Vocational Students' Perception toward the Use of Online Instructional Media

Dini Hadiani[1]✉ , Nia Nuryanti Permata[2], and Emma Dwi Ariyani[3]

[1,2,3] Politeknik Manufaktur Bandung
✉ Jl.Kanayakan No.21 Bandung 40135, Jawa Barat, Indonesia
✉ dinibhs@polman-bandung.ac.id

ABSTRACT

This study aims to provide an overview of the use of instructional media during online learning from vocational higher education students' perspectives. The education system in the vocational institution focuses on practical activities, so the use of instructional media during online learning faces various problems. Online learning is believed to be effective if there is a two-way interaction between lecturers and students in class using effective instructional media. This research was conducted to look into the students' perception of using online instructional media. With a sample of 181 students, this study employed a descriptive quantitative method. Data collection was carried out by distributing questionnaires through Google Forms consisting of 17 questions with a Likert scale. In addition, semi-structured interviews with students were carried out for data triangulation. The results showed that the student perception of using instructional media during online learning is good, with an average score of 3.15 (Scale of 1- 4). The students perceived that instructional media during online learning increases their confidence and competence in learning, and their awareness of mastering a subject matter increased slightly, primarily in theoretical subjects. However, in practical classes, students still experienced problems due to the need for hands-on training. Therefore, the institution must provide a technological trend for lecturers and students, improve the teachers' competence in online instructional media, and improve software and equipment facilities that encourage and support the online learning process for more effective implementation.

INTRODUCTION

Instructional media is vital in learning since it can enhance teaching and learning. The instructional media aims to make it easier for students to understand the subject matter and to help make learning activities more effective and efficient (Falahudin, 2014). It also offers various learning opportunities to stimulate students' curiosity, attention, interests, thoughts and feelings,

and motivation to achieve specific learning goals (Asnawir & Usman, 2002; Arsyad, 2013; Sumiharsono & Hasanah, 2018; Rosyid et al., 2019). Interactive instructional media is expected to increase students' participation in learning. A science concept will be conveyed well if the idea requires students to be directly involved compared to images that only include students to observe (Wibawanto, 2017).

The COVID-19 pandemic has altered the learning system from traditional face-to-face classroom learning to online. This condition leads to the shifting teaching methodology used for online learning, including using instructional media to cope with the need for effective online education. Several online teaching and learning platforms, such as Google Classroom, YouTube, and Zoom conferences, have been developed to help teachers and students achieve their teaching and learning objectives. The implementation of online learning is carried out at all levels of education, including vocational education.

In vocational education, face-to-face learning has always been chosen because it requires practical knowledge. The students must develop a design approach in the classroom to learn theory and basic concepts, followed by practical work in the laboratory or workshop for psychomotor learning (Khan & Abid, 2021; Tafakur et al., 2021). A study reports that almost 60% of learning time is spent in practised courses to produce skilful and competent students, specifically in hard skills related to their technical competence mastery (Ariyani & Hadiani, 2020). The vocational education curriculum emphasizes working in laboratories and fieldwork or internships (Amin et al., 2020). Graduates from vocational institutions should possess hard skills, which are very important to be hired by industries (Erliana et al., 2021).

In line with the current situation regarding COVID-19, the pandemic has forced the implementation of online learning in vocational institutions. Several feedbacks from vocational students have been recorded that they found online learning less interesting than traditional face-to-face learning (Aulia et al., 2020; Mulyanti et al., 2020) since they experienced challenging learning activities, especially in practical courses (Permata and Hadiani, 2021). The students also felt that online learning had not provided a better experience and productivity in mastering competencies but could provide motivation and ease in their learning (Syauqi et al., 2020). Some studies stated that teachers face problems using technology in online classrooms (Callan et al., 2015, Azhari and Fajri, 2021). It causes the lack of required information technology (IT) infrastructure, including hardware requirements, internet bandwidth availability, and background knowledge about the student's readiness to participate in learning (Putranti, 2013; Khan & Abid, 2021).

Other studies also reported that the implementation of online learning in vocational education requires a well-designed standard operating procedure (SOP) that satisfies the quality parameters in engineering education (Abdulkareem· et al., 2022; Muthuprasad et al., 2021; Khan & Abid, 2021; Aulia et al., 2020). This condition leads to several issues regarding software limitations, learning barriers for teaching faculty, logistical/technical problems, learning/teaching challenges, privacy and security concerns, and a lack of sufficient hands-on training. These problems should be overcome by using effective instructional media (Asgari et al., 2021).

