

# Thinking on the Problems in Design and Application of Micro-Lecture

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**Abstract**—There are dozens of definitions regarding micro-lecture, yet people have not decided which one is right according to its characteristics, applications and other issues. By analyzing more than 50 entries for competition of undergraduate and vocational colleges as well as primary and middle school teachers (combining all points of view and problems in the application of information-based teaching), the author elaborated on the characteristics, design and production of micro-lecture, elements of good micro-lectures, current problems to be overcome, and the development trend.

**Keywords**—micro-lecture; design and production; micro-lecture design; micro-lecture production

## I. INTRODUCTION

Since 2012, micro-lecture has been highly valued by the Ministry of Education, provincial and municipal levels of education administration departments, competitions of various sizes have been held; hastened by the construction of some platforms as well as teaching resource enterprises, “plebification” of filming and production technology exerts in hardware and software unceasingly; micro-lecture network, five minutes course network of The Open University of China, organization and development of micro-lecture resources in various regions; many schools actively promote practice and exploration of micro-lecture and innovative teaching mode, and actively participate in the production competition of various types of micro-lectures; seminars and academic conferences regarding the design, development and application of micro-lecture emerge in endlessly... many factors are prompting the growing abundance of micro-lecture resources, the degree of serialization are ever-increasing.

Despite the design, development and application of micro-lecture have made some progress, but people have not decided which one is right among the comprehension applications and other issues of micro-lecture. By analyzing more than 50 entries for competition of undergraduate and vocational colleges as well as primary and middle school teachers, combined with all points of view and problems in the application of information-based teaching, the author elaborated the characteristics, elements and problems of micro-lectures, we aim to attract valuable opinions and make a contribution to the development of micro-lecture in

education sector.

## II. CHARACTERISTICS OF MICRO-LECTURE

There are dozens of definitions regarding micro-lecture at home and abroad, and there are three versions that are frequently discussed or recognized in the educational field. One is Hu Tiesheng’s statement, he believes that “micro-lecture is an organic combination of a variety of teaching resources which is in accordance with curriculum standards and requirements of teaching practice, taking teaching video as the main carrier, reflecting teaching and learning activities carried out by teachers against a knowledge point or teaching link during classroom teaching process. The second is the Ministry of Education’s statement in the notice of national college micro-lecture teaching competition that “a short and complete teaching activity taking video as the main carrier, recording a knowledge point or teaching link elaborated by teacher”. The third version is advocated by Mr. Jiao Jianli: micro-lecture is an online teaching video that aims to interpret a certain knowledge point, taking the form of short and terse online video, and for the purposes of learning or teaching. As can be seen, Hu Tiesheng emphasizes “teaching resources” of micro-lecture, Higher Education Institutions Teacher Online Training Center of the Ministry of Education stresses that micro-lecture is a “complete teaching activity”, while Jiao Jianli emphasizes “application” of micro-lecture, although the three emphases are different, but the key elements of micro-lecture are given from different angles [1].

By analyzing the entries for competition, the following distinctive characteristics of micro-lecture can be summarized. Firstly, teaching videos are short works provided by colleges and universities and are generally 10-20 minutes. Art-oriented micro-lectures are generally longer than science and engineering-oriented ones, and micro-lectures for primary and secondary schools are generally 5-8 minutes. This difference results from different cognitive rules of people, the length of video depends on the effective attention span of learners; secondly, resource capacity is limited, micro-lecture videos are generally about dozens of megabytes, course capacity is small and time is short, video format adopts streaming media formats (such as rm, wmv, flv, etc.) that support network online play, transmission modes adopt network, microblog, mobile WeChat, etc that are convenient for students. It helps one realize mobile

