Digital Based Learning Management With A Multimodal Approarch

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Abstract:

The purpose of this study is to examine digital-based learning management with a multimodal approach to transform teaching materials. This study involved a multimodal approach to meaning interpretation, applying three metafunction principles: ideational (representational), interpersonal (social relations), and textual (organizing text). Such three metafunctions are combined with text, image, sound, and video tutorial modes in teaching materials. This study included twelve students willing to answer five open-ended questions about digital teaching materials via Google forms. The study's findings identified student feedback assessing digital teaching materials, specifically: 1) teaching materials packaged in ebook creator; 2) integration of multimedia in teaching materials; 3) integration of digital storytelling in teaching materials; and 4) material by the lesson plan. This study has implications for digital-based teaching to transmit innovative and diverse knowledge.

Keywords: *Management, Digital Based Learning, Multimodal Approach, Teaching Materials*

Abstrak:

Tujuan dari penelitian ini adalah untuk mengkaji manajamen pembelajaran berbasis digital dengan pendekatan multimodal sebagai cara untuk mentransformasi bahan ajar. Penelitian ini menggunakan pendekatan multimodal untuk menginterpretasi makna, dengan menerapkan tiga prinsip metafungsi: ideasional (representasional), interpersonal (hubungan sosial), dan tekstual (pengorganisasian teks). Dalam bahan ajar, ketiga metafungsi tersebut dipadukan dengan mode teks, gambar, suara, dan video tutorial. Penelitian ini melibatkan duapuluh dua siswa yang bersedia secara sukarela untuk menjawab lima pertanyaan terbuka tentang bahan ajar digital melalui formulir Google. Temuan penelitian mengidentifikasi umpan balik siswa yang menilai bahan ajar digital merupakan: 1) bahan ajar yang dikemas dalam e-bookcreator; 2) mengintegrasikan multimedia dalam bahan ajar; dan 3) mengintegrasikan digital storytelling dalam bahan ajar; dan 4); materi sesuai dengan rencana pembelajaran. Studi ini berimplikasi pada pengajaran berbasis digital sebagai sarana transmisi pengetahuan yang inovatif dan beragam.

Kata Kunci: *Manajemen, Pembelajaran Berbasis Digital, Pendekatan Multimodal, Bahan Ajar*

INTRODUCTION

Technology is typically used as a supplement to learning rather than as a primary mode of instruction (Correia et al., 2020; Hol & Aydın, 2020). It has aided in the facilitation of learning in this form. According to the meta-analysis, the use of these technologies has a positive, albeit minor, impact. Teachers may be confident in their classroom teaching abilities, but less so when teaching online. Nonetheless, the shift to online learning provides opportunities for teachers to innovate their practice (Doucet et al., 2020). Educational strategies, for example, can shift from teacher/subject matter-centered to student activity-centered (Rapanta et al., 2020). The wise use of educational technology is central to this issue (Teräs et al., 2020). However, it should not be assumed that all students are equally capable of effectively utilizing technology. Epps et al., (2021) assert that digital literacy must be at the goal of efforts to prepare lectures for future crises. Lecturer educators should focus on improving digital literacy, not just in terms of using technology as an adjunct in the physical classroom but also in teaching with digital technology.

Learning must adapt to information and communication technology; it necessitates numerous changes in the learning management process, particularly in transferring knowledge to students. From these conditions, universities are required to keep up with the rapid advancement of technology. Vu et al., (2019) show that DST is trending in a very positive direction. Professional development participants reported an increase in their knowledge, skills, and self-efficacy. This instructional practice is designed to assist students and teachers in developing the skills, knowledge, and competencies associated with 21st-century learning. Literacy is no longer limited to reading and writing because technology allows for multiple modes of content representation, such as instant messaging, digital storytelling, etc. Previous research includes work in the areas of critical new literacies (Burnett & Merchant, 2020), data literacies (Pangrazio & Sefton-Green, 2020), media literacy, critical future-gazing around teaching and learning (Selwyn, 2021; Macgilchrist et al., 2020; Potter & Cowan, 2020).

Literacy extends and includes the ability to interpret and construct using multiple modes of representation in this new media era enabled by digital developments technology. In today's digital era, learning necessitates a technological component that can pique students' interest in learning at all levels of education, particularly in universities. However, few lecturers can create innovative teaching materials due to long hours of teaching, additional assignments, and a lack of involvement in the learning community. Amhag et al., (2019) assert that lecturers require extensive pedagogical support and professional education training when developing digital teaching. The challenges of student engagement in remote settings using secondary sources. Pedagogical priorities for creating a typical classroom learning environment include community building, timely feedback, and reducing competition. Macgilchrist et al., (2020) investigated students who were particularly adept at collaborating, managing projects, meeting, and training with digital tools emerged as the 2020s progressed. They did not have to be programmers or have

any other IT knowledge. Learning, training, and transformation opened up new doors.

