

PAPER • OPEN ACCESS

## Developing Micro-Teaching Video As Learning Media In Automotive Teacher Education

To cite this article: Herminarto Sofyan *et al* 2019 *J. Phys.: Conf. Ser.* **1273** 012059

View the [article online](#) for updates and enhancements.



**IOP | ebooks™**

Bringing together innovative digital publishing with leading authors from the global scientific community.

Start exploring the collection—download the first chapter of every title for free.

# Developing Micro-Teaching Video As Learning Media In Automotive Teacher Education

**Herminarto Sofyan, Tawarjono Us, Muhkamad Wakid, Bambang Sulisty**

E-mail : [hermin@uny.ac.id](mailto:hermin@uny.ac.id)

**Abstract.** The purpose of this research were: (1) to produce an appropriate micro-teaching video for the student teachers of Teacher Professionalism Training Program of Automotive Engineering Education, (2) to find out their responses to the micro-teaching video, and (3) to find out the effectiveness of the micro-teaching video in teaching the students. This research employed ADDIE model consisting of five stages namely analysis, design, development, implementation and evaluation. The product of this research was validated by the experts of media and materials in automotive engineering field. The product was tested on the students of Teacher Professionalism Training Program of Automotive Engineering Education Department. The research data were collected using questionnaire and observation sheet, and were analyzed through quantitative descriptive analysis. The results showed that: (1) micro-teaching video as learning media was classified into 'very good' level with the mean score 4.89 by the media expert, and also categorized into 'very good' with the mean score 4.67 by the materials expert, (2) the student teachers' responses to the video during the try-out were classified into 'very good' level with the mean score 4.20, and (3) micro-teaching video as learning media was assumed to effectively improve the student teachers' teaching skills. There was a significant improvement on the student teachers' practice score, from 77.26 in the first practice to 83.59 in the second practice. In conclusion, micro-teaching video is an appropriate and effective learning medium for student teachers in Teacher Professionalism Training Program.

**Keywords:** media, video, micro-teaching

## 1. Introduction

Teacher Professionalism Training Program is a mean to prepare graduate students to hone their aptitude and interest to be professional teachers. It is expected that after finishing this program, they can fully master teacher's competences as stated in *Standar Nasional Pendidikan* to get the professional teaching certificate. In this program, most of the activities consist of workshop, teaching kits development, and micro-teaching. These activities are assumed to be the keys to reach teachers' professionalism duties namely educating, teaching, guiding, facilitating, training, assessing and evaluating students. Additionally, the rationale behind those activities is to make student teachers of Teacher Professionalism Training Program experience a real situation of a proper teaching practice in a certain time allocation.

In accordance with *Permen Ristekdikti* Number 55 Year 2017 about teacher standard, it is mentioned that teaching practice is conducted in the form of micro-teaching in which the activities include: planning under the instructor's guidance, conducting teaching process in the laboratory, giving evaluation and feedback, and giving enrichment/remedial. Currently, there are no technical instruction and micro-teaching sample available for automotive engineering education. The sample is needed to



give a direction on how effective and efficient micro-teaching model should be like. Another reason is that if the micro teaching is not optimally conducted, the teacher professionalism training program will possibly result in failure in training and producing professional teachers. Therefore, the above elaborated problem should be overcome by a precise solution in order to keep the program successfully training and producing professional teachers as the end products.

Regarding the previous discussion, the problems in this research can be formulated as (1) what kind of micro-teaching video that is appropriate for automotive engineering education; (2) how the student teachers of teacher professionalism training program respond to the developed video; and (3) how effective the micro-teaching video is. Furthermore, based on the formulated problems, the objectives of this research are: (1) to develop a micro-teaching video containing the proper model of teaching practices in automotive engineering field, (2) to find out the student teachers' responses to the use of micro-teaching video as their learning media, and (3) to find out the effectiveness of the developed video as learning media in automotive engineering education.