learning, fragmented learning, and “ubiquitous learning”. It also facilitates teachers’ observation, evaluation, reflection and research. Thirdly, the teaching content of micro-lecture focuses on a prominent theme of teaching which is more simplified, aiming to solve a key point, difficult point or doubtful point in teaching. It reflects the teaching and learning activities of a classroom teaching link. Each micro-lecture has a clear theme. Fourthly, resources constitute a “scenario” by integrating material, courseware, teaching reflection, student feedback and relevant teaching resources with teaching video clips, micro-lecture forms a real micro environment of teaching resources. Teachers may design in advance while adjusting these resources, making it suitable for video teaching. Teachers and students can easily grasp implicit knowledge and tacit knowledge in the scenario of teaching and learning, and achieve imitation and promotion of teaching concepts and skills, so as to enhance teaching level and improve academic level of students. Fifthly, micro-lecture belongs to grassroots research and creation out of interest, every teacher can be a creator of micro-lecture, however for the pursuance of better competition results, there is no lack of works of high quality, but viewing from operability, works produced by simple technique have stronger vitality.

### III. DESIGN OF MICRO-LECTURE

Taking Shandong Jiaotong University’s competition works “interview etiquette under a refined perspective” as an example to analyze the resources constitution of a micro-lecture. This works totals 10 minutes, recording the interview process of a beautiful girl in the mode of “reality show”. Then, teachers review it from a refined perspective combined with the complete actual performance of the student during the actual interview: The student’s proper performance in dressing, sitting, punctuality, etc was fully affirmed, especially her adjustment of deportment by using the front bathroom mirror before she entered the meeting room was commended. But there are some details that fall short of refinement and need to be noticed: the placement of phone, wearing of watch, copies of resume, wandering of eyes, lack of self-confidence, etc. Within 10 minutes of micro-lecture, students who are about to enter workplace have a more profound and clear understanding of interview etiquette.

#### A. Core resources of Micro-Lecture

Combined with other micro-lecture works, we can see the resources constitution of micro-lecture. First is teaching video resources, what micro-lecture finally shows are short video resources. Second is teaching design, although video does not reflect specific teaching copywriting, but the theme is clear: interview etiquette under a refined perspective; the teaching objective is clear: promote students’ interview etiquette standards, enhance employment competitiveness, practical skills of refined etiquette; teaching contents: reality show, interpretation of “refined etiquette” by teachers combined with cases; natural replacement of teaching environment: entrance, dormitory, interview room, teaching office; seen from the teaching process: encountering

beautiful schoolgirl, dormitory dress changing, makeup, mental state before the interview, video snapshots of students before and during the interview (wandering of eyes, phone placed on the desktop, few copies of resume, etc.), which make a good bedding for the following reviews by teacher; teacher then expands case studies and elaborate knowledge points; and finally a finishing touch, summarizing and presenting contents of the next class. Although people do not see the copywriting of teaching design, the elaborate teaching design can be reflected from beginning to end of the video. Thirdly, core resources namely teaching courseware--PPT in class, the recording of classroom instructing videos basically need the support of courseware [2].

The three items above are the core resources of micro-lecture, in addition there are exercises and tests, student feedback, teacher reviews and other resources but are all reflected in the form of video.

#### B. Production of Micro-Lecture

“Micro-lecture production, design goes first”. The production of micro-lecture is a technique while design of micro-lecture is art. The design and production are mainly divided into several links. First is the selection of teaching themes. Not all themes are suitable for micro-lecture. There must be teaching case resources that are suitable for video display, besides, teachers and students are easy to master tacit knowledge in a real, concrete and typical case scenario. Teaching process by proof and theoretical deduction theories that are too abstract are not suitable for micro-lecture. Generally the issues should be solvable, very familiar and interested to teachers. Knowledge points that need to be refined by micro-lecture. Teaching plans, scenarios, characters, tests, exercises, feedback, evaluation and analysis, and other materials that are designed and prepared; production of teaching courseware, the most common one is PPT because the lens will focus on PPT screen when teacher explains the knowledge point. A PPT’s design should be as simplified as possible with pictures instead of tedious text, which will be like reading a manuscript, and the effect is not good; write shooting / editing script, common methods are shot by digital devices, recorded by screen recording software, multimedia software production, mixed production mode, but the final output format is video Mp4 format, suitable for using on the network. Shooting or recording, post-editing and optimization of video, adding titles, credits, subtitles, clips, etc. to video, the survey found that 52% of teachers think post-editing and processing technology of micro-lecture video is difficult because schools should provide a variety of micro video production training. Screen recording software, PPT courseware and video editing software that are easy to use need to be selected, reducing technical barriers is also a trend. The last link is the implementation of applications of teaching activities.

