Research on the Efficient Production Process of Practice-oriented Micro-courses - Taking *Field Survival* as an Example

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Abstract: Field survival courses are one of the key courses to improve the survival skills of the military on the battlefield. Practical micro-courses can provide more diversified learning opportunities and help students engage in course learning during the preview and review stages, enhancing the effectiveness of course learning. However, as a new thing, many teachers make mistakes in the production process, resulting in a decline in production efficiency. This article continuously summarizes the experience in the recording process of the "Field Survival" micro-course and condenses it into an efficient production process that can guide the production of practical military practice-oriented micro-courses.

1. Introduction

From the development of the conflict between Russia and Ukraine, the establishment of an artificial intelligence-based reconnaissance network and the popularization of close-range reconnaissance and attack drones are profoundly changing the combat style of future battlefields. The large-scale advance of traditional armored forces will become history, and high mobility, high concealment, and high dispersion edge combat by small teams will become a new tactical style. This poses new requirements for the field survival ability of small combat teams. Military of China has always had a strong ability to survive in the wilderness, but in the past, the soldiers mainly came from rural areas and had strong self-survival ability. However, now the main source of soldiers in the military is urban soldiers, and rural soldiers also lack experience in natural environmental living. The generation of military strategic capabilities requires that the troops must have the ability to operate and survive in high cold mountains, islands, jungles, and deserts. Therefore, it is essential to popularize correct field survival knowledge and skills to frontline officers and soldiers in a scientific, systematic, and efficient manner.

Practice-oriented micro-course production is a small teaching video created through the combination of multimedia technologies such as video, audio, images, and interactive elements[1-3]. Its purpose is to help students have a more intuitive and in-depth understanding and mastery of the course content[4]. However, many teachers have a lack of experience and are unfamiliar with hardware performance, which leads to a decline in efficiency during the production of micro-courses[5-7]. This article summarizes the experience and practices in the production of "Field Survival" and proposes an efficient production process that can be used to guide the recording of field survival micro-courses, as well as other practice-oriented micro-courses.

2. The reasons of using micro-lessons in practical courses

2.1. Offering Diverse and Strongly Interactive Learning Opportunities

Micro-lessons can utilize various media elements and interactive tools, sparking students' interest in course content and encouraging active participation in learning. The multimedia presentation of course content creates a more engaging and appealing learning environment, promoting students' enthusiasm and participation. Micro-lessons can provide various forms of interaction, such as quizzes, discussions, and social sharing, promoting communication and interaction between teachers and students, and enhancing learning outcomes[8].

2.2. Emphasizing Practice and Application

Micro-lessons for practical courses can convert abstract concepts from textbooks into concrete instances, aiding students in gaining a better understanding and application of the knowledge learned.

2.3. Facilitating Flexible and Autonomous Learning

Students can engage in learning anytime and anywhere based on their learning pace, interest, and personal time and space constraints through micro-lessons, and can review relevant content when necessary.

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2.4. Achieving Personalized Learning

Teachers can create micro-lessons according to students' needs and abilities, providing personalized learning resources and feedback to meet the learning needs of different students. Teachers and students can use the tools and platforms of micro-lesson production to create personalized, innovative, and creatively rich learning resources[9].

2.5. Enhancing the Rhythm of Learning

Micro-lessons employ fragment learning, decomposing complicated content into smaller parts, aiding students in absorbing and comprehending knowledge better, avoiding fatigue from prolonged exposure to new knowledge, and attaining a more reasonable learning rhythm.

2.6. Combining Theory with Practice

Micro-lessons in practice-oriented courses like field survival help students apply theoretical knowledge to practice, improving their skill operation level[10].

2.7. Immediate Feedback and Assessment

Teachers can provide prompt feedback and assessment to students based on their homework and test results. Furthermore, students can view their progress through micro-lessons, improving learning outcomes.

In practical course teaching, micro-lessons demonstrate their application advantages by providing lively and practical teaching content, enhancing students' practical skills and the integration of theoretical knowledge, thus improving students' learning outcomes.

3. Streamlined Production Process

The creation of micro-lessons for field survival practice follows the workflow shown in Figure 1. All materials used are based on real-time videos that align with the teaching content. The key steps of the creation process are explained below.

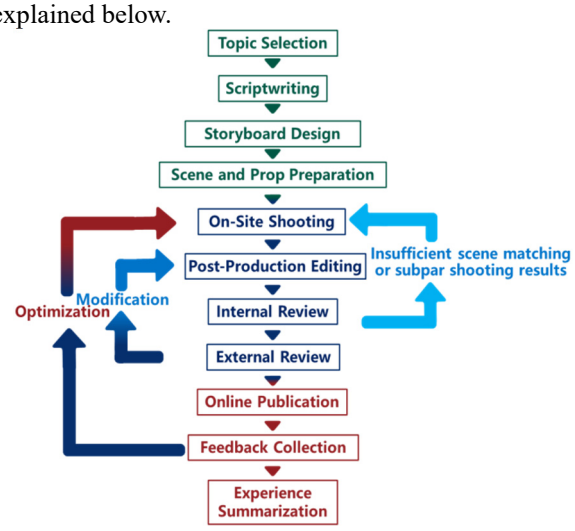

Figure.1 The workflow of Production Process for Micro-lessons

3.1. Topic selection

Firstly, the micro-lesson topic is determined based on the needs of the military and the teaching requirements. Ensuring that the micro-lesson content can complement offline classroom teaching or guide practical training for the military. For example, while cooking outdoors may seem simple, it is an essential skill for long-term survival in a wilderness situation. In this series of micro-lessons, topics such as fire ignition, food handling, and cooking are selected, with food handling focusing on processing techniques for birds, fish, snakes, and other specific items, and fire ignition emphasizing the technique of using friction to start a fire.

