Development of a Digital Comic for Teaching Photography Composition in Visual Communication Design

Ahlis Sofyan Nuswantoro

Yogyakarta State University, Indonesia

Abstract

This research aimed to identify the conceptual needs for developing a digital educational comic on photographic composition for vocational Visual Communication Design students, to describe the systematic stages of its development, and to determine its feasibility as a learning medium. The study applied a research and development approach adapted from a structured instructional design model and involved expert validators, a teacher, and students across two main phases. The initial phase focused on analysing learners' needs, formulating the concept, and producing early prototypes of the comic. This was followed by expert validation to assess the content, media design, instructional quality, and overall usability. After revisions were made based on expert input, the comic was implemented through a field trial with students. Data were collected using a one-group pretest–posttest design to measure learning improvement, alongside interviews and questionnaires to capture the perceptions of teachers and students. The results showed that the study successfully produced a digital educational comic that integrates illustrations and photography to support students' understanding of photographic composition principles. Expert validators provided high feasibility scores of 90.95%, 91.90%, and 93.81%, indicating that the comic met standards of content accuracy, visual quality, and instructional effectiveness. The teacher's assessment reached 94%, highlighting its relevance and practicality for classroom use, while the students' assessment reached 94.38%, demonstrating strong engagement and positive learning experiences. Overall, these findings indicate that the digital educational comic is highly feasible, pedagogically effective, and suitable as an innovative learning medium for teaching photographic composition to vocational students.

Keywords: Digital Educational Comic; Photographic Composition; Media Development; Visual Communication Design; Instructional Design Model; Vocational Education

Introduction

Education is a conscious and systematic effort to develop human potential both physically and spiritually. According to the Indonesian National Education System Law No. 20 of 2003, education aims to create learning environments that enable students to develop spiritual strength, self-control, intelligence, character, and the skills needed for themselves and society. In the era of rapid global

development, education systems must continuously adapt to technological and societal changes. Vocational high schools (Sekolah Menengah Kejuruan or SMK) play a strategic role in preparing students with specific competencies through practical learning, field experience, and entrepreneurial skills. One important major is Visual Communication Design (DKV), which contributes significantly to the creative industry. DKV focuses on managing visual elements to communicate ideas effectively. As Kusrianto (2007) explains, it is a discipline that studies communication concepts and creative visual expression through graphic elements. With the advancement of digital technology, the demand for professionals in fields such as advertising, videography, and photography continues to grow.

Photography, as both an art and a medium of communication, is increasingly relevant in the digital era. Visual information is processed far more quickly than text, emphasizing the importance of visual-based learning (Singh, 2018). In the DKV curriculum, photography equips students with the ability to capture and process images professionally. Beyond technical skills, students must master aesthetic principles such as composition, which organizes visual elements to create meaningful and visually appealing images (Yedi, 2020; Maulidya, 2022). However, many vocational students struggle with abstract concepts related to composition, lighting, and object placement. This challenge is compounded by limited learning resources and reduced motivation, as students are generally more engaged with digital entertainment such as social media, games, and comics. Therefore, learning media must evolve to align with students' interests and learning styles.

Educational comics, especially in digital format, have emerged as promising tools for improving engagement and understanding. They combine visuals and narrative elements that support independent learning and foster critical thinking (Nicholas, 2013; Kristanto, 2021; Morris, 2019; Robinson & Persky, 2020). Previous studies have shown that digital comics can enhance students' interest more effectively than conventional printed materials (Fitria, 2023). However, existing research rarely focuses on the use of digital educational comics to teach technical and visual subjects such as photographic composition, and currently no specialized digital comic has been designed to meet the needs of DKV students learning photography. This gap indicates the need for innovative, visually oriented learning media tailored to the characteristics of vocational education.

Therefore, this study aims to develop a digital educational comic on photographic composition for Grade XI DKV students and to determine its feasibility as a learning medium. The integration of narrative elements with concepts of photography is expected to provide an engaging, accessible, and effective learning experience for vocational students.

