International Journal of Religion
2025
Volume: 6| Number 1 | pp. 505 – 513
ISSN: 2633-352X (Print) | ISSN: 2633-3538 (Online)
ijor.co.uk
DOI: https://doi.org/10.61707/hraee382

Curriculum Design for Digital Cultural Innovation: Competency-Based Project Learning with Google Earth and Temple Video Creation

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Abstract

This study presents a curriculum design for digital cultural innovation, focusing on competency-based project learning that integrates Google Earth with temple legend video creation. The curriculum aligns with Taiwan's 12-Year Basic Education Curriculum Guidelines, emphasizing the development of students' "core competencies" by shifting from traditional knowledge transmission to practical skill-building in real-life contexts. Through project learning theories such as constructivism and cooperative learning, the course enhances students' abilities to analyze, synthesize, and solve problems in real-world settings. This learning model combines Taiwan's rich religious folklore and cultural history with digital tools, enabling students to create temple legend videos and use Google Earth to map geographical locations. The combination of digital media and cultural content not only deepens students' understanding of local history and religious traditions but also cultivates their digital literacy, storytelling abilities, and collaborative skills. Through this interdisciplinary learning, students explore the connections between religious folklore and its representation in everyday life. Student feedback indicates that the course significantly improved their digital skills, deepened their understanding of Taiwanese culture, and fostered collaboration and creativity. The use of Google Earth added an immersive experience to learning, making geographic and cultural knowledge more accessible and engaging. The project also provided students with valuable experience in video production, digital storytelling, and cultural research, preparing them to face future challenges in the digital age.

Keywords: *Digital Cultural Innovation, Competency-based Learning, Google Earth Integration, Temple Legend Video Creation, Religious Folklore*

INTRODUCTION

Background

With the implementation of the 12-Year Basic Education Curriculum Guidelines (the new curriculum of 2019), starting in the 2019 academic year, the first group of students oriented towards competency-based learning will enter university by 2022. The new curriculum shifts from emphasizing "knowledge" learning to fostering "lifelong learners" centered on human development, internalizing the emphasized knowledge, abilities, attitudes, and competencies through practical application to enhance students' comprehensive ability to handle issues. The National Academy for Educational Research Curriculum and Instruction Research Center (2015) noted: "Core competencies" are the knowledge, abilities, and attitudes needed to adapt to current life and future challenges. Core competencies are not confined to "disciplinary knowledge" alone but emphasize integration with context and practical application in life.

The curriculum design for digital cultural innovation is an important approach to responding to the core competencies and competency-based learning emphasized by the 12-Year Basic Education Curriculum Guidelines (2019 new curriculum). The new curriculum focuses on cultivating students as "lifelong learners," shifting away from the traditional goal of "knowledge transmission" and emphasizing students' practical abilities in real-life situations. Particularly in the rapidly developing digital era, students must possess the ability to adapt to and utilize digital tools and cultural innovation. This ability not only includes technical proficiency but also involves integrating knowledge, abilities, and attitudes into different aspects of life and society to solve real-world problems.