The obstacles to using technology in teaching include a lack of knowledge and skills. The digital age expands how teachers engage students in content-area learning (Siefert et al., 2019). Teachers can use digital tools to foster authentic and engaging learning experiences in various ways. On the contrary, technology aids in the development of digital-based teaching materials in order to intervene in learning as a student's needs dictate (Wisneski et al., 2017). To better understand evolving skills and knowledge, technology must be trained and provided with assistance in using professional skills (Takala & Wickman, 2019). According to several studies, digital competencies for pedagogical purposes are still poorly integrated into teaching programs. Due to the critical role of lecturers in professional development, new solutions are needed.

Furthermore, the development of digital literacy has become an academic requirement, particularly in universities, where digital literacy can empower individuals to communicate with others, work more effectively, and increase productivity, especially when working with people who have similar skills and ability levels. Education, particularly in this digital age, necessitates the acquisition of new literacy. In this case, rapid technological development can be used to foster three essential values: creativity, collaboration, and critical thinking. On the other hand, developing digital competencies can be complex for educators due to the rapid evolution of technology. As a result, the use of digital technology has become mandatory. Digital Literacies for Participation in Emerging Online Cultures identify key digital literacy elements such as social media, transliteracy, identity management, creating content, organizing and sharing content, reusing, sorting content, and self-broadcasting. A study by Nave et al., (2017) includes more forms of e-learning in professional development programs through the community of inquiry (CoI) and online forums. The principle of technology in learning is the need to demonstrate an effective and practical model of applying technology to encourage technological innovation in teaching.

This study examines digital-based learning with a multimodal approach to transform teaching materials to understand messages in various communicative contexts. Stenhouse & Schafer (2019) writes about multimodal projects that use digital stories to tell their stories. Teachers reflect on how their primary task as educators is to empower them through digital stories. A new multimodal discourse analysis method for studying online learning using digital video as a data source (Hoffman, 2018). Using video files as the foundation for mapping the interactions of several semiotic modes used synchronously online at a university. Multimodal discourse for sharing video files represents the design and purpose of an asynchronous online communicative platform. The multimodal discourse analysis and representation goal was to analyze and depict various modes' interactions on asynchronous online platforms. The focus of the analysis and representation is not on the technology that enabled interactive learning but on how that technology-enabled collaborative interaction between members of the learning

community takes place via an asynchronous online platform.

The multimodal theory of communication is applied to the analysis and representation of online learning to investigate the use of semiotic resources. Kress and Van Leeuwen's (2010) in Armfield (2011) theory focuses on communication's semiotic resources and the communicative practices that use them, specifically how people use modes and media to interact in concrete instances of communicative practice. Communicative practices are made up of several layers, each contributing to meaning. Multimodality is a theory that investigates how people communicate, interact, and express themselves. This theory is used in contemporary communication to create meaning as cultural communication representation by employing various modes. 'Multimodality' is a way of representing various modes that can be used together to construct messages. Each individual develops and employs fashion through interaction; for example, writing, gestures, posture, gaze, color, typeface, pictures, and videos can all make a difference. The modality will differ depending on meaning-making with different ways and media of expression used. Therefore, this research contributes to the innovation of digital teaching materials in multimodal-based learning.

RESEARCH METHODS

This study employs a qualitative research design (Dicks et al., 2011) to investigate how people interact digitally by paying attention to what people say, write, draw, and interact in virtual encounters. A multimodal approach to analyzing text, sound, and video as teaching materials. Whereas multimodality is defined as a method of teaching through written text that incorporates images, sound, and other media (Jewitt et al., 2016). The study procedure was open-ended in terms of topic, format, and subject matter was multimodal. Twelve university students as participants voluntarily evaluated the product of digital teaching materials in the form of a multimodality-based e-book creator using open-ended questions such as teaching material, access, material suitability, element combination, and ornament choice. After completing the project, a product trial with students was conducted to evaluate teaching materials created using data collected through the survey link at http://gg.gg/VEA2. Five open-ended questions were included in the survey; 1) Are you comfortable with the teaching materials created with e-book creators?, 2) Is it difficult to obtain teaching materials?, 3) Are the teaching materials appropriate for your level of learning?, 4) Are instructional materials created using a mix of multimedia (text/image/sound/video/web)?, 5) Are you satisfied with the selection of words and images/video/sound/web in teaching materials?

