

# Pre-Service Teachers' Perceptions of Video-Based Case to Increase Higher Order Thinking Skills

Syafril<sup>1</sup>, Azrul Azrul\*<sup>2</sup>

<sup>1</sup>Educational Technology, Universitas Negeri Padang, Padang, Indonesia

<sup>2</sup>Universitas Islam Negeri Imam Bonjol Padang, Padang, Indonesia

## ABSTRACT

Pedagogical competence is a competence that must be possessed by a teacher. Students as prospective teachers have low pedagogical competence. One way to improve the pedagogical quality of prospective teachers is to train HOTS thinking. However, in the field, there are still many obstacles in efforts to increase these abilities, one of the efforts made is to provide learning through the video case study method. This article examines the perceptions of prospective teachers using a case study-based video, this study also looks at the results of students' high-level thinking skills in solving the cases they face. This research uses quantitative methods with descriptive data analysis. Using a valid data collection instrument. Based on the results of the study, it was found that the overall average factor of 4.58 was very positive towards increasing student learning activities as much as increasing students' thinking skills in solving cases at hand. This research also reveals that the use of case study-based videos in learning also makes students interested in digging deeper into the material presented by the lecturer.

**Keywords:** case-study, perception, HOTS.

## INTRODUCTION

Learning carried out by a prospective teacher is expected to cause a paradigm shift in the implementation of learning in schools (Espino-Díaz et al., 2020). Teachers as the spearhead of change can change mindsets and learning strategies that were originally teacher-centered to become student-centered (Blaschke, 2021). Teachers are expected to be more creative and innovative in presenting subject matter. The creation of productive, creative, and innovative graduates can be realized through the implementation of learning that can be carried out in various scopes by using critical and creative thinking skills (Saritepeci, 2020).

As a prospective teacher who will later apply learning by empowering others to think at a high level (high-order thinking skills) (Baguma, R et.al: 2019) The curriculum that adopts Bloom's taxonomy revised by Anderson starts from the level of knowing, understanding, applying, analyzing, evaluate and create. Because the demands must be at the level of creation, student teacher candidates must be continuously trained to produce something new by increasing the Higher Order of Thinking Skill (HOTS). The application of learning to prospective teacher students at UNP is still not enough to improve students' HOTS thinking skills. One of the efforts to improve this ability is to familiarize students to think analytically about a problem through learning, one of which is by presenting case study-based videos (Liu, D: 2020). The case study is one of the "Student-Centered Learning" (SLC) models. In this model, learning participants are required to play an active role in making decisions about real cases (problems) in the past (Rahmi, U., & Azrul, A. :2022). For this reason, in this study, researchers observed a case study-based learning video through the LMS e-learning UNP. video is integrated

with the LMS middle learning platform using interactive features that are integrated with the LMS which will make it easier for students to access teaching materials in the form of case study videos.

## LITERATURE REVIEW

### Video Media

Technological developments produce technology-oriented learning systems (Roth, 2001), especially learning media. Learning media is a channel or intermediary that can be used to channel learning messages (Widodo, 2018) so that it can stimulate the attention, interests, thoughts, and feelings of learners (students) in learning activities to achieve certain learning goals.

Learning is a process of communication between learners, teachers, and teaching materials. Learning media carry messages or information (Holden & Westfall, 2007) so that learning can achieve maximum results, it is necessary to use media, one of which is video media (Lange & Costley, 2020).

---

**Corresponding Author e-mail:** azrul@uinib.ac.id

**https://orcid.org/0000-0003-2091-7302**

**How to cite this article:** Syafril, Azrul A. Pre-Service Teachers' Perceptions of Video-Based Case to Increase Higher Order Thinking Skills. Pegem Journal of Education and Instruction, Vol. 13, No. 3, 2023, 249-254

**Source of support:** None.

**Conflict of Interest:** Nil

**DOI:** 10.47750/pegegog.13.03.26

**Received:** 19.10.2022

**Accepted:** 10.12.2022

**Publication:** 01.07.2023

---

Video learning is one component of online learning. By using learning videos, educators can be more creative to create an attractive display of the learning process because it is supported by video displays that are easier to understand (Mayer: 2009) by students who access online learning platforms. Learning videos are better at delivering learning messages.