Methods

This study employed a Research and Development (R&D) approach aimed at creating a digital educational comic on photographic composition as a learning resource for vocational Visual Communication Design students. R&D was chosen to produce a product that is both innovative and feasible for educational use. The development process was based on an adapted ADDIE model, which consists of five stages: Analyze, Design, Development, Implementation, and Evaluation. The ADDIE model is widely applied in instructional design, learning media development, and teaching model creation. In this study, the model was tailored to meet the specific needs of Grade XI DKV students and the learning objectives of the photography curriculum.

The participants included three expert validators, one teacher, and twenty Grade XI DKV students at SMK Diponegoro Depok. Expert validators were selected based on their experience in instructional design, digital media, and photography. The teacher participant was chosen for their familiarity with the

photography curriculum, while students were selected using purposive sampling to represent typical learners in the program. All participants provided informed consent prior to participation.

Data were collected using multiple instruments to ensure comprehensive assessment. Expert validators assessed the comic using validation sheets measuring content accuracy, visual quality, and instructional effectiveness. The teacher and students completed structured questionnaires to evaluate usability, engagement, and learning outcomes. Additionally, semi-structured interviews were conducted with the teacher to gain qualitative insights, and classroom observations were performed during implementation to capture real-time interactions with the comic.

The research followed the five stages of the ADDIE model. The Analyze stage involved identifying learners' needs, curriculum requirements, and existing gaps in learning resources. The Design stage focused on planning the comic's structure, content, illustrations, and layout. During the Development stage, the digital educational comic was created using appropriate software and reviewed by expert validators. In the Implementation stage, the comic was tested in the classroom, and students engaged with the material while teachers facilitated learning. The Evaluation stage involved assessing the product's feasibility, usability, and effectiveness through questionnaires, interviews, and observations, followed by revisions based on feedback.

Quantitative data from questionnaires and validation sheets were analyzed descriptively to determine feasibility scores, content accuracy, visual quality, and instructional effectiveness. Qualitative data from interviews and observations were analyzed using thematic analysis to identify patterns in student engagement, teacher feedback, and practical challenges in using the comic as a learning medium.

To ensure the credibility and reliability of the study, triangulation was conducted by comparing data from expert validators, teacher assessments, student questionnaires, and classroom observations. Feedback from expert validators was incorporated to refine content accuracy and visual design. Iterative revisions were performed to improve the comic before final classroom implementation, ensuring the product met both educational objectives and learner needs.

Results and Discussions

The development of the digital educational comic on photographic composition for Grade XI Visual Communication Design (DKV) students at SMK Diponegoro Depok was carried out using Procreate and Affinity Designer applications. *Procreate* was utilized to create comic illustrations in separate panels, which were later processed and compiled into a complete comic layout using *Affinity Designer*. The final output was a digital educational comic published on the Webtoon platform, which provides various engaging comic genres for readers. The main objective of this research is to develop an educational media product in the form of a digital educational comic containing photographic composition material for the photography subject in Grade XI DKV. The developed product was then validated by media and material experts to assess its feasibility. After obtaining validation results confirming that the comic was suitable for use, it was implemented in photography learning, specifically in the topic of photographic composition. Following the implementation stage, feedback was collected from teachers and students as users of the digital educational comic to evaluate its effectiveness and user satisfaction. The entire development process followed the ADDIE model, which consists of five main phases: Analysis, Design, Development, Implementation, and Evaluation.

Analysis

The first stage conducted in this research was the needs analysis. This stage focused on identifying the needs of both photography teachers as educators and students as target users of the digital educational comic. The research and development were implemented at SMK Diponegoro, located in Depok, Sleman, Yogyakarta. The analysis stage involved observations and interviews related to photography learning activities at the school. These activities aimed to obtain comprehensive information about the actual conditions of the photography learning process, particularly in the photographic composition topic. The information gathered from the observations and interviews served as the basis for developing the digital educational comic as a learning medium.