Instructional media in online education is used to carry out the face-to-face substitute learning process by explaining concepts, assignments, and exams (Mushfi, 2019). It increases the efficiency and effectiveness of learning to achieve goals by providing visual messages and overcoming space and time constraints. It can accelerate the learning and teaching processes, generate enthusiasm for learning and provide opportunities for students to interact with their environment and learn independently based on their abilities and interests (Padmadewi et al., 2017). Aside from that, instructional media in online education can be tailored to the situation and conditions, both in terms of the material's content and the state of the student environment (Nuriansyah, 2020; Lusiana & Maryanti, 2020; Huwaidi et al., 2021; Zulkifli et al. 2021). In an online learning system, students can directly interact with the learning content provided in various formats such as video, audio, documents, and so on (Wang et al., 2020), which benefits both learners and teachers (Yulian & Ruhama, 2021). The interaction can occur inside the inquiry community through various synchronous and asynchronous online activities through video, audio, computer conferencing, chat, or cyber interactions (Monica & Fitriawati, 2020; Yulian & Ruhama, 2021; Tafakur et al., 2021; Kusuma et al., 2021; Dantes et al., 2022).

The research conducted by Fachruddin et al. (2022) and Amin et al. (2022) shows that teachers were required to adopt online learning platforms. The problems that often occur during online learning are the less optimal material delivered by the teacher due to a lack of good learning media (Amin et al., 2022). At the same time, teachers experience a lack of interaction; they do not know the characteristics of students and cannot use online instructional media (Istikhomah et al., 2014). It indicates that an effort to increase the effectiveness of the use of instructional media is to improve teachers' skills, so teachers must have various skills that support their teaching duties (Asnawir & Usman, 2002; Arsyad, 2013; Rosyid et al., 2019). Besides, online learning can be effective if the material is packaged in a form that students like, such as using videos, pictures, posters, and so on (Huwaidi et al., 2021), because the interactive and more innovative instructional media can enhance students' motivation to learn (Nuriansyah, 2020). It is also believed that online learning is beneficial if there is a two-way interaction between lecturers and students in class, providing feedback on assignments/understanding of the material and using effective instructional media (Monica & Fitriawati, 2020; Yulian & Ruhama, 2021; Tafakur et al., 2021).

Effective instructional media should follow an instructional design model based on student needs, primarily if the learning media developed is delivered via an online platform (Tafqihan, 2011). It indicates that it is necessary to consider the learners' expectations and goals when using instructional media (Putranti, 2013). According to Arsyad (2013), several principles are used to determine the use of instructional media in the classroom, namely conformity to the content and objectives of learning, teacher skills, targeting, and technical quality of the media. Meanwhile, Asnawir and Usman (2002) state that instructional media in its use must be integral to the learning system that is used as a source of learning, the ability of teachers, the benefit from increasing student motivation and independence, and its systematic use. As a result, teachers must ensure that students understand and participate in learning activities, especially during an online classroom using effective online instructional media. Based on the explanation, it can be stated that online instructional media is essential. Its effectiveness relies on several factors, including sufficient facilities and human resources, such as the quality of the instructional media, the

relevance of instructional media with the learning objectives, and teachers' ability to create and use the new instructional media.

Learning success is heavily influenced by students' perceptions of the learning process (Nasution et al., 2020). Similarly, how students perceive online learning and the platform they use impact its success (Aulia et al., 2020; Erliana et al., 2021; Tafakur et al., 2021; Abdulkareem et al., 2022; Fahruddin et al., 2022). When students struggle to learn, a positive response will always help them set their goals. Considering the challenges of online learning and the use of online instructional media for vocational education highlighted in previous studies, the current study sought to uncover students' perceptions of using online instructional media in one vocational higher education in Bandung during the Covid-19 outbreak. Students' views on the efficacy of online instructional media are expected to provide input and feedback to policymakers at vocational education institutions to address the need for online learning. The analysis of students' perspectives looked into students' responses regarding the instructional media's relevance, the instructional media's usefulness, the quality of instructional media, and the teacher's ability to operate the instructional media. Therefore, this study aimed to examine students' perceptions of using instructional media during online learning based on their experiences to provide data for better implementation of future online education.