### Higher Order of Thinking Skills (HOTS)

Higher Order of Thinking Skill (HOTS) is the ability to think critically, logically, reflectively, metacognitively, and creatively which is a higher order thinking ability. This ability plays a role in making students critical in receiving various types of information (Pérez et al., 2018). HOTS also require other higher abilities, such as the ability to think creatively. The ability to think creatively is important for prospective teacher students facing the Industrial 4.0 era (Kin & Kareem, 2019). The category of higher-order thinking according to Brookhart (2010: 14-15) includes several aspects, namely: 1) Analysis, evaluation, creation, 2) Logical reasoning or logical reasoning, 3) Decisions and critical thinking, 4) Solving problems, 5) Creativity and creative thinking

## METHOD

### Research design

This study refers to user data generated from the interaction of case study videos in learning to improve student HOTS. This research was conducted with 80 students as prospective teachers and 2 lecturers in the educational technology study program, at Padang State University. This consists of two components, namely seeing the relationship between learning and case study videos on Higher Order of Thinking Skills (HOTS) through indicators and student perceptions of the use of case study-based videos in learning.

### Participant

The participants were selected using purposive sampling. Participants were aged between 17 and 23 years with a mean of 18.97. The overall gender of the participants was 39% (39) male and 61% (61) female.

### Instrument

Data were collected in the following ways: The survey consisted of components in the Higher Order of Thinking Skill (HOTS), namely the ability of students to think critically about the cases presented in the video. As well as an instrument to see student perceptions of case study-based learning videos. The research instrument was in the form of a questionnaire that had previously been tested on 3 validators. The level of validity of the questionnaire with an average value of 90.5 after which the ICC test was carried out for the instrument had adequate stability if the ICC between measurements was  $> 0.50$ , high stability if the

ICC between measurements was 0.80 (Streiner and Norman, 2000; Polgar and Thomas, 2000). Meanwhile, the reliability test value of the instrument (Cronbach's Alpha) is 0.785 or  $> 0.60$ . It can be said that the questionnaire is reliable to use.

## RESULT AND DISCUSSION

### Critical thinking indicators

This study used indicators of student critical thinking in learning which consist of:

It is known that a person can be said to have critical thinking skills if it is in accordance with the criteria (Ennis, 2018). The results of observations made by researchers through activities in answering questions are integrated with case study learning videos assigned to students. The following are the results of the classification of students' critical thinking categories:

**Table 1.** Student critical thinking indicators.

No	Indicators
1	Elementary Clarification (gives a simple explanation)
2	Basic Support (build basic skills)
3	Inference (infer)
4	Make further explanation
5	Strategies and tactics

Source: Ennis (2018)

**Table 2:** The results of the classification of students' critical thinking indicators.

No	Observation Aspect	Percentage (%)
1.	Students are able to identify/formulate questions	75
2.	students are able to find clear answers to each question	80
3.	students Accept suggestions from others to develop new ideas	70
4.	Students are able to provide arguments that are different from those that already exist	75
5.	Students can analyze a problem	70
6.	Students can express their opinion in LMS	85
7.	Students are Able to accept differences of opinion	80
8.	Students are Able to provide real examples of cases	85
9.	Students Able to face challenges with solid foundations	70
10.	Students Identify the stated reasons	85
11.	Looking for a relationship between problems/ experiences	85
12.	Identify conclusions	85

These critical thinking skills can be trained and are constantly evolving. Lecturers can practice critical thinking skills with lecture activities that can train and encourage them to think actively, one of the appropriate methods is to study controversial issues.

Based on the above, it can be seen that students' critical thinking skills have begun to develop with the cases being faced (Brookfield, 2022) through this video, they must always be accommodated in the lecture process. Train and familiarizing students with critical thinking, it can be done by implementing interactive lectures and training students' thinking skills (Winanrni: 2021). One of the most suitable models for developing critical thinking skills in the Basics of Education course is the case study method (Ennis, 2018), because it can train students to debate, dialogue, express opinions, and accept the opinions of others (Resnick et al., 2018) and take actions related to case problems regarding Education and learning that occurs. By familiarizing students with critical thinking, they will be able to increase their Higher Order of Thinking Skills (Changwong et al., 2018)

**Students perceptions of case study videos**

Learning case study videos are one of the media components in the e-learning LMS that are accessed by students (Rahmi, U et al., 2022). By using learning videos, educators can be more creative to make an interesting display of the learning process (Zhang, K: 2018) because it is supported by video displays that are easier for students to understand. The

designed case study video is equipped with an explanation and introduction of a case presented through talent. After accessing the video case study, students were asked for their opinion on the video through a questionnaire embedded in the UNP e-learning LMS. The questionnaire used to see student perceptions consists of two factors, namely internal factors and external video factors using a Likert scale. The overall results of student perceptions can be seen in the table 3:

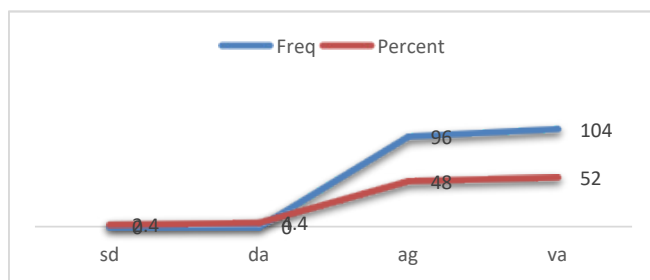
Internal factor is one of the factors contained in the analysis of student perceptions of the case study video. 3 indicators, namely clarifying the delivery of material, delivering material systematically and logically, increasing the ability to understand the material, and improving the performance of 8 question items. Of the 8 questions that have been tested for validity, and have been declared valid and feasible to be used as research instruments for student perceptions. The first internal factor, namely the factor of clarifying the delivery of material, it can be seen in graph 1

The total of respondents with an average value of 3.57 according to table 1, is very positive. This shows that case study videos help students explain the material (Xie & Yang, 2020). This can be interpreted that learning video media can be used as teaching materials aimed at clarifying and facilitating the delivery of messages so that they are not too verbalise (Stefelson et al., 2020)

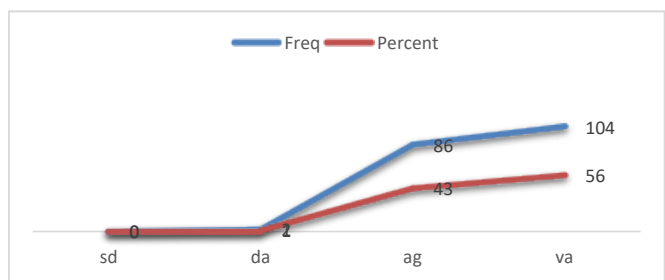
The next factor is the delivery of material systematically to obtain a percentage of the value which will be shown in Figure 2.

**Table 3:** Categories of student perceptions of case study videos

Factor	Indicators	Score	Category
Internal factors	Clarify the delivery of material	3,57	Strongly positive
	Submission of material systematically and logically	3,35	Strongly positive
	Increase the ability to understand the material	3,33	Strongly positive
Average perception of internal factors		3,38	Strongly positive
Eksternal factors	Use of communicative language	3,78	Strongly positive
Average perception of external factors		3,78	Strongly positive
Overall factor average		3,58	Strongly positive



**Fig. 1:** Graph of student perceptions of material delivery



**Fig. 2:** The graph of the factors for delivering material systematically and logically

This shows that the case study videos are able to convey material logically and systematically to students. In accordance with the aspects contained in the factor, namely, the video helps students in receiving the material clearly. Media voters, among others, feel that the media can do more than what can be done, for example, to attract students' interest or passion for learning (Kusuma et al., 2018).

The next internal factor that is seen is increasing the ability to understand the material. Obtained an assessment which will be displayed in the graph below.

The factor of delivering material in a systematic and logical way is that the percentage of students who have a positive perception is 14% with a very positive perception of 86%. In accordance with table 2. the average value of the factor adding to the ability to understand the material is 3.33 with a very positive category. This means that almost all respondents have a very positive perception of case study videos.

This shows that case study videos are able to increase students' ability to understand the material (Dinmore, S: 2019). According to student perceptions, case study videos can be viewed repeatedly, making it easier to re-learn material that has not been understood. With videos, you can present an atmosphere that occurs as if it were happening in the student room through the visuals and narrations that are presented (Wisada, P: 2018)

Furthermore, judging from the perception of external factors, it was found that case study-based videos presented through LMS made communication more communicative. This can be seen in the graph 4.

In this factor, it can be seen that there is a distribution between those who answered agree and strongly agree. There are 5% of the responses disagree. This is because communicative language skills are an external factor that must go through training (Reinhardt, 2019) through more specific activities.

**The relationship between critical thinking level and case-solving speed**

This relationship is seen from the level of students' critical thinking in the category students' critical thinking skills will be grouped into 5 namely very critical, critical, moderately critical, less critical, and not critical. Very critical is achieved if all elements and standards of intellectual reasoning are met, namely clarity, precision, accuracy, relevance, depth, breadth, and logic (Elder & Paul, 2020). Based on the results obtained, the researchers narrowed the level high and medium. Meanwhile, the speed of solving cases based on the completion time recorded in the LMS is also categorized as fast and medium.