Affected by competitions in recent years, many teachers focus on technical performance. Some experts have an orientation of “form greater than content” during evaluation process, hence some works get low scores due to deficient technical performance despite of their good contents. Thus, seen as a whole the current shooting and recording costs are

high. "The swallows from distinguished families fly into commoners' courtyards", from the perspective of handleability and teaching application, phone video recording, screen recording and other production methods will increasingly be recognized.

#### IV. COMPREHENSION OF "GOOD MICRO-LECTURE"

In the author's opinion, resources of a good micro-lecture should have three elements: content, expression and technique. If a micro-lecture is only "short" in time or "micro" in content, it can not be called a "micro-lecture". School level will not allow Zhang Yimou to direct a ten-minute micro video with hundreds of millions of production costs. During the competition, some schools invited professional companies spent a lot of time and money to produce micro-lectures. Though elegant, graceful and exquisite, it lacks operability and reliability in actual teaching links.

The significance of micro-lecture lies in that it adapts to the fast pace of life in the Internet age and people's needs of knowledge fragmentation, time fragmentation and learning fragmentation. Therefore, its production, distribution and update should be fragmented and fast-paced. If you let a teacher to spend an excessive amount of time and energy to make a ten-minute micro-lecture, the loss obviously outweighs gain. Because we can not guarantee that vast audience, high value and far-reaching significance of a micro-lecture, from the financial point of view, we do not have better marketing tools to ensure its corresponding benefits.

Teachers shall devote more energy to teaching, thinking and scientific research. One might be a master in his own special field. Technology production shall be in the charge of special personnel, and it is not necessary for teachers to spend more energy. Deputy director of Sun Yat-Sen University Modern Educational Technology Institute, Wang Zhuli proposes three standards of a "famous" revolutionary technology. Compared to previous technology, breakthrough advantages exist, which can solve bottleneck problems in educational teaching, easy to learn and to use. So does micro-lecture. The author believes that a good micro-lecture shall include three aspects: simple technology+ rich contents and clear expression. These three points are enough. Simple technology means that teachers only need to devote little energy, rich contents means that more and more valuable key points, difficulties or teaching activities are shown to students, clear expression means that it is easier for educatees to accept the knowledge. Commercial micro-lecture of enterprise is another matter.

Micro-lecture focuses on contents but not technology; "matching exactly" of teaching process shall not be deliberately pursued. In competition works, we can see the difference between universities and vocational colleges. Through comparison, it is shown that universities emphasize on contents. Some universities adopt simple classroom shooting and only uses a courseware to state the context surrounding the topic clearly. There is no classroom interaction as well as final evaluation and other links.

However, vocational colleges pay more attention to preciseness and entirety of teaching activities, for the knowledge which can be extracted and generalized in two sentences, the teacher designs several students' questioning and answering, which quite shows deliberateness and stiffness. Another standard of micro-lecture lies in effectiveness of information transfer. The author believes that gorgeous style and comprehensive link and process are all floating clouds [3].