One of the e-book creators' creations of teaching materials for universities was the strategic management course, which can be accessed by clicking on the link https://read.bookcreator.com/ExH6b9WwJoRwbxGOzoiWkUbWdo33/Dkmo DgdnRuiSvBNXuATT9w.

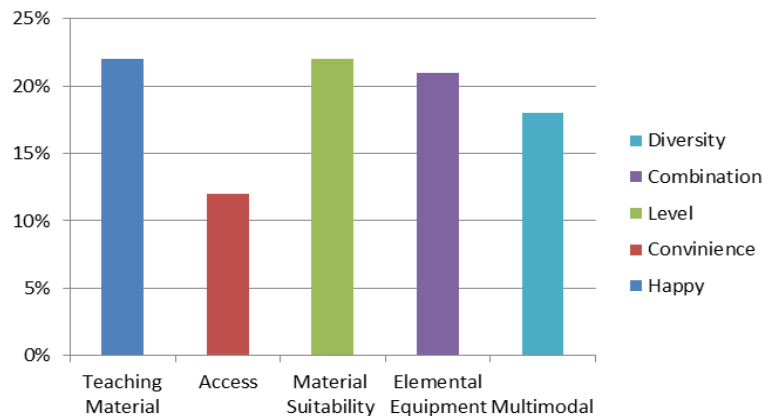## Multimodal Digital Storytelling Teaching (MDST)

Figure 1: Responses of Participants to MDST Materials

The analysis data based on Halliday's theory (2013), established three meanings (metafunctions): ideational meaning, interpersonal meaning, and textual meaning. Ideational meaning is the embodiment of experience. Meanwhile, interpersonal meaning shapes speakers' relationships and their interactions with one another. The final point to consider is textual meaning, or how the speech or writing produced becomes coherent.

RESULTS AND DISCUSSION

The context of this study was digital learning in the form of an e-book creator developed by the VEA (Virtual Education Academy) project in collaboration with the ILA (International Literacy Association) and the UNS (Universitas Negeri Sebelas Maret) to assist lecturers' professional development by creating Multimodal Digital Storytelling-based teaching materials. The results from the participant's responses, the product of teaching materials in the form of e-book creators received a positive response, namely: 1) a total of twenty-two participants stated that they were comfortable with the eBook creator as teaching materials; 2) a total of twelve participants stated that they had no difficulty accessing the eBook creator, while the rest stated that they occasionally had difficulty; 3) A total of twenty-two participants stated that the material was appropriate for a higher education level; 4) A total of twenty-one participants were satisfied with the material created, and 5) A total of eighty participants were satisfied with the ornament selection in the eBook creator.

Some of the students' feedback on digital learning include: 1) it is interesting to read and understand because it is full of colors, so it is not dull; 2) there is a combination of sounds, images, and video in materials that are easy to understand. 3) appropriate for the level of learning at the university; 4) accompanied by videos and engaging storytelling in this e-book to increase enthusiasm for learning; 5) the material discussed is by the syllabus or course description. This section analyzes data that is seen in three meanings' presentation: ideational, interpersonal, and textual in the "Strategic Management" teaching material that contains an image (visual), a caption or writing (text), and sound (verbal) integration.

Ideational Meaning

The first metafunction, the ideational meaning, concerns the message content or proposition (Halliday & Matthiessen, 2013). It is further subdivided into the experience and logical subtypes. Transitivity and sound are the primary means of realizing the experience function. This ideational meaning is a form of an individual's expression of feelings, as told in the eBook creator through the voices of two people talking to each other, where one of them wants to achieve his dreams/ideals but does not yet have a planned vision and mission. This ideational meaning aims to motivate a person based on his experience to be implemented in daily life. For example, consider two people's experiences in interpreting their dreams/ideals as "wish" and hope." Both translations are based on experience in achieving dreams/ideals, with speaker P interpreting ideals as hopes and speaker L interpreting ideals as wishful thinking. Both have a close relationship with "realization," though they approach it differently, P with hope and L with wishful thinking. As a result, P assists L in realizing his dreams so that he is not just imagining but must be done in order for those dreams to become can be realized. The first digital storytelling is presented through recorded voice, and it tells the story of two people who communicate and share their experiences, as described below:

Q (P) : Do you have the vision to achieve your ideals, Andi?
L   : I do not yet have any vision, but I still wish to be a teacher.
P   : Ideals are not just imagined; they can be realized. I will explain the science of strategic management to realize the vision and mission.

