

Practice-Based Teaching Integrating Professional Education with Innovation and Entrepreneurship Education for Higher Vocational Media Majors in Low-Altitude Cultural Tourism: A Case Study of Guangzhou Huaxia Vocational College

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Abstract: As the low-altitude economy becomes more closely connected with cultural tourism, the work performed in media-related positions is changing as well. In addition to conventional training in photography and videography, video editing, and program planning, higher vocational media programs increasingly need to cover drone aerial imaging, production of short videos for cultural tourism, AI-generated content (AIGC), and platform operations. This study analyzes 54 valid questionnaires from the Film and Television Multimedia Technology program cluster at Guangzhou Huaxia Vocational College across five dimensions: integration of industry scenarios, project-based practice, integration of professional education with innovation and entrepreneurship education, college-industry collaboration, and assessment and application of outcomes. Students rated the importance of all five dimensions higher than their current level of implementation, with the largest gaps found in industry-scenario integration and college-industry collaboration. Based on these findings, the paper proposes improvements in practice content, complete project training, enterprise participation, and outcome assessment and application, with the aim of bringing authentic tasks and workplace requirements into the classroom.

Keywords: Low-altitude cultural tourism; Media majors; Professional and innovation education integration; Practice-based teaching; Vocational education

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1. Introduction

The low-altitude economy is expanding into cultural tourism, content communication, and experience-based consumption. As Liu and Xing (2025)^[1], Yin (2026)^[2], and Cheng et al. (2025)^[3] show from different perspectives, low-altitude tourism, drone aerial imaging, cultural-tourism short videos, and related forms of digital content are creating new demands for vocational education and tourism services. Media-related positions now require more than technical skills in image production and content planning. Students also need to understand real project requirements, platform operations, and how creative outcomes can be further applied. In many higher vocational media programs, however, practice-based teaching still centers on individual courses and the production of isolated works. New industry scenarios, complete project cycles, and enterprise participation are not yet fully incorporated. Against this background, this study uses questionnaire data to compare students' perceived learning needs with the current level of teaching implementation and, on that basis, discusses ways to improve practice-based teaching that integrates professional education with innovation and entrepreneurship education.

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2. New requirements of low-altitude cultural tourism for integrated practice-based teaching

2.1 Expanding practice content through low-altitude cultural-tourism scenarios

Low-altitude cultural tourism connects visual content production, cultural expression, platform communication, and project operations. Practice-based teaching in media programs therefore cannot remain limited to separate exercises in photography and videography, editing, or program planning. It also needs to introduce tasks such as drone aerial imaging, production of short videos for cultural tourism, AI-assisted creation, and communication-data analysis. Liu and Xing (2025)^[1], Yin (2026)^[2], and Cheng et al. (2025)^[3] indicate that vocational education in the low-altitude economy needs stronger alignment with emerging occupations and application scenarios, together with closer industry-education collaboration. For media programs, this does not simply mean adding more equipment or software. The more important task is to place existing professional skills in new cultural-tourism communication settings.

2.2 Embedding innovation and entrepreneurship education in the full project process

The value of integrating professional education with innovation and entrepreneurship education lies in making entrepreneurial learning part of the professional project process. When students work on authentic tasks, they can gradually develop the ability to identify needs, generate ideas, work collaboratively, and apply project outcomes. Wang and Cheng (2023)^[4] and Hu et al. (2025)^[5] both stress that this type of integration depends on the coordinated design of professional courses, practice settings, instructional support, and assessment mechanisms. Media courses are naturally project-oriented. Teaching can therefore be organized around tasks such as cultural-tourism video production or scenic-area social-media account operations. Students can move from preliminary research and proposal development to content production, platform release, and project review, allowing professional skills and innovation and entrepreneurship capabilities to develop within the same process.

3. Research design and results

3.1 Participants and questionnaire design

The participants were students in the Film and Television Multimedia Technology program cluster at Guangzhou Huaxia Vocational College. The cluster includes three majors: Film and Television Multimedia Technology, Converged Media Technology and Operations, and News Gathering, Editing and Production. An anonymous online questionnaire was distributed to 62 students, and 57 responses were returned, giving a response rate of 91.94%. Three responses were excluded because of unusually short completion times or repeated selection of the same option across consecutive items. The final sample contained 54 valid questionnaires, for a valid-response rate of 87.10%. The questionnaire also collected basic information on major, year of study, competition experience, and participation in enterprise projects.