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Objectives and Goals

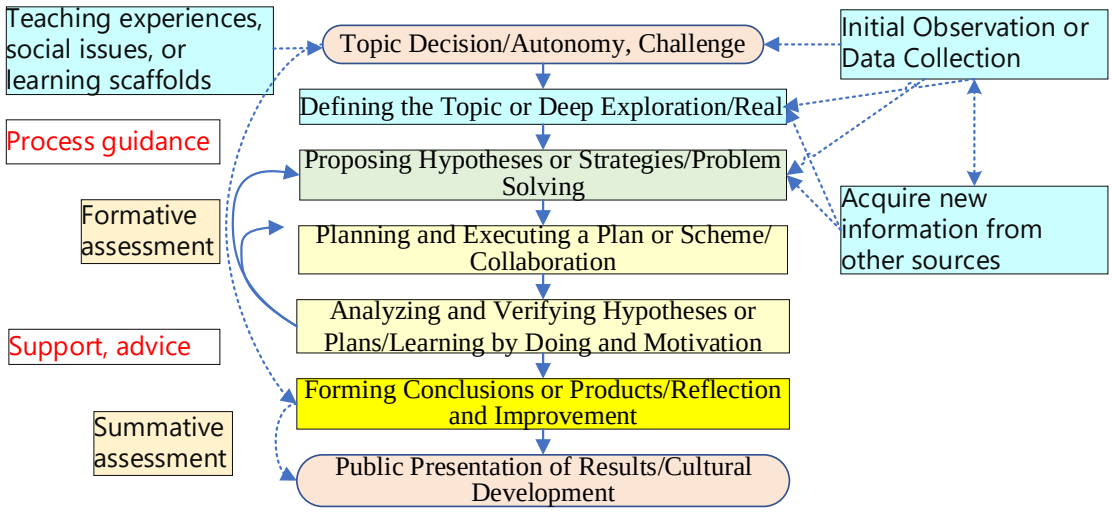
The curriculum design for digital cultural innovation can help students combine abstract academic knowledge with everyday life through digital tools such as Google Earth for project-based learning or using video creation technology to record and express cultural phenomena. These activities help students apply what they have learned in real-world contexts, achieving interdisciplinary integration and practice, which aligns with the comprehensive development of "knowledge, abilities, and attitudes" emphasized by core competencies.

Therefore, the curriculum design for digital cultural innovation not only aligns with the spirit of the new curriculum but also provides students with practical tools and capabilities to adapt to changes in the digital era. It cultivates their comprehensive competencies to face future challenges, which is key to the transformation of modern education.

The Structure of Competency-Based Project Learning Process

The three core theoretical foundations of project-based learning are Constructivism, Situated Learning Theory, and Cooperative Learning Theory (Savery & Duffy, 1995). These theories guide students through real and challenging problem-solving situations, promoting autonomous learning during the project-based "learning by doing" process to enhance their abilities to analyze, synthesize, and solve problems (Ji Huiqing & Zhang Xingfei, 2001; Savin-Baden and Major, 2004). Project-based learning advocates that students construct their own knowledge, which, besides being an individual effort, should focus on interaction with the external society to reconfirm and construct new knowledge (Vygotsky, 1978). It emphasizes that knowledge should fit the contextual situations, and individuals must learn through "learning by doing" in real contexts to enhance their genuine problem-solving capabilities (Wang Zhiyuan, 2009). It is believed that cooperative efforts enable both stronger and weaker students to benefit and promote teamwork to accomplish tasks, further enhancing interpersonal relationships among students and reducing isolation of less capable students (Zhang Chunxing, 2007). Heick (2018) outlined the eight needs for 21st-century project-based learning as Connectedness, Meaning, Diversity, Research, Creativity & Innovation, Pivot Points, Socialization, and Elegant Curation. Chih Ying Lee (2020), considering the views of Ji Huiqing & Zhang Xingfei (2001), Chen Yukai & Hong Zhenfang (2007), and Krajcik, Czerniak & Berge (2003), proposed a seven-step process of project-based learning and integrated it into competency-based learning (structure illustrated in Fig. 1). The seven steps are outlined below:

Fig. 1: The Learning Process of Competency-Based Project Learning



(1)Choosing a Topic Independently: Teachers pose challenging questions or issues, and students decide on topics to explore based on personal experiences, social issues, or initial observations and data gathering. The teacher acts as a supporter, offering respect and encouragement as long as students stay on topic, encouraging them to bravely attempt, take responsibility, and engage in cooperative learning.

(2)Defining the Topic or In-depth Exploration (Knowledge, Skills, and Attitudes): Students and their teammates delve into the initially chosen topic to discover new information or data, clarifying the scope, content, and key points of the topic. Further exploration is encouraged once the topic is defined, allowing students to realize potential issues or gain deeper, broader, and more innovative insights. This step reinforces the competency elements of abilities and attitudes, with the teacher acting as a catalyst to facilitate more precise definition and broader exploration of the topic.

(3)Hypothesizing or Strategizing: As students and their teams continue to explore the topic and uncover new information, they brainstorm various potential challenges and propose possible hypotheses or strategies for solutions. The teacher plays the role of an instigator and catalyst, guiding students to propose possible issues and strategies, breaking through one-sided or limited thinking.