3.2. Script writing

The teaching segments are designed, typically including an introduction, questions, theoretical prompts, and on-site demonstrations. A meticulously drafted verbatim script is created based on practical experience, and expert reviewers are invited for assessment.

3.3. Storyboard design

Scenes for different teaching segments are planned and designed. Various camera positions such as long shots, medium shots, close-ups, extreme close-ups, and handheld follow shots are chosen in accordance with the teaching requirements of the military, alongside appropriate transition techniques.

3.4. Set and prop preparation

Once the filming of military practice courses begins, any shortage of equipment or inadequate set-up will seriously affect the progress of filming. Therefore, it is crucial to meticulously plan the required locations and equipment in advance, and ensure all necessary items and scenes are adequately prepared, according to the checklist, ensuring smooth production.

3.5. On-site shooting

Selecting the appropriate time and ensuring proper personal appearance and mental state are crucial for filming. It is recommended to first record the script, with the instructor appearing in all shots as a precaution against any later equipment shortages. Each shot is captured strictly based on the storyboard and script, ensuring all dialogues have suitable and visually compatible footage. Whenever possible, multiple camera angles are utilized for filming, providing options for post-production selections.

3.6. Post-production editing

The course content should have a consistent opening and closing, uniform subtitle format, name tags, precise footage matching, and synchronized subtitles and recorded audio. Typos or misspellings should be avoided.

3.7. Internal review

An internal review is conducted within the course production team, allowing for feedback and suggestions. Any footage that does not sufficiently match or has poor shooting effects is re-captured, and adjustments are made based on editing issues.

3.8. Public online release

The video is uploaded according to website requirements. Some websites may request the video and subtitles to be uploaded separately, while others may compress the video if it does not meet the clarity requirements. It is advisable to process the video in advance according to the website's specifications to avoid significant quality loss caused by compression by the website.

3.9. Collect feedback

Uploading the video does not mean it is a final product. Actively collecting feedback from students is necessary. Feedback can be gathered through comments below the video or through assessing students' grasp of the content in the classroom. It is best to establish a regular scheduling mechanism where instructors are assigned to answer questions and collect and organize feedback at designated intervals. Only continuous high-quality operation can ensure the stable growth of the video.

4. Unique advantages of Efficient process

There are several reasons why it is important to follow an efficient process for creating micro-lessons.

4.1. Improve production efficiency

Following an efficient process helps the production team to better organize and manage the creation process. Clearly defined workflows and task assignments can eliminate redundant work and repetitive tasks, saving time and resources, and increasing production efficiency.

4.2. Ensure teaching quality

By adhering to an efficient process, it becomes easier to maintain consistency in teaching quality. Standardized operational procedures and instructional requirements can enhance the accuracy and reliability of teaching, ensuring the quality and effectiveness of micro-lesson content.

4.3. Achieve teaching objectives

An efficient process helps the production team to better understand and align with teaching objectives and requirements, ensuring that the micro-lesson content aligns with the intended goals. Through well-defined production workflows, the team can review and assess the achievement of teaching objectives at each step, allowing for timely adjustments and improvements to the micro-lesson content, thus achieving the desired teaching outcomes.

4.4. Enhance teamwork effectiveness

Following an efficient process promotes collaboration and teamwork within the production team. Clear task assignments and communication channels improve collaboration efficiency among team members. By working in an orderly manner according to the production process, team members can share information, provide timely feedback, and enhance overall team coordination.

4.5. Reduce production risks

An efficient process helps to mitigate risks and errors in the production process. Establishing clear workflows and standards enables the team to identify and rectify issues during production, preventing instructional errors or inaccuracies, and reducing production risks.

In summary, adhering to an efficient process for creating micro-lessons improves production efficiency, ensures teaching quality, achieves teaching objectives, enhances teamwork effectiveness, and reduces production risks. These factors contribute to the quality and effectiveness of micro-lessons, enhancing student learning outcomes and interest, and driving educational reform and development.

5. Conclusion

The production of practical micro-lessons brings great potential and opportunities for educational reform. It can provide students with personalized, diverse, and interactive learning experiences, enhance learning outcomes and interest, stimulate creativity in teachers and students, provide flexibility and convenience, and strengthen interaction between teachers and students. However, with technological advancements, the production of micro-lessons also faces challenges such as technical requirements, quality control, and low production efficiency. Therefore, educational institutions and educators need to actively address these issues, fully leverage the advantages of practical micro-lessons, and further promote the development of educational reform.

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