Design

The next stage in the learning media development process is the design stage. The design process begins by determining the learning objectives and expected outcomes for the photography composition material. The next step involves organizing the learning content to be included in the media, gathering relevant references related to photography composition, and developing the concept of the learning media. Finally, a storyboard is created to visualize the flow and structure of the content. The storyboard was designed using Procreate, an application commonly used for creating digital illustrations.

Development

The Development stage is the phase where the learning media is created. The designed and developed media takes the form of a digital educational comic. This comic contains photography composition material intended for Grade XI Visual Communication Design (DKV) students at the vocational high school level. The developed comic includes both illustrations and several original photographic works by the researcher to support and enhance the presented material.

Implementation

The Implementation stage is carried out once the developed product has been deemed feasible by expert validators. The validated digital educational comic was then implemented in the learning process to collect data and serve as a benchmark for its effectiveness in teaching photography composition. The trial was conducted with Grade XI Visual Communication Design (DKV) students using the one-group pretest–posttest method, involving 23 participants. The first phase involved conventional teaching of photography composition, followed by a test to measure students' understanding. In the next phase, the same material was delivered using the digital educational comic, and students were tested again to assess learning improvement. This process aimed to determine the effectiveness and impact of the developed digital comic as a learning medium for photography composition.

Evaluation

The evaluation stage is the final phase of development, carried out by reviewing and refining the digital educational comic based on feedback from expert validators and teachers. This stage ensures the product's feasibility and quality by incorporating improvements from previous stages—analysis, design, development, and implementation—based on evaluations from experts, teachers, and students.

Product Trial Results

The digital educational comic on photography composition for 11th-grade DKV students at SMK Diponegoro Depok was developed using Procreate for illustration and Affinity Design for layout assembly, then published on Webtoon. This study aimed to create and test the feasibility of the comic as a

learning medium, later applied in photography lessons and evaluated based on teacher and student responses. The development followed the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation.

1.   Develop a Digital Edicational Comic

The analysis stage aimed to identify the needs and foundation for developing a digital educational comic on photographic composition for class XI DKV students at SMK Diponegoro Depok. The needs analysis involved teachers and 23 students through observation and interviews. Teachers emphasized the importance of engaging learning media to improve learning effectiveness and motivation, while students expressed difficulty understanding composition materials through conventional methods, highlighting the need for visually appealing media. Curriculum analysis revealed that learning follows the 2013 Curriculum, focusing on mastering photographic composition principles such as the rule of thirds, framing, and symmetry to foster creativity and visual sensitivity. Student characteristic analysis showed that learners aged 15–17 are highly interested in visual media such as comics and learn more effectively through interactive and visually engaging approaches. The media development analysis focused on key aspects—visual design, learning content, alignment with learning objectives, and language use. The digital educational comic was designed in a semi-realistic illustration style with soft pastel colors and presented in Webtoon format for easy digital access.

The design stage of the digital educational comic was carried out systematically from March 24 to May 13, 2025, aiming to create learning media suited for class XI DKV students in photographic composition. The process began by defining the Core and Basic Competencies based on the 2013 Curriculum, followed by collecting relevant references from photography books and research articles. The digital educational comic, titled "Masuk Kelas", belongs to the *Slice of Life* genre and depicts classroom interactions between teachers and students. It is published on the Webtoon platform, using Indonesian language, *Sans-serif handwritten-style* fonts, and soft pastel colors for visual comfort. Illustrations adopt a Manhwa style, created with Procreate, and combined with the researcher's photographic works using Avinity Design. Fonts are chosen for clarity—*Impact* for titles and *Comic Helvetic* for dialogue. Photographs serve as examples of composition techniques, while warm pastel tones dominate the visuals to suit student preferences. A storyboard is created to organize panels, objects, backgrounds, and dialogues before final production.