METHODS

The research method used is a descriptive qualitative study to describe a state at the time of research. Purposive sampling selects the subject with the best position to support the required information. The participants were third-grade students of Polman Bandung in the odd semester of 2021-2022. The sample comprised 181 respondents from 295 populations, with 33 female and 148 male students. A detailed description of the subject can be seen in Table 1 below.

| Number | Description | | |
	Gender	*Quantity*	*Percentage*
1	Male	148	81
2	Female	33	19
	Total	181	100

Table 1: The participants in the questionnaires
        Author [source]

The questionnaires were taken from Arsyad's (2013) and Asnawir and Usman's (2002) theories to measure the students' perception of online instructional media. It consists of statements regarding the relevance of instructional media, the instructional media's usefulness, the quality of the instructional media, and teachers' ability to use instructional media. The subjects were asked to choose one of the options on the Likert Scale ranging from "Strongly Disagree", "Disagree", "Agree", and "Strongly Agree". The items administered in the questionnaire are shown in Table 2 below.

No	STATEMENTS
	A. RELEVANCE
1	Lecturers use online instructional media well related to the characteristics of the course.
2	Online instructional media used by lecturers are suitable for the learning objectives of lectures.
3	The content of online instructional media provided by lecturers is relevant to the lecture material taught.
	B. USEFULNESS
4	I am more motivated to attend the class because lecturers use online instructional media.
5	My attention to lecture materials has increased due to online instructional media.
6	I better understand the lecture material after the lecturer uses online instructional media.
7	Online instructional media used by lecturers can increase student participation in learning.
8	I gained a substantial learning experience with the use of online instructional media.
9	I obtained optimal learning outcomes with the use of online instructional media.
10	I obtained satisfactory grades with the use of online instructional media.
11	I can learn more independently by using online instructional media.
	C. MEDIA QUALITY
12	The display of images of online instructional media used by lecturers is attractive.
13	The presentation of material in online instructional media is easy to understand.
14	Online instructional media uses audio, visual, or audio-visual media.
	D. TEACHING ABILITIES
15	Lecturers use effective teaching aids/instructional media.
16	Lecturers explain the subject clearly using online instructional media.
17	Lecturers take advantage of adequate learning time by using online instructional media.

Table 2: The questionnaires on the online instructional media usefulness
Author [source]

Questionnaires were made so that students could assess both theoretical and practical subjects. Testing the validity of the items in the measuring instrument (questionnaire) was carried out using the item discrimination index method. The selected items were items with a corrected item-total correlation score ≥ 0.3. This result means that items with a score below 0.3 are declared invalid and cannot be used. The result of the 25 questions that were compiled, 17 of them were declared valid, and eight items were declared invalid, so invalid items were not used in collecting research data. Then the questionnaire was distributed to the third-grade students. They were chosen as the sample because they have experienced normal/offline learning longer than the second grade. All student respondents rated theoretical and practical subjects in the Department. In addition, the interview stage of the eight students was carried out to obtain data triangulation. The calculated results are used to analyze and conclude the use of online instructional media in the research site as a percentage based on each category. The data analysis stage is then used to obtain the results and formulate recommendations based on the research findings.

RESULTS AND DISCUSSION

The research results provided valuable insights into students' understanding and experience using online instructional media. The findings are presented in the average percentages based on

questionnaires. Meanwhile, the interview data were inserted to justify the results obtained from the questionnaires. The results are elaborated on below.

There were 181 questionnaires from the student as participants. With a score scale of 1- 4, the questionnaire gained information about the use of online instructional media from their perspectives. The findings are discussed below. The discussion is structured according to Arsyad's (2013) and Asnawir & Usman's (2002)' theories on instructional media effectiveness, which are (1) the relevance of instructional media with the subject; (2) the usefulness of the instructional media; (3) the quality of the instructional media; and (4) the teacher's ability to use the instructional media.

The students' questionnaires' results show the average number of their perceptions of using online instructional media. It can be seen in the following table.

The Use of Online Instructional Media	Score
The relevance of instructional media to the subject	3.31
The usefulness of the instructional media	3.05
The quality of the instructional media	3.03
The teacher's ability to use the instructional media	3.22
Total in average	3.15

Table 3: The average score of the students' questionnaires
Author [source]

The result shows that the student's responses towards using online instructional media have a good score (3.15 on a scale of 4). Although the students faced some challenges, they could undergo the activities well. The following paragraphs elaborate on each category of online instructional media effectiveness.

The Relevance of Instructional Media with the Subject
Based on the questionnaire, the student's answers concerning online instructional media's relevance to the subject are shown in the table below.