Teaching has a goal to help students learn. The teacher's duties are to prepare and plan the students' learning experience, to guide them to get through the planned learning experience so they can enhance their skills or ideas about the learned materials (Leighbody, 1968). Micro-teaching is one of the models of teaching or training practices. In the real context, teaching can consist of many actions, including the technical materials delivery, the use of methods, the use of media, learning guidance, motivation support, classroom management, assessment, and so forth. In other words, teaching is a very complex action. In consequence, to have and master the basic teaching skills, the student teachers should learn part by part. It means that each component of the skills should be learned separately and independently. That kind of learning process focusing on the basic teaching skills separately is what is meant by micro-teaching.

Cooper & Allen (1971) and Mohan (2007) define micro-teaching as teaching situation made up in limited time and with few number of students, between 5 until 20 minutes with 3 up to 10 students, and followed by assessment or feedback given by supervisor or lecturer. Karckay and Sanli (2009) state that micro-teaching is a technique which can be used for various professional development. Micro-teaching is aimed at developing teaching skills. As specified by Steiner et al (2009), there are several steps in conducting micro-teaching such as: (a) preparation, (b) presentation, (c) video watching, (d) discussion and analysis, and (e) feedback. Moreover, Kumar (2008) states six stages of conducting micro teaching which are: (1) planning, (2) teaching, (3) giving feedback, (4) revising the plan based on the feedback, (5) teaching, and (6) giving feedback.

Based on the explanations above, it can be concluded that micro-teaching is one of the teaching and training practice models conducted within a limited scope and simplified situation in order to develop basic teaching skills. The rationales of implementing micro-teaching in student teachers' training are: (1) to solve the time limitation in traditional teaching training, (2) to break down the complex teaching skills into some parts so that they can be learned specifically and learned in turn, and (3) to expand the chance of teaching practice. Micro-teaching is similar to the real teaching, yet some aspects such as the number of students, time allocation, skills focus, basic competence, learning results and learning materials are all being limited. In other words, micro-teaching can be perceived as a real teaching experience but in a smaller scale.

Furthermore, the important things for the teaching and learning process are teaching method and teaching media. Choosing a certain teaching method will affect the criteria of selecting the suitable teaching media, including the teaching goals, task types, expected students' responses and mastery after the lesson end, teaching or learning context, and also students characteristics. Furthermore, one of the functions of teaching media is as an aid in teaching that can influence the teaching and learning process planned and carried out by teachers (Azhar, 2005). Meanwhile, Gagne in Sadiman (2007) defines media as various components in students surrounding which can stimulate them to learn.

Moreover, Briggs (1970) states that media is any kind of physical tools which can present message and stimulate students to learn. Books, films, cassettes, and frame films are several examples of teaching media. Heinich, et al in Azhar (2002) provides the term 'medium' as a mean to deliver information from the source to the recipient.

Teaching media have some general characteristics such as (1) teaching media, seeing from its physical form, is known as hardware, a thing that can be seen, heard, or touch by human's senses; (2) teaching media as non-physical form is called as software, the essential information within the hardware which is delivered to the students; (3) the media are mostly in the form of visual and audio content; (4) teaching media are helping tools for the learning process either inside or outside the classroom; (5) teaching media serve as communication and interaction tools between teacher and students during the teaching and learning process; (6) teaching media can be used massively in large and small group or even individually; (7) teaching media can refer to the attitude, act, organization, strategy and management related to the implementation of knowledge.

Video as teaching media is a complex tool since the information delivery is more communicative compared to that of picture. The information presented in the video is perceived as a whole portrayal that illustrates the real condition. Video provides several advantages which will be very useful to be used in the teaching and learning process (Apri, 2017). One of the advantages of video as teaching media is that it can show movements or events which can be slowed or fast forwarded.