(4)Planning and Implementing Plans or Projects: Based on the hypotheses or strategies for solving the problem, students and their teams reinforce practical applications, drafting and executing detailed plans or projects. The teacher acts as a guide, helping students consider all possible scenarios and dividing the detailed steps of execution, taking people, time, events, and objects into consideration to define concrete, detailed plans or projects.

(5)Analyzing and Verifying Data or Information: During the execution of the plans or projects, the focus is on the "learning by doing" process, where students, together with their teammates, analyze and verify data or information with a scientific, objective attitude. The teacher acts as a supporter and catalyst, encouraging students to analyze and verify from multiple, rigorous perspectives, supporting them through setbacks and discouragement.

(6)Forming Conclusions or Outputs and Reflecting for Improvement: After a series of analyses and verifications, students and their teams form conclusions about the topic or produce outputs, enhancing core competencies (in this chapter, literary, digital literacy, and local sentiment). They then reflect and propose continuous improvements. The teacher acts as a supporter and catalyst, supporting and encouraging students to achieve conclusions or outputs and catalyzing their continuous improvement through reflection.

(7)Presenting Project Results: Students and their teams compile data, outcomes, and insights from the previous six steps, completing a written project report and presenting the project results through PowerPoint presentations, video recordings, or other methods. The teacher acts as a supporter, affirming the students' achievements in overcoming difficulties during the project "learning by doing" process and encouraging them to proactively tackle and challenge various learning topics.

Because 'Competency-Based Project Learning' centers on competencies, it emphasizes 'using problems as the starting point for learning,' 'cooperative learning,' 'using temple legend stories as the core of the learning process,' 'using digital tools in a hands-on learning process,' 'student initiative,' and 'the teacher as a catalyst.' This approach aligns with the project's shift from 'externally driven guidance' to 'internally motivated awareness,' transforming 'knowledge' into 'competency' as part of curriculum innovation, thus adopting this teaching method.

Learning Model of Temple Legend Video Creation Combined with Google Earth

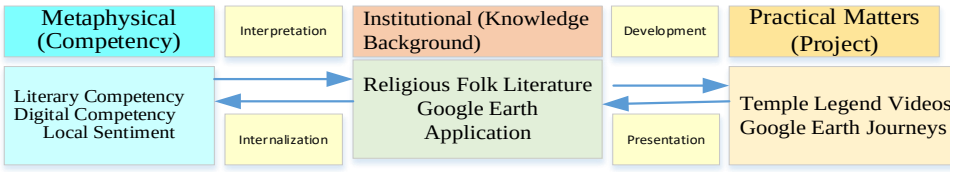
The content of Taiwan's religious folklore literature is rich, reflecting the moral values and local concerns of the folk community through cultural symbols in religious folklore. As Chen Jianlong (2006) mentioned, the architecture of Taiwanese temples is not only a reflection of the people's passion for faith and worship but also encompasses the folk culture in its architectural designs, interior wall paintings, inlaid porcelain, or stone dragon columns, and carvings between beams, with themes of animals, folk legends, and historical heroes all having their spiritual significance. Consequently, some scholars have focused on religious cultural creation as a theme to explore how it influences creative output and related theoretical issues.

I couldn't help but consider, under this model combining practical implementation, how we might reinterpret Taiwanese religious legends through digital and audiovisual creation to enhance students' narrative abilities in audio and video, and thus reconstruct their understanding of metaphysical religious culture. This might serve as a focal point for this project-based learning framework, yet there appears to be no practical application of religious literature teaching design combined with audiovisual creation found in the literature.

Therefore, through this course, we hope to use the project-based teaching design combining Google Earth with audiovisual creation to reshape students' identification with religious folk culture and the internalization of literary literacy.

Using the seven steps of competency-based project learning outlined in this book (as shown in Fig.1), combined with the culture-oriented product design model, it is apt to show how the creation of temple videos and the integration into the learning process of religious folk literature literacy can be achieved. This approach can manifest literary literacy and local sentiment from the concrete results presented (temple legend videos, Google Earth flight journeys). The innovative "Competency-Based Project Learning Model with Google Earth Combined with Temple Video Creation" is detailed in Fig.2.