The core scale used a five-point Likert format. For each item, students rated both how important they considered the content and the extent to which it was currently implemented in teaching, with 1 indicating a very low level and 5 a very high level. The importance rating was treated as an indicator of students' learning needs. The scale covered five dimensions: integration of industry scenarios, project-based practice, integration of professional education with innovation and entrepreneurship education, college-industry collaboration, and assessment and application of outcomes. These dimensions were used to compare students' perceived needs with the current level of implementation. The main measurement content is shown in Table 1.

Table 1. Dimensions and main measurement content of the questionnaire

Dimension	Main measurement content
Integration of industry scenarios	Extent to which new low-altitude cultural-tourism technologies and scenarios are incorporated into courses
Project-based practice	Authentic tasks, cross-course integrated projects, and teamwork

Professional-innovation integration	Integration of professional skills with creativity, market awareness, operations, and other innovation and entrepreneurship elements
College-industry collaboration	Participation of industry mentors, authentic enterprise projects, and industry standards in teaching
Assessment and application of outcomes	Process assessment, multi-source assessment, and further use of student work in competitions or projects

(Note: Continued Table 1)

3.2 Statistical methods and scale assessment

The data were analyzed with SPSS. Descriptive statistics were first calculated to obtain the mean score and the gap between perceived need and current implementation for each dimension. Cronbach's alpha was then used to assess internal consistency, while the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity were used for a preliminary assessment of the scale data. Finally, paired-samples *t* tests were conducted to compare each respondent's importance ratings with his or her ratings of current implementation.

Of the 54 respondents, 32 students (59.26%) were majoring in Film and Television Multimedia Technology, 8 (14.81%) in Converged Media Technology and Operations, and 14 (25.93%) in News Gathering, Editing and Production. The sample included 15 first-year, 29 second-year, and 10 third-year students. Eleven students had participated in professional skills competitions or innovation and entrepreneurship competitions, while nine had experience with authentic enterprise projects. Although the sample covered all three majors and all three years, Film and Television Multimedia Technology students accounted for a relatively large proportion, and the overall sample was small. The findings are therefore treated as exploratory.

The reliability results show that Cronbach's alpha ranged from 0.837 to 0.898 across the five need dimensions and from 0.758 to 0.841 across the five current-implementation dimensions, indicating acceptable internal consistency. For the need scale, the KMO value was 0.709 and Bartlett's test of sphericity yielded $\chi^2=663.66$, $df=190$, $p<0.001$. For the current-implementation scale, the KMO value was 0.616 and Bartlett's test yielded $\chi^2=500.77$, $df=190$, $p<0.001$. Overall, both sets of items showed satisfactory internal consistency. Given the small sample and the KMO value of 0.616 for the current-implementation scale, no further analysis of the scale structure was conducted. The study instead focuses on descriptive statistics and tests of differences. The results are presented in Table 2.

Table 2. Statistical results for the five dimensions

Dimension	α (need)	α (implementation)	Mean need	Mean implementation	Gap	<i>t</i> (<i>p</i>)
Integration of industry scenarios	0.881	0.841	4.41	2.92	1.49	16.54 (<0.001)
Project-based practice	0.865	0.758	4.45	3.19	1.26	13.34 (<0.001)
Professional-innovation integration	0.843	0.837	4.19	3.26	0.93	8.16 (<0.001)
College-industry collaboration	0.898	0.783	4.36	2.91	1.45	16.35 (<0.001)
Assessment and application of outcomes	0.837	0.834	4.13	2.93	1.20	12.45 (<0.001)

3.3 Survey results

3.3.1 A pronounced gap in the integration of industry scenarios

The mean need score for the integration of industry scenarios was 4.41, compared with a current-implementation mean of 2.92, producing a gap of 1.49. This was one of the largest gaps among the five dimensions. The paired-samples *t* test confirmed that the difference was statistically significant ($t=16.54$, $p<0.001$).

At the item level, students reported high demand for the production of low-altitude cultural-tourism promotional videos, drone aerial-imaging training, AI-assisted cultural-tourism content generation, and short-video operations for scenic areas or rural tourism. The corresponding mean need scores were 4.50, 4.46, 4.35, and 4.33, whereas the mean current-implementation scores were 2.98, 2.94, 2.94, and 2.81. These results show that students are strongly interested in these areas, but current course coverage remains limited.

The findings suggest that students have already begun to pay attention to new technologies and application settings associated with low-altitude cultural tourism. Photography and videography, program planning, and short-video production remain essential foundations, but they need to be connected with new contexts. Conventional camera training, for example, can be extended to aerial-shot design; program-planning exercises can be linked to content planning for scenic areas; and short-video production can be combined with the operation of cultural-tourism accounts. Such adjustments can respond to students' learning needs while strengthening the connection between professional teaching and emerging cultural-tourism practices.