The criteria of selecting teaching media should be based on the belief that media is a part of the whole instructional system as stated by Dick and Carey in Sadiman (2002: 86). There are several factors to determine the choice of teaching media. They are (1) the limitation of local resource, which means that if the teaching media are not available nearby, they have to be bought or made by hand, (2) there should be budget, workers, and facilitation if the media need to be bought or self-made, (3) other factors related to flexibility, practicality, and endurance of the teaching media to be used in a long time. It means that the media can be used anywhere and anytime by making use of any available equipment in surrounding, and should be easily carried and moved; and (4) the effectiveness of the media to be used in the long time.

The micro teaching study by Karckay and Sanli (2009) tested the impact of micro teaching application to improve teaching competence of student teachers. The study was experimental research using pretest and post-test design yet without the existence of controlled group. The result of the study showed that the activity in the micro-teaching can have effect on student teachers' teaching competence. The study on the use of video recording for student teachers training program was also conducted by Koc (2011). The study was conducted by dividing the group of micro-teaching practice and analyzing every recording of the micro teaching processes. The results of the study showed that the training on student teachers using video analysis were able to improve their motivation and empathy, and build professional identity of the participants. Another study of micro-teaching model integrated with social media as teaching media was conducted by Apri (2007). The results of the study showed that there was improvement in teaching competences of student teachers in several aspects such as lesson plan making, assessment during the teaching action, and personality assessment.

## 2. Method

This research was Research and Development which followed a model of ADDIE consisting of five stage namely analysis, design, development, implementation, and evaluation. This model was chosen because it has been used widely in developing various teaching media. The research was conducted in Automotive Engineering Education Department of Engineering Faculty of Yogyakarta State University. The subjects of the research were the micro-teaching instructors as validators and the student teachers of Teacher Professionalism Training Program in Automotive Engineering Education Department of Engineering Faculty of Yogyakarta State University as the research subjects. The research data were collected by means of several instruments such as: (1) questionnaires which were

used to get validation from the media and materials experts, and students' responses, (2) observation sheet as guidelines in observing the micro-teaching process, (3) interview to gather the supporting data. The data analysis used was quantitative descriptive analysis. The research focused on the development of micro-teaching video as the learning media for the student teachers of Teacher Professionalism Training Program in Automotive Engineering Education Department. The stages of the development are elaborated in Table 1.

**Table 1.** Developmental Stages of ADDIE Model

Stage	Activities
<b>Analysis</b>	<b>Pre-planning</b> activities include (1) conceptualizing the new product (model, method, media, teaching and learning materials) that will be developed, and (2) identifying the appropriate product based on the targeted students, teaching and learning goals, content or materials of learning, learning environment and the delivery strategy to be used during the teaching and learning process.
<b>Design</b>	<b>Planning</b> newconcept of the product in the blueprint through the following phases. <ul style="list-style-type: none"> <li>- The materials and tools for developing the new product are listed.</li> <li>- The blueprint of the product is developed specifically for each learning unit.</li> <li>- The instruction of the design application or the product making is written in details.</li> </ul>
<b>Development</b>	<b>Developing</b> the components of product based on the product planning. In this stage, the product is created (using materials and tools) according to the model structure. An instrument is also made to measure the product's performance.
<b>Implementation</b>	<b>Implementing</b> the new product in the real situation or real teaching. The implementation include the process of evaluating whether the purposes of developing the product are achieved or not, evaluating the participants' reaction in using the developed product, and eliciting participants' feedback towards the product.
<b>Evaluation</b>	<b>Reviewing</b> the impact of the product in critical way including examining the success of the developed product in fulfilling the goals, measuring the participants' achievement after using the product, and looking for any aspect that helps participants achieve more.

### 3. Results and Discussions

The assessment on the micro-teaching video was done by the experts of media and materials. The assessment for media expert was performed on three aspects, namely format, content, and language. On these three aspects, the product was categorized as “**very good/appropriate**” with the mean score 4.88 for format aspect, 5.00 for content aspect, and 4.80 for language aspect. Moreover, the

assessment done by the materials expert resulted the mean score 4.67 categorized as **“very good/appropriate”**.