Fig.2: Competency-Based Project Learning Model with Google Earth Combined with Temple Video Creation



The course was originally designed to solve how to enhance students' literacy in religious folklore literature and local care, with the aim of transforming the traditional knowledge-based teaching approach. This transformation allows for the development of competencies through more diverse and creative teaching designs. Therefore, after examining the characteristics of religious folklore literature, these features are used to create audiovisual works of temple legends. Through these works, one can see how students view the methods of worship in temples and, through their interpretations of temple legends, present their internal cultural literacy and spirit. How can the competency in religious folklore literature be enhanced through cultural creation and story expression?

From the model shown in Fig.2, the value judgments and interpretations students make about religious folklore literature (Institutional) stem from whether they possess relevant literary competency or care about religious folklore (Metaphysical). Possessing knowledge in the intermediate phase enables the development or creation of audiovisual works and stories with cultural content (Practical Matters). The audiovisual works and Google Earth journeys created by the students (Practical Matters) display their understanding and the essence of religious folklore literature (Institutional), which are enhanced through their creations and internalized as their literary competency and local sentiment (Metaphysical), further enriched by digital learning competencies.

"In this project-based learning model, different types of project implementations can be used, such as religious cultural creation, religious music creation, and religious hand-drawn book creation. These various project designs aim to provide students with more diverse creative and expressive avenues, enabling them to explore religious folklore culture and its essence from multiple perspectives.

Therefore, the digital innovation teaching method that incorporates temple video creation in teaching has the following four characteristics:

(1)The impact of visual and digital media: Modern students are frequently exposed to visual and audiovisual media, and this form of media can better engage their interest. Presenting temple legends in the form of videos not only directly showcases religious culture but also enhances students' digital literacy and storytelling abilities

through digital media.

(2) A deeper understanding of religious and local culture: Through the creation of temple videos, students can delve deeper into the details of religious culture, such as temple architecture, worship rituals, and legendary stories. This not only deepens their understanding of religious folklore literature but also strengthens their care and recognition of local culture.

(3)Collaboration and innovation in the creative process: Students need to collaborate in teams during the video creation process, which not only fosters their ability to work together but also encourages them to use innovative thinking by integrating cultural content and digital tools to present their work.

(4)The comprehensive application of multiple literacies: Video creation combines the use of digital tools, storytelling, and the integration of music and visual elements. This multi-literacy requirement enables students to apply what they have learned comprehensively throughout the project, leading to the enhancement and internalization of their skills.

Therefore, this teaching method, which combines temple video creation, not only enriches the practical aspects of the course but also effectively promotes students' understanding of religious folklore literature, the development of creative expression abilities, and the enhancement of digital literacy."

Example of Teaching with Google Earth Flight Animation Combined with Temple Legend Video

After creating the AI-generated video, combine it with flight animations created using Google Earth.

To create flight animations, you need to use the Google Earth Studio tool. You can log in with your Google account and apply for access. Open the "Google Earth Studio" website, log in with your Google account, and if your application is approved, you can access the online animation video creation tool. For detailed steps, refer to the following URL: https://www.playpcesor.com/2019/01/google-earth-studio.html.

The part of the video created by students that combines Google Earth flight animations will use geographic markers to show the distribution areas of the early Hoanya tribe's Jholowan society in Taiwan, as indicated by the yellow triangles (Fig.3). If you click on any yellow dot, it will link to information about that location and display it in the lower right frame (Fig.4). If you click on Fushe Temple (marked by a blue dot), it will similarly display information about the temple (linked to Fushe Temple's Facebook page, as shown in Fig. 5). After clicking on the Facebook link, detailed information and photos of the temple will be displayed (Fig.6).