3.3.2 Insufficient training in complete project cycles

The mean need score for project-based practice was 4.45, compared with a current-implementation mean of 3.19, resulting in a gap of 1.26 ($t=13.34$, $p<0.001$). At the item level, students attached particular importance to improving works on the basis of communication data, undertaking cross-course integrated projects, and analyzing authentic client needs, with mean need scores of 4.56, 4.46, and 4.41 respectively. For the integration of professional education with innovation and entrepreneurship education, the mean need score was 4.19 and the current-implementation mean was 3.26, a smaller gap of 0.93 ($t=8.16$, $p<0.001$). Compared with the other dimensions, this gap was not especially large. The more evident weakness was project-based practice, suggesting that students want greater exposure to complete project processes rather than simply producing isolated works.

Kokotsaki et al. (2016)^[6] describe project-based learning as an approach built around authentic tasks, active student participation, collaboration, and problem solving. The present survey points in the same direction. Students' expectations now extend beyond completing a single work to include needs analysis, cross-course collaboration, release and feedback, and subsequent revision. If a course continues to assess mainly the final video or finished product, the early stages of project analysis and the later stages of operation and revision can easily be neglected. This also weakens the connection between professional skills and students' capacity for innovation.

3.3.3 College-industry collaboration and further application of outcomes need strengthening

The mean need score for college-industry collaboration was 4.36, while the current-implementation mean was 2.91, giving a gap of 1.45 ($t=16.35$, $p<0.001$). Students showed particularly strong demand for industry mentors to participate in project guidance, with a mean need score of 4.43 compared with a current-implementation mean of 2.89. The mean need score for bringing authentic enterprise projects into the classroom was 4.31, whereas the current-implementation mean was only 2.80. A gap was also found in assessment and application of outcomes: the mean need score was 4.13, the current-implementation mean was 2.93, and the difference was 1.20 ($t=12.45$, $p<0.001$).

The survey indicates that enterprise resources still enter the classroom only to a limited extent. Students have relatively few opportunities to work with authentic projects, enterprise requirements, and workplace feedback during their studies. After course projects are completed, many outcomes remain class assignments or competition entries. For meaningful integration of professional and innovation and entrepreneurship education, adding

entrepreneurship-related content to the syllabus is not enough. Enterprise projects, industry requirements, and the subsequent use of student work also need to become part of practice-based teaching.

4.Improvement pathways based on the survey findings

4.1 Updating practice content for low-altitude cultural tourism

Because the gap in industry-scenario integration is relatively large, the first priority is to update practice content. Media programs can retain foundational training in photography and videography, program planning, and post-production while incorporating drone aerial imaging, cultural-tourism short videos, AI-assisted creation, and communication-data analysis into relevant courses. It is not necessary to create a separate module for every new technology. A single cultural-tourism project can provide the context for several adjustments. Photography and videography courses can add aerial-shot design, program-planning courses can include cultural-tourism content planning, and converged-media courses can introduce scenic-area account operations and communication-data analysis.

Course content should also reflect students' existing skill levels. Junior students can begin with basic exercises in shot making, video editing, and copywriting. Once they have a firmer technical foundation, more integrated projects and authentic tasks can be introduced gradually. This progression can reduce unnecessary learning difficulty and also gives teachers greater flexibility to arrange practice according to the characteristics of different years and courses.

4.2 Increasing training in complete projects

The findings on project-based practice show that students need to experience a complete project cycle. Programs can build a project bank around tasks such as low-altitude cultural-tourism promotional videos, short-video operations for scenic areas, and rural cultural-tourism communication. Each project should specify its background, target audience, expected deliverables, schedule, and assessment requirements without prescribing a fixed solution. Students should conduct their own research, identify needs, plan content, shoot and produce the work, publish it, and review the results.

Project teams can divide responsibilities across planning, directing, aerial imaging, camera work, post-production, and operations. Teachers should provide guidance at key stages such as topic selection, proposal development, shooting, final production, and release rather than waiting until the work is finished to assign a grade. Pittaway and Cope (2007)^[7] emphasize action, authentic contexts, collaboration, and reflection in experiential entrepreneurial learning. Media projects can make use of these features by placing innovative thinking and operational awareness inside the production process itself. In this setting, innovation and entrepreneurship education should not be treated as an extra component detached from professional teaching. Students should not only shoot and edit; they should also analyze needs, develop creative ideas, consider communication and operations, and explore how the outcome can be used after completion. Authentic projects can thus connect professional skill development with innovation, market awareness, and operational competence.