The Relevance of Instructional Media with the Subject	Theoretical Subjects	Practical Subjects
Lecturers use online instructional media well related to the characteristics of the course.	3.28	3.23
Online instructional media used by lecturers are suitable for the learning objectives of lectures.	3.31	3.29
The content of online instructional media provided by lecturers is relevant to the lecture material taught.	3.40	3.37
Average score	3.33	3.29
Total	*3.31*	

Table 4: The student's perspective on the relevance of instructional media with the subject
Author [source]

According to data shown in Table 4, students perceived that in terms of the relevance of instructional media, both theoretical subjects (3.31) and practical subjects (3.29) are slightly

similar and categorized as good. Online instructional media for theoretical and practical subjects has a usefulness level of good category. This result can be seen from student assessments of online instructional media in both subjects. The students rated that the instructional media used by the lecturers were relevant to the material, characteristics, and learning objectives. Learning activities are carried out using various online media platforms, including Whatsapp, Google Meet, learning modules, zoom, PPT, learning videos, Google Classroom, Google forms, youtube, etc. Difficulties in teaching math concepts and exact sciences can be helped by using tools such as pen tablets or touch screens that can act as whiteboards like in class. Some lecturers have even made learning videos more effective in explaining the material so that it can be delivered repeatedly in different courses. This fact shows that online instructional media is relevant to the material, characteristics, and learning objectives (Arsyad, 2013; Asnawir & Usman, 2002).

The students admitted in the interview that the lecturers had made the instructional media relevant to the subject matter. The online instructional media used by lecturers are suitable for the learning objectives of lectures. However, online learning via digital platforms is ideal for general subjects such as mathematics, language, and social lessons. Unfortunately, it cannot be done for hands-on training subjects like machine maintenance. This condition supports the idea that conducting online classes in vocational education requires quality parameters in engineering education that still lack sufficient hands-on training (Abdulkareem· et al., 2022; Muthuprasad et al., 2021; Khan & Abid, 2021; Asgari et al., 2021; Aulia et al., 2020).

Other students also mentioned that the content of online instructional media provided by lecturers is relevant to the lecture material taught. Some lecturers, such as general subjects, explain live subjects on the board. It can directly interact as well. Some give PPT or video. They added that going online for theoretical subjects is okay, but practical classes must be held offline. They also commented that if students only study the subjects online, they will be "shocked" when they go to the company for an internship program or work. This phenomenon is supported by the work of Amin et al. (2020), stating that the vocational education curriculum emphasizes working in laboratories and fieldwork or internships so that graduates from vocational institutions should possess hard skills, which are very important to be hired by industries (Erliana et al., 2021).

Furthermore, in the calculation and modeling subjects, students hoped that it would not be delivered too quickly. The lecturer was expected to provide feedback to students from submitted assignments and establish clear rules for online lectures regarding lesson plans, materials, media types to be used, and evaluation. This situation is expected to overcome students' difficulties in understanding the lecture material to obtain optimal learning outcomes.

The Usefulness of Instructional Media
The students' answers concerning the use of instructional media are shown in the table below.

The Usefulness of Instructional Media	Theoretical Subjects	Practical Subjects
I am more motivated to attend because lecturers use online instructional media.	3.26	2.72
My attention to lecture materials has increased due to online instructional media.	3.12	2.78

I better understand the lecture material after the lecturer uses online instructional media.	3.19	2.70
Online instructional media used by lecturers can increase student participation in learning.	3.24	2.75
I gained a substantial learning experience with the use of online instructional media.	3.15	2.75
I obtained optimal learning outcomes with the use of online instructional media.	3.15	2.74
I obtained satisfactory grades with the use of online instructional media.	3.27	3.02
I can learn more independently by using online instructional media.	3.25	3.09
Average score	3.20	2.81
Total	*3.05*	

Table 5: The students' perspective on the usefulness of instructional media
Author [source]

Table 5 shows that in terms of the usefulness of instructional media, the students perceived theoretical subjects better than practical ones. It can be seen from the average score for the theoretical subjects (3.20), which is higher than the practical subjects (2.81). This phenomenon may be due to the difficulties faced by students in understanding the lecture material since it needs hands-on experience. In theoretical subjects, students found that using online instructional media in the learning process may increase their motivation, attention, and participation since they gained concrete learning. As it was stated by Padmadewi et al. (2017) that instructional media increases motivation, interest, participation, and student independence. By using a variety of instructional media, students have the opportunity to understand the lecture material. Students can read the material provided through lecture modules, PPT, Google Classroom, and learning videos that can be repeated if they cannot be understood. In addition to evaluating understanding, video conferencing through Google Meet or Zoom media is expected to increase knowledge of the material being taught.