To see the relationship between critical thinking level and case resolution time, Chi-square test was used. The following are the results of the chi-square test in the table 4

Based on the table 4 the value of asymp (2-sided) is 0.003 < 0.05, it can be concluded that there is a relationship between the level of critical thinking of students and the speed of solving cases in LMS. This is because the indicators in students' critical thinking improve the way of thinking in solving problems (Royce et al., 2019)

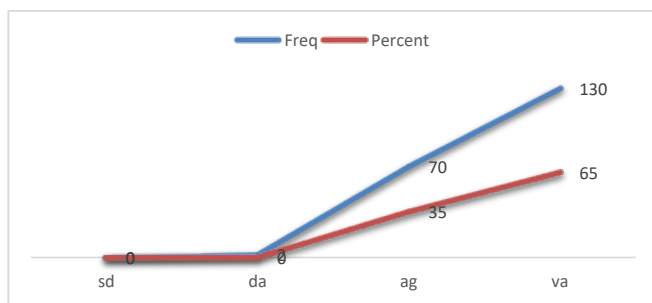


Fig. 3: The factor graph adds to the ability to understand the material.

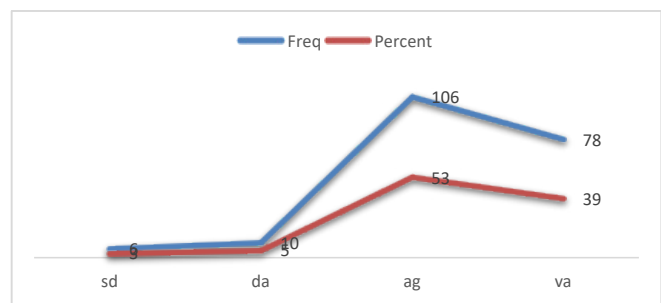


Fig. 4: Graph of perceptions of the improvement of communicative language

Table 4: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.889a	1	.003		
Continuity Correctionb	6.806	1	.009		
Likelihood Ratio	9.505	1	.002		
Fisher's Exact Test				.008	.004
Linear-by-Linear Association	8.593	1	.003		
N of Valid Cases	30				

## CONCLUSION

As a prospective teacher who will later apply learning by empowering others to think at a high level (high-order thinking skills). One of the learning components provided is a case study-based video media designed to improve students' critical thinking. Students as prospective teachers are carried out with case study-based learners through the purchase of case study-based videos (Syafri: 2022) which are accessed by students through UNP's LMS e-learning. Based on the activities carried out by students in conducting case analysis, it was found that the HOTS thinking indicators for students had been carried out. Student perceptions in assessing case study-based videos also received a good response from students. This can be seen from the results of student assessments that case study videos provide convenience in delivery, and increase the ability to understand the material presented through the case study video method