Before implementing the micro-teaching video in real practices, the participants' opinion regarding the format, content, and language of the video was gathered by questionnaires. Based on their responses, all of the aspects was categorized as **“very good/appropriate”** with the mean score 3.70 in format aspect, 4.50 in content aspect and 4.30 in language aspect. Thus, based on the media expert, materials expert, and students' responses, the micro-teaching video can be categorized as an appropriate and excellent learning medium.

The product's evaluation was then continued by conducting try-out to see the effectiveness of the developed video in improving the targeted student teachers' teaching skills. In the first try out, the student teachers conducted teaching practices as usual and the instructor observed them and scored them. Their average score of their practices on the first try-out was 77,26. Furthermore, on the second try-out, the instructor played the micro-teaching video before the student teachers started their teaching practices. They were asked to pay attention to, listen to, and observe the video containing the appropriate sample of teaching practices that meet the teaching and learning requirements based on the arranged lesson plan. After they had done the observation, one by one they conducted the teaching practice under the guidance of the instructor. Based on the assessment results through observation, there was an improvement on their teaching practices after they watched the video compared to those before they watched the video. As for information, they did not watch the video on the first try-out. They watched the video on the second try-out and then implemented what they had seen as the learning reference for the micro-teaching. Furthermore, there was an improvement on the assessment result. In the second try-out, their average of teaching practice score increased to 83.59.

Both experts of media and materials agreed that the micro-teaching video as micro teaching media for the student teachers of Teacher Professionalism Training Program of Automotive Engineering Department was appropriate to be used as learning media. This result was inline with the major role of teaching and learning media as an aid for the teacher to help any kind of teaching and learning process, one of which is the micro-teaching process. The result of this research also highlighted that micro-teaching video has fulfilled the three types of media feasibility which are practicality, technicality, and affordability (LPPMP, 2016).

The main components in micro teaching media consist of basic teaching skills such: (1) the skills of opening and ending the lesson, (2) explaining the materials, (3) giving reinforcement, (4) using media and tools or learning, (5) arranging learning scenarios, (6) varying the lesson, (7) guiding discussion, (8) managing the class, (9) giving questions, and (10) conducting the evaluation (LPPMP, 2016). Those basic teaching skills were presented in the micro-teaching video to help the student teachers learn and repeat the video as well as understand how the skills are applied in the real instructional practices. In addition, the positive responses given by the student teachers towards the use of the developed video were also a sign that this media categorized as appropriate. The responses also indicated that the micro-teaching video has fulfilled the criteria of appropriate media which are easy to use, can be used repeatedly, and contain audio, visual, and kinesthetic elements (Selss and Glasgow, 1990).

The developed video was also assumed to effectively improve the student teachers' teaching skills, which is similar to the result of the study conducted by Apri (2017). The study showed the competence improvement of student teachers in the process of lesson plan making, assessing the teaching and learning process, and assessing personality. Another study by Koc (2011) also presented the similar result where the use of video analysis during the student teachers' training education could improve their motivation and empathy, and build professional identity. Empirically, through the teaching and learning video, the student teachers had chance to learn and experience how to teach according to the teaching principles such as how to open and end the class properly, how to explain the lesson

materials, and how to evaluate the learning process. All of these were presented in the video. It is expected that the student teachers seriously pay attention, observe, and imitate or even implement what they watch in their micro-teaching practice. It is also expected that they can educate themselves independently through the phase of seeing, listening, and implementing. As stated by Biggs and Tang (2007), learning to listen, if it is combined with learning to observe, will result in 50% understanding. If they combine it with learning to use and do it in the real life, their understanding will reach 80%. Those understanding will steadily improve until the highest level which is 90% if they share what they have learned to others.

#### 4. Conclusions

Based on the data analysis and previous discussion, some conclusions can be drawn as follows.