However, students still face obstacles when using online instructional media in practical subjects. Common problems are due to the limitations of existing learning media and practice machines that cannot be controlled, and benefits are obtained when done online (Khan & Abid, 2021; Asgari et al., 2021). This problem must be immediately resolved, especially in developing instructional media for practical subjects. It is necessary to create valuable instructional media that can accommodate students to carry out simulations with specific machines that are real-time (Yulian & Ruhama, 2021; Tafakur et al., 2021). Another obstacle is the problem of unstable internet connections and the lack of student motivation. There is also a need for teachers who can attract interest to increase student motivation to participate in learning.

In addition, the big challenge for students is that they are not under the complete control of the lecturer in in-class lectures. This condition requires students to learn independence. However, on the other hand, students feel that with the 2-way interaction from the lecturer to the student, they feel more motivated to learn. Moreover, if the lecturer is more open to students to accept questions and assistance, students will feel more helpful in understanding the material effectively. When lecturers give feedback on their tasks, they think that the lecturers are paying attention to them; in this case, it is a form of incentive for them, which is expected to increase student motivation.

In the interview, the students said that some lecturers provide videos, modules, and video links that help to learn in addition to interaction with direct lecturers. A class forum for lecturer and student interaction is needed to increase the student's motivation. The use of video conferencing is very effective because it can be repeated recordings. In addition, student-lecturer interaction remains. They also mentioned that the instructional media provided by lecturers (video, youtube links) are helpful for students because they can be rewatched anytime. This idea is supported by the fact that online learning can be effective if the material is packaged in a form that students like, such as using videos, pictures, posters, and so on (Huwaidi et al., 2021). It is also influenced by interactive and innovative instructional media that can enhance students' learning motivation (Nuriansyah, 2020).

The students admitted that learning online requires student awareness. Students must practice independently and increase their motivation to learn outside the formal classes, for example, by asking google, friends, or lecturers. They added that sometimes if students have difficulty interacting with lecturers, eventually, students learn to be independent or ask friends. Moreover, based on the student's opinions, Virtual Lab helps them with general knowledge. However, if it is used to help explain a practical course, it is better to use live video. This condition is in line with Padmadewi et al. (2017), stating that instructional media would provide opportunities for students to interact directly with their environment and the reality on the ground and ultimately provide opportunities for students to learn independently.

The Quality of Instructional Media
Another indicator of the effectiveness of online instructional media is the quality of the learning media used during lectures. The students' answers concerning the quality of instructional media are shown in the table below.

The Quality of Instructional Media	Theoretical Subjects	Practical Subjects
The display of images of online instructional media used by lecturers is attractive.	3.15	2.89
The presentation of material in online instructional media is easy to understand.	3.02	2.73
Online instructional media uses audio, visual, or audio-visual media.	3.35	3.04
Average score	3.17	2.89
Total	*3.03*	

Table 6: The students' perspective on the quality of instructional media
Author [source]

Table 6 shows that in terms of the quality of instructional media, the students perceived theoretical subjects better than practical ones. It can be seen from the average score for the theoretical subjects (3.17), which is higher than the practical subjects (2.89). This situation shows that the instructional media in theoretical subjects has good quality, attractive presentation, and is equipped with visual, audio, and audio-visual applications.

Meanwhile, online instructional media in practical subjects is also considered good. This result means that the media used can be applied by lecturers and students well because it has good

quality. However, the media used so far are instructional media that already exist, whether in the form of video files on YouTube or other media. The lecturers are constrained by obtaining software in the engineering field, which requires a license and is paid because there is no institutional readiness to subscribe, so they use demos or simulations that are limited in their use (Yulian & Ruhama, 2021).

According to the students, providing a youtube link/learning video only during lecture hours is still considered insufficient because there is a need for direct questions and answers between lecturers and students. If it is just a video, the impression is that it is not in college, just like being released. Communication between lecturers and students in 2 directions is still needed, so students understand the subjects more clearly and better. The solution that is expected to be carried out is the improvement and procurement of several online learning facilities in the form of software or other equipment according to the needs of lecturers and students in the learning process. The institution is also expected to be able to prepare a Learning Management System (LMS) that can facilitate the needs of lecturers and students in the learning process. This result is expected to increase success in students' learning.

The Teacher's Ability to Use the Instructional Media
The students' answers concerning the teacher's ability to use the instructional media are shown in the table below.

