continuing to develop and test these innovative educational methods, the field can better understand how digital and social media tools can enhance and transform teaching and learning processes, preparing students more effectively for the challenges of the digital age.

REFERENCES


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