#### V. PROBLEMS TO BE SOLVED TO PROMOTE MICRO-LECTURE

In the promotion process of micro-lecture, currently several problems shall be overcome urgently. Firstly, difficult in production, editing process technical level is larger, such as opening, ending, picture effect, subtitle display, etc. Even if the micro-lecture is produced by PowerPoint 2010, teachers whose IT basis is weak need guidance and assistance. Secondly, micro-lecture is a brand new resource construction mode and teaching application model. Teachers shall devote considerable energy. The school shall build a reliable evaluation system. Certain account shall be taken during teacher assessment, academic title evaluation, bonus, policy support, education reform and topic project approval. Thirdly, when application in teaching is not enough, micro-lecture is only applied in competition in many vocational colleges, confined to teachers' understanding and mastering for this information teaching means. Although from development view, first teachers' understanding and mastering and then students' understanding and mastering is also a step-by-step process, students are the end-users of micro-lecture. This process shall be compressed as far as possible, and the embarrassment of "micro-lecture is only for competition but not for use, is only built but not used" shall be broken as soon as possible to realize support for normal teaching. Fourthly, technology is only a means. Teaching application is the essence. From form to contents, design production of micro-lecture shall be continuously deepened to break up the strange phenomenon of "form is greater than contents". Fifthly, micro-lecture production has not yet break through traditional course development mode. Patterns of manifestation are mainly classroom shooting and teachers teaching, form is relatively dull, problems such imperfect supporting of teaching resources, absence of interactivity, absence of learning diagnosis and record function still exist; sixthly, evaluation standard research of micro-lecture is deficient, some trial standards are set in some provinces, but technology is placed extra emphasis on, teachers will know what to do when they see these standards, it is likely these standards are more suitable for professional production personnel[4].

#### VI. SUGGESTIONS FOR MICRO-LECTURE DEVELOPMENT

We don't have to wait for the future. Now we can see widespread application of micro-lecture. Application of micro-lecture on the internet is satisfactory. Various micro-lecture websites spring up one after another. Contents of micro-lecture are not only confined to disciplinary

knowledge, but more is transferred to practical and skill-oriented direction, widely applied in informal learning and non-academic education field. However, during promotion of micro-lecture development, there are the following suggestions:

Different in approach but equally satisfactory in result with information construction, promotion of micro-lecture also shall “promote construction through application”. Teaching application practice of micro-lecture resources is fundamental. As a new learning concept, micro-lecture shall be actively provided with rich resources in mobile learning and ubiquitous learning. Orderly development of micro-lecture construction shall be led through teaching demand and application practice. Be sure not to stick to the old path: “focusing on construction, neglecting application and without studying”. Secondly, curriculum, topic subject and serialization of micro-lecture shall be paid attention to, which is taken as guide for development. A batch of special fine micro-lecture is formed as soon as possible and demonstrated and extended to facilitate teachers and students. Thirdly, a suitable platform shall be selected, if the produced micro-lecture expects to realize online sharing, for current common teachers. The technical bottleneck of restricting micro-lecture platform does not exist; a media platform can be set up. Micro-lectures can be shared to students’ QQ-zone and WeChat and other we media. It can also be used as one video teaching resource or directly put on current network teaching platform in the school; in the worst case, the school does not possess network environment, micro-lecture resources can be transferred to classroom with USB. At present, it is suggested that micro-lecture resources should be put on mature network-assisted teaching platform, the school should not purchase separate platform. Fourthly, evaluation mechanism of micro-lecture will be more diversified; there shall be evaluation experience of students in learning process [5].

## VII. CONCLUSION

In future, along with mature production technology and lower threshold, teachers’ enthusiasm in micro-lecture design development and application will be continuously increased. Motivation will be transferred to application from competition. New patterns of resource construction for cooperation of teacher, school and enterprise is continuously formed. Teaching model innovation is the fundamental component of micro-lectures. Focus in each place will be transferred to co-construction and sharing mechanism of micro-lecture from organization competition and to teaching design and creativity from technology and form. Expression form is transferred to diversification from classroom record. We believe that more and more front-line teachers will shift to active participation army from sitting on the sidelines.

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