The next stage focused on producing a digital educational comic as a learning medium for grade XI Visual Communication Design (DKV) students at SMK Diponegoro Depok, based on the 2013 Curriculum and the photography composition topic. The process began with the identification of core and basic competencies, followed by the collection of relevant learning materials from credible sources, including Jago Potret Pakai Kamera DSLR untuk Pemula (Widyani & Marsha, 2021) and research articles on photographic composition. The gathered materials were then adapted into accessible language and structured to suit students' cognitive levels and learning objectives. The concept of the digital educational comic was designed to be accessible through the Webtoon platform under the title "Masuk Kelas" with the Slice of Life genre. The storyline presents real-life school settings that integrate educational content into the daily interactions between teachers and students. The visual design adopted a Manhwa-inspired illustration style, chosen for its contemporary appeal among young audiences.

Illustrations were produced using Procreate, while layout composition and text placement were arranged with Affinity Designer to ensure optimal visual organization. The typography combined the "Impact" font for titles—emphasizing clarity and strength—and "Comic Helvetic" for dialogue, chosen for its readability and friendly appearance. Soft pastel tones with warm color palettes were applied to create visual comfort and enhance engagement during reading. Additionally, selected photographic works by the researcher were incorporated to serve as examples of composition techniques, directly linking theory to practical visual representation. A storyboard was then developed to guide panel composition, including object placement, background design, and speech balloon layout. Through this process, the digital educational comic was successfully developed as an innovative learning medium that combines visual storytelling, photography concepts, and digital art. The final product aims to enhance students' understanding of photographic composition through an engaging, contextual, and interactive learning experience.

Figure 1. The application of illustration and text in digital educational comics

2.   Product Feasibility testing

The feasibility testing stage aimed to evaluate the quality and appropriateness of the digital educational comic on photographic composition before its classroom implementation. The evaluation involved three expert validators from the Faculty of Language, Arts, and Culture, Yogyakarta State University: Mrs. Arsianti Latifah, S.Pd., M.Sn., Mr. Rony Siswo Setiaji, S.Pd., M.Pd., and Mr. Novan Edo Pratama, S.Ds., M.Ds. Each validator assessed the media using a questionnaire consisting of 42 items covering content, design, language, and instructional relevance. The results showed feasibility percentages of 90.95%, 91.90%, and 93.81%, respectively. Overall, the digital educational comic was categorized as "highly feasible" for classroom use, with minor revisions and expert feedback provided to improve the final version before broader implementation.

3.   Implementation of digital educational comic

At the implementation stage, the digital educational comic on photographic composition was applied in the learning process using the *one group pretest-posttest* design. This method aimed to measure the effectiveness of the media in improving students' understanding. Before using the digital comic, the lesson was delivered through lectures and conventional media. The *pretest* results showed a total score of 1,215 with an average of 52.83 from 23 students, indicating a low level of understanding. After introducing the digital educational comic—accessible via the Webtoon platform—students completed a *posttest* with equivalent difficulty. The *posttest* results demonstrated a significant improvement, with a total score of 1,855 and an average of 80.65. These findings indicate that the digital educational comic was effective in enhancing students' comprehension of photographic composition. In addition to better learning outcomes, students showed greater enthusiasm and engagement throughout the learning process.

4.   Result of The Digital Educational Comic Product Trial

The digital educational comic, previously validated as feasible by experts, was tested in the photography class on composition material for Grade XI DKV students at SMK Diponegoro Depok. The trial aimed to determine the effectiveness and practicality of the comic as a learning medium. The testing process was carried out in two stages: teacher response and student trials. In the first stage, the assessment was conducted by the art teacher, Mrs. Dwi Andriani, S.Pd. The evaluation instrument consisted of two aspects—content and objective quality (13 items) and technical quality (7 items)—for a total of 20 statements. The teacher's assessment produced a score of 94 out of 100, or 94%, which falls into the *highly feasible* category, indicating that the comic is very practical for classroom use. The second stage involved 23 students from the same class. The comic was implemented directly during the learning session, and students completed a questionnaire assessing the media's appearance, design, and content quality. The total score obtained was 1,628 out of a maximum of 1,725, resulting in a percentage of 94.38%, categorized as *highly feasible*. Overall, both teacher and student evaluations indicate that the digital educational comic on photographic composition is highly feasible, practical, and effective as a learning medium for Grade XI DKV students at SMK Diponegoro Depok.