Fig.3

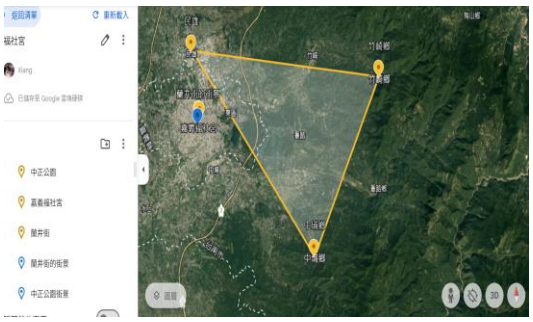


Fig.4

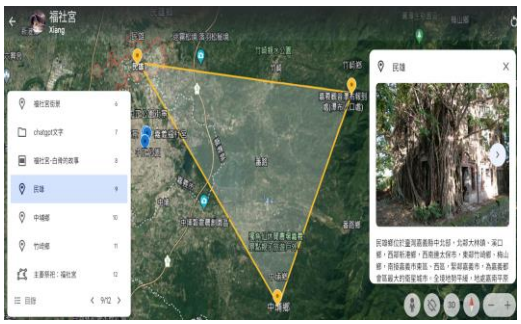
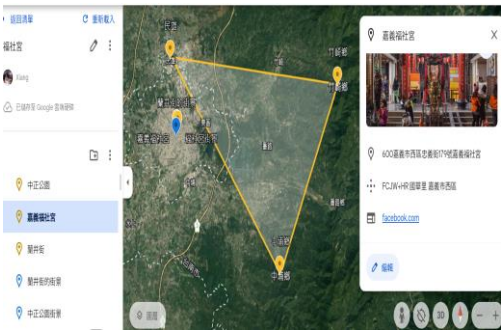


Fig.5

Fig.6



You can also click on the yellow little person icon in the lower right corner and place it in front of Fushe Temple to use Google's Street View service (Fig.7). The real scene presented by the Street View service looks like Fig.8.

Fig.7

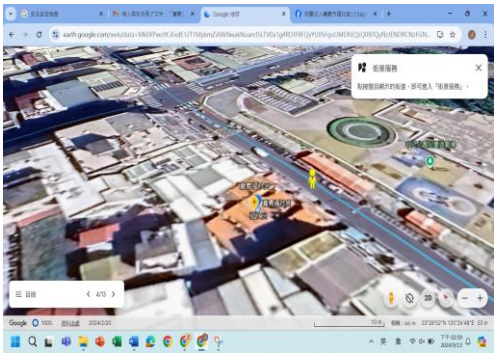
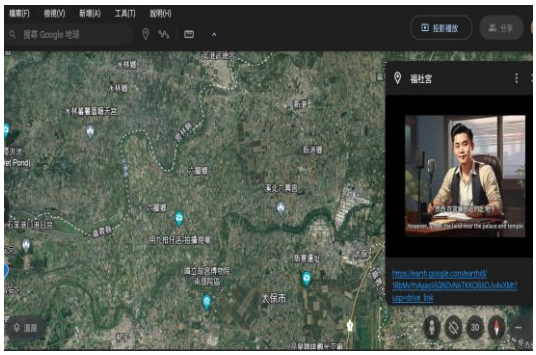
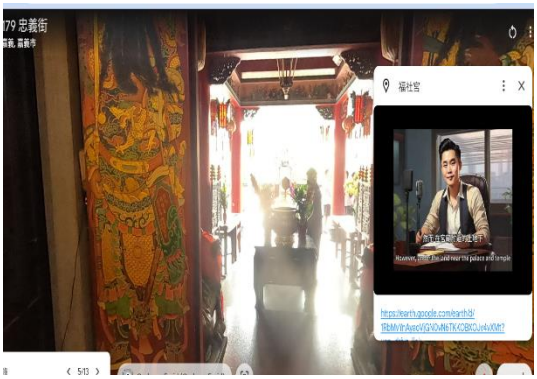
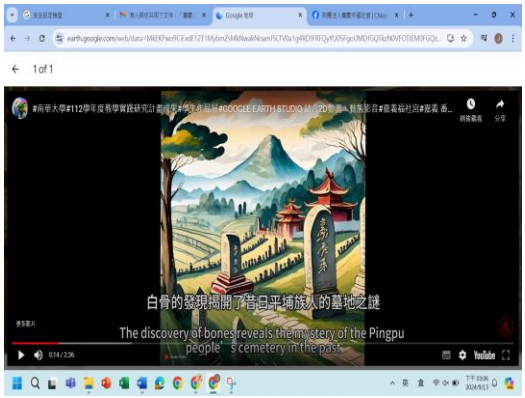