The Teacher's Ability to Use Instructional Media	Theoretical Subjects	Practical Subjects
Lecturers use effective teaching aids/instructional media.	3.47	3.21
Lecturers explain the subject clearly using online instructional media.	3.32	3.01
Lecturers take advantage of adequate learning time by using online instructional media.	3.31	3.01
Average score	3.37	3.07
Total	*3.22*	

Table 7: The students' perspective on the teacher's ability to use instructional media
Author [source]

Table 7 shows that in terms of the teacher's ability to use instructional media, the students rated theoretical subjects slightly better than practical ones. It can be seen from the average score for the theoretical subjects (3.37), which is somewhat higher than the practical subjects (3.07).

For some students, using online instructional media has challenges, especially in practical lectures where students have been assigned to study engineering applications and are required to complete specific tasks. This condition is related to the indicator of the effectiveness of the use of instructional media, namely the ability of lecturers to use instructional media.

In theoretical and practical subjects, the ability of lecturers to operate online instructional media is considered good. Lecturers use adequate instructional media to deliver lecture material effectively within the allotted time. However, the obstacle is that some lecturers are not accustomed to using educational technology that supports online learning, so the online learning process is considered less effective (Yulian & Ruhama, 2021; Muthuprasad et al., 2021). The lecturers need to receive training on using technology-based learning media so that the lecture

process can run smoothly and increase students' understanding of the lecture material. This effort is expected to improve student learning outcomes.

Based on students' perspectives, generally, lecturers have effectively used the media.   However, they added that if the lectures only use the Whatsapp Application during the teaching and learning activity is still considered lacking since there needs to be a direct question and answer during discussion and interactive sessions. They also mentioned that the effectiveness of online learning could depend on the material and the lecturer. They said outgoing lecturers help the effectiveness of the teaching and learning process.

From the findings, in general, the students seem to be very enthusiastic about online instructional media. Moreover, based on their answers, it can be said that the students can learn both theoretical and practical subjects by using the instructional media provided by the teacher. This phenomenon can happen if the teacher prepares and operates the instructional media effectively to improve the student's academic achievement. They should use various online instructional media suitable for the subject learning outcome, such as preparing videos and youtube, modules, and video links that help students learn and interact with direct lecturers. A class forum for lecturer and student interaction is needed to increase the student's motivation. The use of video conferencing is very effective because it can be repeated recordings. Based on the student's opinions, Virtual Lab helps them with general knowledge. However, if it is used to help explain a practical subject, it is better to use live video. The teacher should also pay attention to the choice of instructional media to enhance students' hands-on experience, such as providing several software simulations of specific machines. The students should be encouraged to participate in the online classroom actively.

CONCLUSION

Overall, the findings show that online instructional media usefulness is at an adequate level (3.15 out of 4). Online instructional media is used based on several criteria, namely, relevance to the subject matter, characteristics, and learning objectives; the usefulness of learning media to increase interest, participation, motivation, and student learning outcomes; the quality of the instructional media; and the ability of the teacher to use instructional media.

Students experience many advantages from online instructional media. They mostly show a positive understanding of the use of online instructional media. Interaction between lecturers and students during online learning is essential. Feedback on student questions and assignments is critical to ensure the material is conveyed well to students and is a form of motivation. The teacher should find effective instructional media to be used in teaching and learning to increase students' motivation and make them more independent.

In conclusion, the students perceive that online instructional media increases their confidence and competence in learning and that their awareness of mastering a subject matter is slightly increased, significantly in theoretical subjects. This condition can lead to active classroom participation and promote their learning capacity. Meanwhile, students still encountered obstacles in practical classes due to the need for hands-on training. The teacher should consider the instructional media that will enhance students' hands-on experience, such as providing a variety of software simulations of specific machines. The institution should also find ways to cope with these problems by enhancing software and hardware facilities to encourage and support online learning.

Since this study mainly concerns students' perspectives, further research can identify teachers' perspectives regarding the use of effective instructional media, the interaction between teachers and students during online learning, and other indicators.

As practical implications of this study, the instructional media used should also be accompanied by the ability of the lecturer to use it so that student learning success can be optimal. The institution must provide the trend of using technology for lecturers, and there is a need to improve the competence of teachers in using online instructional media through training in the use of various technology-based learning media. Improving software and equipment facilities that encourage and support the online learning process is necessary.