## REFERENCES

- Baguma, R., Bagarukayo, E., Namubiru, P., Brown, C., & Mayisela, T. (2019). Using WhatsApp in Teaching to Develop Higher Order Thinking Skills--A Literature Review Using the Activity Theory Lens. *International Journal of Education and Development using Information and Communication Technology*, 15(2), 98-116.
- Blaschke, L. M. (2021). The dynamic mix of heutagogy and technology: Preparing learners for lifelong learning. *British Journal of Educational Technology*, 52(4), 1629-1645.
- Brookfield, S. D. (2022). Teaching for critical thinking. *Handbook of Research on Educational Leadership and Research Methodology*, 311-327.
- Brookhart, S. M. (2010). *How to Assess Higher-Order Thinking Skill in Your Classroom*, Virginia: ASCD
- Changwong, K., Sukkamart, A., & Sisan, B. (2018). Critical thinking skill development: Analysis of a new learning management model for Thai high schools. *Journal of International Studies*, 11(2).
- Dinmore, S. (2019). Beyond lecture capture: Creating digital video content for online learning--a case study. *Journal of University Teaching & Learning Practice*, 16(1), 7.
- Elder, L., & Paul, R. (2020). *Critical thinking: Tools for taking charge of your professional and personal life*.
- Ennis, R. H. (2018). Critical thinking across the curriculum: A vision. *Topoi*, 37(1), 165-184.
- Espino-Díaz, L., Fernandez-Caminero, G., Hernandez-Lloret, C.-M., Gonzalez-Gonzalez, H., & Alvarez-Castillo, J.-L. (2020). Analyzing the impact of COVID-19 on education professionals. Toward a paradigm shift: ICT and neuroeducation as a binomial of action. *Sustainability*, 12(14), 5646.
- Holden, J. T., & Westfall, P. J.-L. (2007). An instructional media selection guide for distance learning. Online Submission.
- Kin, T. M., & Kareem, O. A. (2019). School leaders' Competencies that make a difference in the Era of Education 4.0: A Conceptual Framework. *International Journal of Academic Research in Business and Social Sciences*, 9(5), 214-225.
- Kusuma, G. A., Wirawan, I., & Arthana, I. (2018). Virtual reality for learning fish types in kindergarten.
- Lange, C., & Costley, J. (2020). Improving online video lectures: learning challenges created by media. *International Journal of Educational Technology in Higher Education*, 17(1), 1-18.
- Liu, D., Li, Y., Lin, J., Li, H., & Wu, F. (2020). Deep learning-based video coding: A review and a case study. *ACM Computing Surveys (CSUR)*, 53(1), 1-35.
- Mayer, R. E. (2009). *Multimedia learning (2nd edition)*. New York: Cambridge University Press.
- Miri, B., David, B. C., & Uri, Z. (2007). Purposely teaching for the promotion of higher-order thinking skills: A case of critical thinking. *Research in science education*, 37(4), 353-369
- Pérez, A., Potocki, A., Stadler, M., Macedo-Rouet, M., Paul, J., Salmerón, L., & Rouet, J.-F. (2018). Fostering teenagers' assessment of information reliability: Effects of a classroom intervention focused on critical source dimensions. *Learning and Instruction*, 58, 53-64.
- Rahmi, U., & Azrul, A. (2022). Optimizing the discussion methods in blended learning to improve student's high order thinking skills. *Pegem Journal of Education and Instruction*, 12(3), 190-196.
- Rahmi, U; Azrul, A; & Mahande, R. D. (2022). The Prototype of Blended Learning's Support System to Improve the Pre-Service Teacher's Digital Literacy. *Journal of Educators Online*. 19 (3).
- Reinhardt, J. (2019). Social media in second and foreign language teaching and learning: Blogs, wikis, and social networking. *Language Teaching*, 52(1), 1-39.
- Resnick, L. B., Asterhan, C. S. C., & Clarke, S. N. (2018). *Accountable talk: Instructional dialogue that builds the mind*. Geneva, Switzerland: The International Academy of Education (IAE) and the International Bureau of Education (IBE) of the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- Roth, W. (2001). Learning science through technological design. *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching*, 38(7), 768-790.
- Royce, C. S., Hayes, M. M., & Schwartzstein, R. M. (2019). Teaching critical thinking: a case for instruction in cognitive biases to reduce diagnostic errors and improve patient safety. *Academic Medicine*, 94(2), 187-194.
- Sailer, M., Schultz-Pernice, F., & Fischer, F. (2021). Contextual facilitators for learning activities involving technology in higher education: The C -model. *Computers in Human Behavior*, 121, 106794.
- Saritepeci, M. (2020). Developing computational thinking skills of high school students: Design-based learning activities and programming tasks. *The Asia-Pacific Education Researcher*, 29(1), 35-54.
- Stellefson, M., Paige, S. R., Chaney, B. H., & Chaney, J. D. (2020). Evolving role of social media in health promotion: updated responsibilities for health education specialists. *International Journal of Environmental Research and Public Health*, 17(4), 1153.
- Syafri, S., Rahmi, U., & Azrul, A. (2022). The development of case study teaching materials for prospective teachers in LPTK. *Pegem Journal of Education and Instruction*, 12(2), 193-199

- Widodo, S. A. (2018). Selection of Learning Media Mathematics for Junior School Students. *Turkish Online Journal of Educational Technology-TOJET*, 17(1), 154–160.
- Winarni, R. S., & Rasiban, L. M. (2021). Perception of Japanese students in using online video as a learning media. *Indonesian Journal of Educational Research and Technology*, 1(1), 15-16.
- Wisada, P. D., & Sudarma, I. K. (2019). Pengembangan media video pembelajaran berorientasi pendidikan karakter. *Journal of Education Technology*, 3(3), 140-146.
- Xie, Z., & Yang, J. (2020). Autonomous learning of elementary students at home during the COVID-19 epidemic: A case study of the second elementary school in Daxie, Ningbo, Zhejiang Province, China. Ningbo, Zhejiang Province, China (March 15, 2020).
- Zhang, K., Luo, W., Zhong, Y., Ma, L., Liu, W., & Li, H. (2018). Adversarial spatio-temporal learning for video deblurring. *IEEE Transactions on Image Processing*, 28(1), 291-301.