Fig.8

Back in the Google Earth menu, you can then select "Fushe Temple - The Story of the White Bones," which will present the video of Fushe Temple's legend made by the students (Fig. 9). Click on the video frame in the lower right corner to watch the video (Fig.10). Additionally, the students have taken 360-degree panoramic photos of the interior of Fushe Temple, which you can also click to view, allowing you to see Fushe Temple's 360-degree panoramic photos (Fig.11). The video playback screen is shown in Fig.12, where the characters and scenes in the video are created using AI-generated methods.

After completing the above design and steps, publishing the project to Google Earth allows people around the world to explore the Chiayi temple legends project. This integration of Google Earth with Chiayi temple legends enables a combination of Google Maps' real-world views with virtual video creations, providing a deep understanding of the history and stories of Chiayi's temples.

Fig.9	Fig.10
	
Fig.11	Fig.12
	

This chapter introduces a teaching example that combines Google Earth flight animations with temple legend videos. Through Google Earth Studio, students create flight animations and integrate temple legend stories with geographic markers, showcasing the distribution of early tribes in Taiwan and temple-related information. Students also use features like Google Street View and 360-degree panoramic photos to provide a more immersive visual experience, allowing viewers to virtually explore Fushe Temple and its legends. Ultimately, this project, which merges digital creation with real-world geography, not only enhances students' digital and cultural literacy but also enables a global audience to deeply understand the history and stories of Chiayi's temples through Google Earth.

The students' Feedback and Conclusion

The students' Feedback

After completing the course, students were asked to share their learning experiences through interviews from the following three aspects. Here is a summary of the students' feedback:

(1) Classroom Learning Insights

A. Learning New Skills: Students felt they learned how to use AI for photo editing, text generation, and synthesis, as well as becoming familiar with more convenient editing software, which enhanced their editing skills.

B. Facing Challenges: During the learning process, students encountered many difficulties due to the new concepts and tools they had to master.

C. Teacher's Guidance: Fortunately, with the teacher's meticulous guidance, students were able to

understand and learn effectively, successfully resolving the problems they encountered.

(2) Understanding of Chiayi's Regional History and Culture

A. Rich Taiwanese Traditions: Students found that Chiayi has a rich traditional Taiwanese flavor. The region has a long history, preserving ancient buildings and traditional markets that reflect the lifestyle of the past.

B. Field Investigations: During field investigations of the temples, students observed the thriving incense offerings and felt the residents' deep devotion to their beliefs.

(3) Insights on Integrating Video Creation and Google Earth

A. Effort in Video Creation: For many students, this was their first-time making videos, and they put in a lot of effort, making multiple revisions and encountering numerous setbacks. They realized that what seemed like a simple report video introduction was actually quite complex. Achieving perfection in all aspects required significant effort. The project tested their ability to work from the initial field investigation, through scriptwriting, to the final video production.

B. Time and Satisfaction: Most students felt they invested a lot of time and produced satisfying results, gaining valuable experience in the process.

C. Using Google Earth: Previously, students only knew the basic functions of Google Earth and hadn't explored its other capabilities. Through this course, they learned how to make better use of these

CONCLUSION

This course, through a digitally innovative teaching model that combines Google Earth with temple legend video creation, has not only effectively enhanced students' digital literacy and storytelling abilities but also deepened their understanding of Chiayi's regional history and religious folklore culture. The challenges and difficulties students faced during the learning process helped them grow through practical experiences, allowing them to acquire interdisciplinary skills such as AI application, video production, and Google Earth operation. The positive feedback from students indicates that this teaching design, which integrates cultural creation and digital tools, not only adds fun to learning but also enhances the practical capabilities for academic research and exploration. Ultimately, students have internalized both literary literacy and local sentiment, and they look forward to using digital tools for cultural research and creation in the future with great enthusiasm.

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