Product Revision

The digital educational comic was revised based on the notes, feedback, and corrections provided by the validators. This revision process aimed to enhance the quality and effectiveness of the comic on photographic composition for learning purposes. Improvements were made in two main aspects: the visual design of the media and the content of the learning material, following the suggestions and recommendations from the experts.

1. Improvements of guidelines on the compositional material part of the rule of thirds

   Expert validator I, Mrs. Arsianti Latifah, S.Pd., M.Sn., suggested revising the *rule of third* section by changing the dark guide lines to yellow and adding a circle around the main object to make the *point of interest* clearer.

Figure 2. Improvements of guidelines on the compositional material part of the rule of thirds

2. Improvements of the example of photographic work presented in the pattern element section

   Expert validator I, Mrs. Arsianti Latifah, S.Pd., M.Sn., suggested revising the pattern element material by replacing the previous photo (a shop door with a red traffic sign) with a photo of a peacock tail to better represent the pattern element and attract students' attention.

Figure 3. Improvements of the example of photographic work presented in the pattern element section

3. Correction of the presentation of foreign terms

Figure 4. Correction of the presentation of foreign terms

Expert validator II, Mr. Roni Siswo Setiaji, S.Pd., M.Pd., suggested emphasizing foreign terms in the digital educational comic by changing their text color to blue to make important words more noticeable.

4. Improvements to the example of photographic work presented in the color element section

Expert validator II, Mr. Rony Siswo Setiaji, S.Pd., M.Pd., recommended replacing the photo in the color elements material. The previous example of a fallen jar was replaced with a photo of a man walking in front of a colorful checkered wall to make it more engaging for students.

Figure 5. Improvements to the example of photographic work presented in the color element section

5. Improvements to the example of photographic work presented in the texture element section

Expert validator II, Mr. Roni Siswo Setiaji, S.Pd., M.Pd., recommended improving the texture elements material. The previous photo of a carpet surface was replaced with a beach photo focusing on sand and waves to make it more suitable for the digital educational comic.

Figure 6. Improvements to the example of photographic work presented in the texture element section

6. Improvements to the example photographic work presented in the fill the frame composition section

Expert validator III, Mr. Novan Edo Pratama, S.Ds., M.Ds., recommended improving the fill the frame photography material. The previous photo of a cat's face was not close-up enough and was replaced with a similar photo more focused on the cat's eyes.

Figure 7. Improvements of the example photographic work presented in the fill the frame composition section

7. Improvements to the example photographic work presented in the line element section
Expert validator III, Mr. Novan Edo Pratama, S.Ds., M.Ds., recommended improving the line element material. The previous photo showed a corridor with leading lines, replaced by a photo of several pigeons on an electrical wire against a blue sky, which is more representative and engaging.

Figure 8. Improvements of the example photographic work presented in the line element section

8. Improvements of guidelines in the framing composition material

The final suggestion from photography teacher, Mrs. Dwi Andriani, S.Pd., was to improve the framing composition material. The guide lines, previously thin, were thickened and colored yellow to be clearer and more attention-grabbing, helping students understand the material through photographic examples.

Figure 9. Improvements of guidelines in the framing composition material

Final Product Review

The digital educational comic was developed using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). Analysis covered teacher and student needs, curriculum, student characteristics, and comic development. Design included determining the material, content map, references, illustration style, fonts, and colors. Development involved creating storyboards, sketches, line art, coloring, speech balloons, and panel assembly. The product was validated by three experts with scores of 90.95%, 91.90%, and 93.81%, rated highly feasible. Implementation used a pretest-posttest method in Class XI DKV at SMK Diponegoro Depok. Pretest average score was 52.83 and posttest 80.65, showing significant improvement and proving the comic's effectiveness. Evaluation ensured the product was refined and ready for use in learning.