ACKNOWLEDGEMENTS

REFERENCES

Abdulkareem, Z.O., Abdulkareem, S.A., & Mustapha, IB (2022). Engineering Students' Perception of Online Learning During the Emergency Nationwide Lockdown in Nigeria. *SN Computer Science* 3:288. https://doi.org/10.1007/s42979-022-01196-9

Amin, M., Sibuea, A.M., Mustaqim, B. (2022). The Effectiveness of Online Learning Using E-Learning During Pandemic Covid-19. *Journal of Education Technology. 6*(2), 247-257. https://dx.doi.org/10.23887/jet.v6i2.44125

Amin, N. F., Latif, A. A, Arsat, M., Suhairom, N., Jumaat, N. F., & M. E. Ismail. (2020) The Implementation of The Internship as A Coursework in Teaching and Learning Vocational Education, J. *Tech. Educ. Train., 12* (1) Special Issue, 82–90. doi:10.30880/jtet.2020.12.01.009

Asgari S., Trajkovic, J., Rahmani, M., Zhang, W., Lo R.C., & Sciortino, A. (2021). An Observational Study of Engineering Online Education during the COVID-19 Pandemic. *PLoS ONE 16*(4): e0250041. https://doi.org/10.1371/journal.pone.0250041

Arsyad, A. (2013). *Media Pembelajaran.* Jakarta: P.T. Raja Grafindo Persada.

Ariyani, E.D., & Hadiani, D. (2020). Hubungan Pola Keterampilan Komunikasi Interpersonal dan Prestasi Akademik Mahasiswa. *Jurnal Sosial Humaniora dan Pendidikan (JSHP), 4*(2), 141-149.

Asnawir & Usman, M.B. (2002). *Media Pembelajaran.* Jakarta: Ciputat Pers.

Aulia, I., Rohendi, D., Berman, E.T., & Wiyono, A. (2020). Students' Perception of The Implementation of Online Learning on Air Conditioning Engineering Course. *Journal of Mechanical Engineering Education, 7*(2), 207-215.

Azhari, B. and Fajri, I. (2021). Distance Learning during the COVID-19 Pandemic: School Closure in Indonesia. *International Journal of Mathematics Education and Science Technology.* 1–21.

Callan, V. J., Johnston, M. A. and Poulsen, A. L. (2015). How Organisations Are Using Blended E-learning to deliver More Flexible Approaches to Trade Training. *Journal Vocational Education Training. 67*(3), 294–309.

Dantes, G.R., Rinawati, N. K. A., Suwastini, N. K. A., Artini, N. N. (2002). Vocational School Students' Perception of Google Classroom in Full Online Learning at The Beginning of The COVID-19 Pandemic. *Jurnal Pendidikan Teknologi dan Kejuruan. 19*(2). 86-94. doi: https://doi.org/10.23887/jptkundiksha.v19i2.47917

Erliana, H., Safrizal, Nuthihar, R., Luthfi, Wahdaniah, Jaya, I., & Herman, R.N. May (2021). Vocational Students' Perception of Online Learning During the COVID-19 Pandemic. *Jurnal Pendidikan Teknologi dan Kejuruan, 27*(1), 57-65. doi: https://doi.org/10.21831/jptk.v27i1.34283

Huwaidi, F., Nandiyanto, A.B.D., & Muhammad, N. (2021). The Urgency of Online Learning Media during the Covid-19 Pandemic at the Vocational School in Indonesia. *Indonesian Journal of Educational Research and Technology, 1*(2), 35-40.

Fahruddin, Jana,P., Setiawan, J., Rochmat, S., Aman, & Yuliantri, R.D.A. (2022). Student Perception of Online Learning Media Platform During the Covid-19 Pandemic. *Journal of Education Technology, 6*(1), 126-132.

Falahudin, I. (2014). Pemanfaatan Media dalam Pembelajaran. *Jurnal Lingkar Widyaiswara 1*(4), 104 – 117.

Istikhomah, H., Indarto A.S., & Tustika, D. (2014). Persepsi Mahasiswa Tentang Media Pembelajaran E-Learning Students Perception E-Elearning In Obstetrics Departement. *Jurnal Ilmu Kebidanan, 2*(2). http://ejournal.akbidyo.ac.id/index.php/JIK/article/view/59/56

Khan, Z.H., & Abid, M.I. (2021). Distance Learning in Engineering Education: Challenges and Opportunities during COVID-19 Pandemic Crisis in Pakistan. *International Journal of Electrical Engineering & Education 0*(0) 1–20.

Kusuma, W.M., Sudira, P., Hasibuan, M.A., Daryono, R.W.(2021). The Perceptions of Vocational School Students of Video Animation-Based Learning Media to Operate Lathes in Distance Learning. *Journal of Education Technology. 5*(2) 200-206. doi: https://doi.org/10.23887/jet.v5i2.33139

Lusiana, B., & Maryanti, R. (2020). The Effectiveness of Learning Media Used During Online Learning. *Media Pendidikan, Gizi, dan Kuliner, 9*(2) 81-92.