- The micro-teaching video illustrating the steps of appropriate teaching model such as arranging lesson plan, learning materials, media, and evaluation instruments; presenting the teaching set; and conducting the micro teaching is successfully made. The video is developed so that it can be used classically by lecturer or instructor in the classroom or independently by student teachers. Each learning material is presented as interesting as possible to improve the student teachers' motivation. Furthermore, based on the analysis results, video as micro teaching media categorized as very good/appropriate by the experts on media and materials. The average mean score of the media seeing from the three aspects was 4.89. Meanwhile, 4.67 was that of the materials aspect.
- The student teacher's gave positive responses towards the use of micro-teaching video as learning media. During the try out, the obtained average mean score was 4.20, categorized as very good/appropriate to be used in the teaching and learning process.
- Micro-teaching video can effectively enhance the student teachers' teaching skills during their practices in Teacher Professionalism Training Program. That is supported by a fact that their micro-teaching mean score was improved from 77.26 in the first try out to 83.59 in the second try out. Thus, it can be concluded that video as micro teaching media was very effective to be used for the teaching and learning process since it can help the student teachers successfully train their teaching skills.

#### 5. Refereces

- [1] Apri Nuryanto. (2017). *Model Microteaching Terintegrasi dengan Media Jejaring Sosial*. Disertasi. Yogyakarta: PPs UNY.
- [2] AzharArsyad, (2002). *Media Pembelajaran*. Jakarta: PT Raja Grafindo Persada.
- [3] Briggs, J., & Tang, C. (2007). *Teaching for quality learning at university: what the student does, 3rd edition*. New York: McGraw-Hill.
- [4] Cooper and Allen, 1971. *Basic Teaching Skills*. London: Oxford University Press.
- [5] Fry, H., Ketteridge, S., & Marshall, S. (2011). *A Handbook for teaching and learning in higher education: enhancing academic practice, third edition*. New York: Taylor & Francis.
- [6] Karckay, A.T., & Sanli, S. (2009). The effect of microteaching application on the preservice teachers' teacher competency levels. *Jurnal Procedia Social and Behavioural Sciences I*, 844-847.
- [7] Koc M. (2011). Let's make a movie: investigating pre-service teacher' reflection on using video-recorded role playing cases in Turkey. *Teaching and Teacher Education* 27, 95-106.
- [8] Kumar, S. (2008, Nopember 2015). *Educational technology*. Retrieved Oktober 12, 2011, from Introduction to microteaching: <http://sathitech.blogspot.com/2008/11/introduction-to-mikro-teaching.html>
- [9] Kyriacou., C. (2009) *Effective teaching in shoools, third edition: theory ang practice*. Cheltenham: Stanley Thornes.
- [10] Leighbody, G.B. (1968). *Method of teaching shop and technical subjects*. New York: Delmar.

- [11] Lembaga Pengembangan dan Penjaminan Mutu Pendidikan (LPPMP), (2016). Pekerti Buku 1. Yogyakarta: UNY Press.
- [12] Mc. Laughin, S. And Moulton, J. (1975), *Evaluating Performance Training Methods: A Manual for Teacher Trainer*, UNESCO.
- [13] Mohan, R. (2007). *Innovative science teaching for physical science teachers*, 3rd ed. New Delhi: Prentice-Hall.
- [14] Peraturan Pemerintah No 19 Tahun 2007, tentang Perubahan Peraturan Presiden No 74 Tahun 2008 tentang Guru, Pasal 8.
- [15] Sadiman, Arif.S. (2007). *Media Pendidikan, Pengertian, Pengembangan, dan Pemanfaatannya*. Jakarta: PT Raja Grafindo Persada.
- [16] Seels, B.B. dan Glasgow, Z. (1990). *Exercises in Instructional Design*. Columbus: Merrill Publishing Company.
- [17] Steiner, T., Sonntag, H., & Bokonjic, D. (2009). *Handbook of teaching and learning in medicine*. Retrieved Juli 4, 2012, from manual of teaching and learning in medicine: <http://www.bhmed-emanual.org>
- [18] Undang-Undang No 14 Tahun 2005 Tentang Guru dan Dosen.