The comic is vertically oriented for Webtoon, allowing smooth scrolling. Illustrations were manually created using Procreate and Affinity Designer. Files were exported in high-resolution JPEG and uploaded with panel slicing according to Webtoon standards. Distribution via Webtoon allows reader interaction through comments and ratings. The product combines visual creativity, digital technology, and an educational approach, providing an engaging and effective learning medium. Creating the digital comic is time-consuming due to manual drawing and requires specialized devices (tablet, touchscreen laptop, pentablet). Accessing the comic on Webtoon requires a stable internet connection.

Conclusion

This study successfully designed and developed a digital educational comic on photography composition following the ADDIE model. The product is a digital file accessible via a website or the Webtoon app, created using Procreate and Affinity Design. The research findings are as follows: The digital comic was designed to help 11th-grade DKV students at SMK Diponegoro Depok achieve learning objectives in photography through the Webtoon platform; The study was conducted using the ADDIE research model; The digital comic learning media proved to be feasible and effective for teaching photography composition.

Suggestions for Product Utilization: Teachers should understand the product's characteristics to prepare the classroom before implementing it; Although the comic is effective, teacher guidance is still

necessary to optimize learning outcomes; The product can increase students' enthusiasm and motivation, especially in learning photography composition

Dissemination and Further Development: Publish the research results through seminars or digital education platforms to expand reach; Establish collaborations with schools or educational institutions for using the comic as an alternative learning media; Optimize the use of the Webtoon platform as an interactive, easily accessible, and student-friendly learning medium.

References

Adi, Kusrianto. 2007. Pengantar Desain Komunikasi Visual. Yogyakarta: Andi Offset.

Akcanca, N. (2020). *An Alternative Teaching Tool in Science Education: Educational Comics. International Online Journal of Education and Teaching. 7(4), 1550- 1570*

Cooper, E., & Burrow, S. (2019). *Photographic Copyright and The Intellectual Property Enterprise Court in Historical Perspective. Legal Studies*, 39(1), 143-165

Fitria, Y., Malik, A., Halili, S. H., & Amelia, R. (2023). *Digital Comic Teaching Materials: It's Role to Enhance Student's Literacy on Organism Characteristic Topic. Eurasia Journal of Mathematics, Science and Technology Education, 19(10), em2333*

Kristanto, A. (2021). *Integration of a Constructivism Approach in E-learning Photography Subjects: Feasibility and Effectiveness in Learning. Journal of Education Technology*, 5(2), 167-174

Maulidya, C. (2022). Analisis Komposisi Fotografi pada Foto 'Landscape' karya Nadav Kander. Jurnal Dasarrupa: Desain dan Seni Rupa, 4(3), 21-29

Morris, T. H. (2019). *Self-directed Learning: A Fundamental Competence in a Rapidly Changing World. International Review of Education*, 65(4), 633-653

Mulyatiningsih, Endang. 2012. *Metodologi Penelitian Terapan.* Yogyakarta: ALFABETA

Nicholas, J. (2013). *4 Essential Rules of 21ˢᵗ Century Learning.* http://www.teachtought.com/learning/4-essential-rules-of-21stcentury-learning/

Robinson, J. D., & Persky, A. M. (2020). *Developing Self-directed Learners. American Journal of Pharmaceutical Education*, 84(3), 847512

Singh, C. (2018). *Visual Social Marketing*: PBB Publications

Sugiyono. (2013). *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D.* Bandung: Alfabeta

Suryawan, Y. (2020). *Analisis Komposisi Foto pada Landscape Photography. In Conference on Bussiness, Social Sciences and Innovation Technology* (Vol. 1, No. 1, pp. 533-539)