Monica, J., & Fitriawati, D. (2020). Efektivitas Penggunaan Aplikasi Zoom Sebagai Media Pembelajaran Online Pada Mahasiswa Saat Pandemi Covid-19. *Jurnal Communio : Jurnal Ilmu Komunikasi, 9*(2,),1630 – 1640.

Mulyanti, B., Purnama, W., and Pawinanto, R. E. (2020). Distance Learning in Vocational High Schools during The covid-19 Pandemic in West Java province, Indonesia. *Indonesian Journal of Science and Technology. 5*(2), 271–282. doi: https://doi.org/10.17509/ijost.v5i2.24640

Mushfi, M.B. (2019). Implementasi Media Pembelajaran Berbasis Teknologi Informasi dan Komunikasi dalam Distance Learning. *TARBIYATUNA: Kajian Pendidikan Islam, 3*(1). http://ejournal.iaiibrahimy.ac.id/index.php/tarbiyatuna/article/view/198/

Muthuprasad, T., Aiswarya, S., Aditya K.S., & Jha. G.K. (2021). Students' Perception and Reference for Online Education in India during COVID -19 Pandemic. *Social Sciences & Humanities 3* 100101.

Nasution, A. K. P., Ahmad, N.Q. (2020). Student Perceptions of Online Learning during The COVID-19 Pandemic. *Jurnal As-Salam, 4*(2) 195-204. doi: https://doi.org/10.37249/as-salam.v4i2.219

Nuriansyah, F. (2020). Efektivitas Penggunaan Media Online Dalam Meningkatkan Hasil Belajar Mahasiswa Pendidikan Ekonomi Pada Saat Awal Pandemi COVID-19. *Jurnal Pendidikan Ekonomi Indonesia, 1*(2), 61-65.

Padmadewi, N, (2017). *Micro Teaching.* Depok: PT. Raja Grapindo Persada.

Permata, N.P., & Hadiani, D. (2021). The Effectiveness of Online Teaching and Learning   in Polman Bandung. *SOSHUM Jurnal Sosial dan Humaniora. 11*(2). doi: http://dx.doi.org/10.31940/soshum.v11i2.1816

Putranti, N. (2013). Cara Membuat Media Pembelajaran Online Menggunakan Edmodo. *Jurnal Pendidikan Informatika   dan   Sains,   2*(2).   doi: https://journal.ikippgriptk.ac.id/index.php/saintek/article/view/224/223

Rosyid, M. Z., Sa'diyah, H., & Septiana, N. (2019). *Ragam Media Pembelajaran.* Malang: Literasi Nusantara.

Syauqi, K., Munadi, S., Triyono, M.B. (2020). Students' perceptions toward vocational education on online learning during the COVID-19 pandemic. *International Journal of Evaluation and Research in Education (IJERE). 9*(4), 881-886. doi: 10.11591/ijere.v9i4.20766

Sumiharsono, R., & Hisyatul, H. (2018). *Media Pembelajaran.* Jawa Timur: CV Pustaka Abadi.

Tafakur, Solikin, M., & Dewi, A.S. (2021). Student's Perception on Online Instructional Media Effectiveness in Automotive Field. *Vanos Jurnal of Mechanical Engineering Education. 6*(2), 156-170.

Tafqihan, Z. (2011). Karakteristik dan Pemilihan Media Pembelajaran dalam E-Learning. *Cendekia, 9*(2).

Wang, H.H, Huang, R.H., Liu, D.J., Tlili, A., & Yang, J.F., (2020). *Handbook On Facilitating Flexible Learning, During Educational Disruption: The Chinese Experience In Maintaining Undisrupted Learning in Covid-19 Outbreak.* Smart Learning Institute of Beijing Normal University.

Wibawanto, W. (2017). *Desain dan Program Multimedia Pembelajaran Interaktif.* Jember: Cerdas Ulet Kreatif.

Yulian, R., & Ruhama, U. (2021). Academic Technology Experience and Preference on Online Learning in Indonesian Higher Education Institutions: Students' Perspectives. *Jurnal Pendidikan dan Pengajaran. 54*(3), 506-517.

Zulkifli, N., Nurmayanti, & Ferdiansyah H. (2021). Efektifitas Media Pembelajaran Daring di Masa Pandemi Covid-19. *Jurnal Edumaspul, 5*(1), 71-77.