The above story snippet conveyed verbally in the thee-book creator teaching material describes a dialogue about a person's unplanned vision of ideals that have not yet been realized but can be realized through one's experience by applying strategic management science.

Interpersonal meaning

The second metafunction is associated with the interpersonal meaning of interacting with one another and sharing messages. Interpersonal meaning is a social meaning that refers to a relationship between tutors and students that aims to advise or convey moral values so that students are always enthusiastic about studying regardless of the circumstances. Because of the tutor's attention, this interpersonal relationship will strengthen the emotional closeness of tutors and students, allowing students to continue to study well. Furthermore, Halliday & Matthiessen (2013) argued that modality, orientation (subjective and objective; explicit and implicit), value (high, medium, and low categorization), and polarity are sources for interpreting interpersonal meaning (positive and negative). Thus, the following digital storytelling related to interpersonal can be seen:

L: Will you help me realize my dream?
Q: In the Strategic Management subject can help you realize your dream?
L: Okay, I will listen to what you say about Strategic Management Science.

The dialogue above is about imparting knowledge to someone in order for them to achieve their goals by studying Strategic Management Science so that an individual feels closeness and motivation in the language conveyed.

Textual meaning

The thematic structure is concerned with conveying the message through two functional components: the theme and rhema, which is the continuity of the message to be delivered. Textual meaning is also the material presentation packaged through the eBook creator application in digital storytelling that covers material objectives, descriptions, subjects, and evaluations, presented in a multimodal display and integrated between text, sound, color, video, and animated images to support the story in the material presented. Furthermore, digital storytelling correlated with textual meaning can be seen in the following story snippet, which is presented in the form of an animated picture of the role of cartoons in the interaction between two people discussing how to understand the material:

Q: Do you understand what strategic management **(theme)** entails?
L: Strategic management is the science of developing, implementing and evaluating organizational strategy by analyzing the organizational environment, both internally and externally, and looking at the organization's strengths, weaknesses, opportunities, and threats **(rhema).**

The dialogue in the snippet above presents a stage in achieving goals through Strategic Management Science and how the steps to realize the vision and mission are contained in the theme (topic)-Rhema (message) so that readers understand the topic its meaning. Personal narratives, historical documentaries, and stories that inform or instruct are the three types of digital stories. The most common application of digital stories is to educate or inform. Lecturers can use this type of digital story to present information to their students on various topics.

The process of telling stories on a multimedia platform while emphasizing meaning-making, collaboration, and amplifying marginalized narratives is known as digital storytelling. A semiotic functional linguistic approach was used in the three data analyses: ideational meaning, interpersonal meaning, and textual meaning. Furthermore, both teachers and students will find the material presented more exciting and creative. The above storytelling snippet was created using a cartoon image presented in a multimodal-based eBook creator to make it easier for students to understand the material. However, several flaws were discovered while developing this e-book creator, including the lack of presenters with voices for male roles, resulting in female voices dominating all voices. Indeed, the voice mode of this role is critical because it will provide different role involvement from the gender element, necessitating careful planning when developing multimodal-based teaching materials. This can be used to evaluate the future production of multimodal teaching materials.

The teaching materials based on Multimodal Digital Storytelling promote innovative and creative learning so that students can better absorb the material. Because it is not monotonous to use only one element, such as text in PowerPoint, this multimodality element will provide a more relaxed environment for students to receive material because it integrates many elements and produces flexible teaching materials that can be studied anytime and anywhere, without the need for a meeting, and students can learn continuously. Multimodality refers to the ability of people to communicate and interact with one another through the use of writing, speaking, movement, eye gaze, and other visual forms Kress (2010) in Armfield (2011). Because it is connected to the internet network, this multimodality approach will significantly assist a teacher/professional lecturer's development in transferring knowledge and skills to students; thus, learning is not boring and can be repeated anytime and anywhere. The materials are integrated through various available modes, designed to stimulate learners' thinking power and creativity; the flexibility of teaching materials packaged in an e-book creator helps students understand teaching materials.