Complete projects also benefit from coordination across courses. A program can select a limited number of integrated tasks and assign different stages of the same project to different courses. This reduces repeated production and helps students understand how planning, production, and communication are connected. Projects involving drone flights must also comply with the Interim Regulations on the Administration of Unmanned Aircraft Flights issued by the State Council and the Central Military Commission (2023)^[8], including requirements relating to real-name registration, flight areas, operators, and flight activities. Training should be arranged according to the school's equipment, staff expertise, and available sites. Where actual flight practice is not feasible, students can begin with aerial-footage analysis, shot design, and virtual simulation.

4.3 Increasing enterprise participation in low-altitude cultural-tourism teaching

The results for college-industry collaboration show strong student demand for authentic enterprise projects and industry mentors. When selecting partners, media programs can extend cooperation toward businesses connected with low-altitude cultural tourism, giving priority to local scenic areas, low-altitude flight camps, drone-application companies, and cultural-tourism new-media operators. Authentic needs such as aerial promotion for scenic areas, rural cultural-tourism short videos, and promotion of low-altitude tourism projects can then be converted into course tasks. Enterprises should do more than supply a project brief. They can also participate in topic selection, review shooting plans, and evaluate the final work, enabling students to understand workplace expectations for content quality, aerial-imaging standards, and communication effectiveness.

Industry mentors should be selected according to the project. Drone aerial-imaging tasks can involve practitioners with relevant operating competence or project experience. Short-video and scenic-area account projects can bring in professionals with new-media operations experience, while AI projects can be designed around actual enterprise use cases. Higher vocational colleges, especially private institutions, do not need to build a large number of new training platforms solely for low-altitude cultural tourism. A more realistic approach is to begin with existing school-enterprise resources and local cultural-tourism projects, and then add equipment, cases, and mentors as the number of projects and student demand increase.

4.4 Improving project assessment and the application of outcomes

Assessment of low-altitude cultural-tourism projects should not focus only on the final video or finished product. Different tasks require different process indicators. Drone aerial-imaging projects can assess compliance in flight and shooting, the design of aerial shots, and the continuity between aerial and ground footage. Cultural-tourism short-video projects can evaluate content and audiovisual quality while also using views, interactions, and other platform data to examine communication effectiveness after release. When AI is used to support creation, assessment should consider whether the generated material serves the cultural-tourism theme and whether students have made the necessary revisions and integration. These indicators can bring the real project process and occupational requirements of low-altitude cultural tourism into course assessment.

Course outcomes can also be used beyond the classroom when their quality is sufficient. Well-produced aerial videos, scenic-area short videos, and cultural-tourism promotion plans can be further connected with local scenic-area promotion, rural cultural-tourism communication, or enterprise projects. Innovative works can be developed for professional skills competitions or innovation and entrepreneurship projects. For work that has already been published, enterprise comments, user feedback, and communication data can be brought back into class for review, allowing students to revise their work in response to real feedback. This extends the useful life of course outcomes and makes their further application part of project-based learning itself.

5. Conclusion

Using 54 valid questionnaires from the Film and Television Multimedia Technology program cluster at Guangzhou Huaxia Vocational College, this study examined students' needs for practice-based teaching in the context of low-altitude cultural tourism. Across all five dimensions, perceived need was higher than current implementation. The most pronounced gaps appeared in the integration of industry scenarios and college-industry collaboration, while project-based practice and the assessment and application of outcomes also showed clear room for improvement. By contrast, the gap in the integration of professional education with innovation and entrepreneurship education was smaller. The findings suggest that the central issue is not simply whether more innovation and entrepreneurship content should be added. More attention is needed to bringing new low-altitude cultural-tourism scenarios, complete project cycles, authentic enterprise projects, and industry requirements into the classroom.

In response to the main issues identified in the survey, this paper proposes improvements in four areas: practice

content, complete project training, enterprise participation, and project assessment and outcome application. These measures focus on current weaknesses and are intended to help students complete a fuller cycle of planning, production, release, feedback, and revision through relatively authentic cultural-tourism communication tasks. The study also has limitations. The sample is small and comes from only one college, so the findings should be interpreted as exploratory rather than broadly representative. Future research can expand the sample to additional institutions and compare students across majors, years of study, and levels of project experience.

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