This multimodal analysis has been used extensively, for example, in newspapers, photos, advertisements, illustrations, and in the same field of science. Technological advances, particularly in the printing industry, are the catalyst for the emergence of modern texts that are both verbal and visual, as developed by Kress & Leeuwen (2010) in Armfield (2011). This multimodal analysis is unquestionably appropriate for examining the text of teaching materials in the form of an e-book creator used as a student learning medium because of its ability to see the text as a whole, namely the roles played by verbal texts and visual texts and how their relationship in shaping and conveying the meaning of a visual text. The following are the three main components of the learning process:
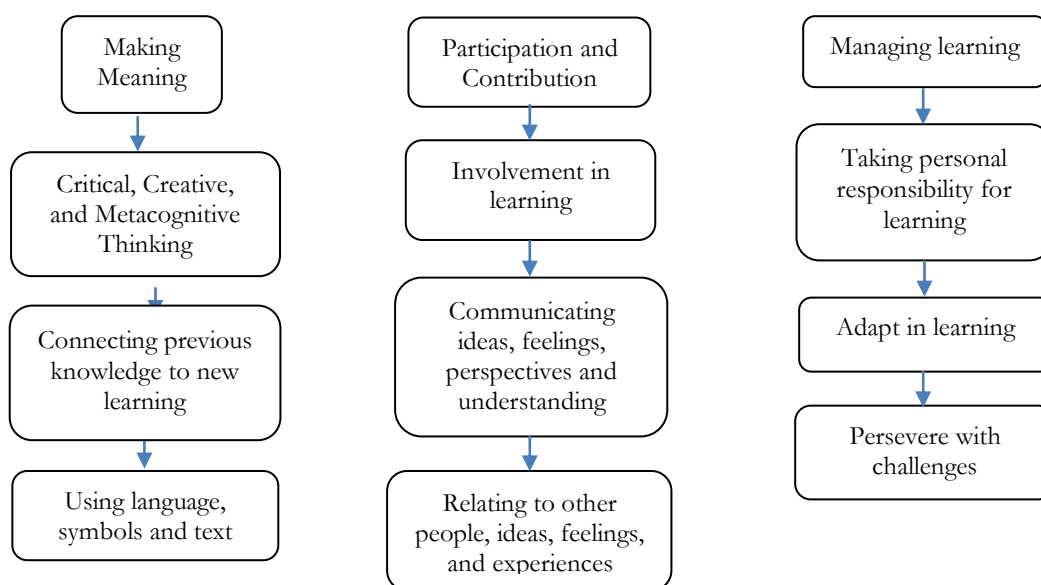

Figure 2: Three Main Components of Learning Fundamentals
Sources: Heritage et al., (2015)

The following are the three main lessons learned from the diagram above (Heritage et al., 2015); 1) Understanding knowledge about a topic or concept requires critical and creative skills such as reasoning, problem-solving, evaluation, analysis, argumentation, decision making, and lesson planning. The process of generating new knowledge and deriving meaning from language, symbols, and texts in meaning-making. Language and symbols are means of communicating information, experiences, and ideas in order to create all types of texts: written, spoken/aural, and visual; informative and imaginative; informal and formal; mathematical, scientific, and technological; 2) Involvement in learning, such as working together to obtain information, sharing and discussing ideas and interpretations, and receiving feedback. Participation in the learning community will help students develop their potential for future learning. Cognitive engagement in learning can increase and develop a sense of responsibility. Learning to criticize situations will help with effective communication of ideas, feelings, points of view, and comprehension when sharing experiences. Students will be able to understand the reading, observe, and be open due to the integration of various modes and develop empathy and benefit from learning outside of their experience; and 3) Self-involvement in the learning process are examples of creation of initiatives. This will encourage students to learn independently, take risks, and work on complex problems. Working together will teach students when to take the lead, when to follow, and when to act on a problem. Then it will be formed by students' self-reliance, awareness, setting goals, planning, progressing, and developing effective learning strategies based on their own needs to meet the expectations they set.

CONCLUSION

This research aims to examine digital-based learning management with a multimodal approach as a means of transforming teaching materials. This study investigates how visual texts construct text meaning using digital storytelling in strategic management courses. The need for university faculty and staff to switch to online learning has increased their workload to balance teaching. There is frequently a lack of adequate technical support with all practical and technical challenges. Furthermore, a significant challenge for lecturers is a lack of knowledge of the pedagogical content required for online teaching. The importance of this research for learning with meaning-making activities multimodal text as a source text for improving necessary multi-literacy skills at higher levels of education. Effective teaching necessitates an understanding of technological concepts, pedagogical techniques for teaching content in an easy-to-learn manner, how technology can help address some technical problems, and how technology can help develop new epistemologies or strengthen old ones. Education 4.0 as a whole will help to shape generation Z or generation I. As a result, an innovative learning process in its use of technology is required. The research implies that developing innovative teaching materials will impact students.

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