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## Preface

This e-book describes the research papers presented at the International Conference on Emerging Computational Technologies (ICECoT 2021), organised by Faculty of Computer and Mathematical Sciences (FSKM), UiTM Cawangan Melaka. The main discussions of the conference is on the technological advances that help shape the skills that are required to cope with the Fourth Industrial Revolution (IR 4.0). Considering that this is our first attempt at organising a conference, we are therefore greatly honoured that the Universitas Negeri Semarang (UNNES), Indonesia, Mahasarakham University (MSU), Thailand and University of Hail (UoH), Saudi Arabia have all agreed to become our partners by contributing several reseach papers as well as providing reviewers to assess the quality of the papers.

Out of the numerous research works that had been submitted and reviewed, the Editorial Board have selected 22 papers to be published in the e-book. The discussions of these papers pertain to the use of technologies within the broad spectrum of Computer Science, Computer Networking, Multimedia, Information Systems Engineering, Mathematical Sciences and Educational Technology. It is hoped that the research findings that are shared in this e-book can benefit those who are interested in the various areas of computational technologies; such as graduate students, researchers, academicians and the industrial players, to name a few.

As the Project Manager, I would like to thank all of the committee members from the bottom of my heart for their tireless efforts in ensuring the success of ICECoT 2021. Without their continual support and excellent teamwork, this conference would not have come to fruition. In fact, holding this major event has been a good learning experience for us all, and I sincerely believe that our future conferences will become more outstanding if the same spirit is maintained.

**Dr. Noor Aishikin Adam**

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# Analysis of Students' Motivation in Distance Education on Department of Audio Video Engineering

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**Abstract**—This study aims to measure the students' motivation in distance education in mathematics subject of Department of Audio Video Engineering. This study uses a quantitative approach with a survey method. The research is conducted at SMK Negeri 1 Kepil with a sample of 89 students. Data is collected through a questionnaire with a Likert scale. The final result of the study indicates that the students' motivation in distance education in mathematics subject of Department of Audio Video Engineering during the Covid-19 pandemic is in a very good category with an average percentage score of 70.39%. Even if there are two indicators showed a good category, namely independence and readiness in learning with a percentage score of 58.43% and 59.06%. This study is expected to provide an objective description of how the students' motivation in distance education on Department of Audio Video Engineering during the Covid-19 pandemic is, so that this can be used as an evaluation material in creating effective distance education in the midst of Covid-19 pandemic.

**Keywords**—*covid-19, distance education, learning motivation*

## I. INTRODUCTION

Coronavirus Disease 2019 (Covid-19) led by Severe Acute Respiratory Syndrome Coronavirus 2 or SARS-CoV-2 has caused many deaths and is declared a global pandemic [1]. As the information within the world indicate the increasement of coverage and impacts of this contagious and fatal disease, several countries enact national emergency state. Republic of Indonesia as one among countries with high infected population has additionally implemented some policy reforms in many sectors. The Covid-19 pandemic affects almost all aspects of life, including education [2]. The sudden emergence of the Covid-19 outbreak has caused the education in Indonesia must follow a path that can help school conditions in an emergency. Schools need to force themselves to use online media. This will clearly change the learning pattern which requires teachers and education developers to provide learning materials and master learning media to carry out learning activities so that learning objectives can be achieved optimally.

Distance education is a learning system that is carried out using a platform that can help the teaching and learning

process even if it is done remotely [3]. Distance education allows students to have the flexibility to study time so they can study anytime and anywhere. In addition, students can interact with lecturers using several applications such as e-classroom, video conference, telephone, or live chat, zoom or via WhatsApp group [4]. According to [5] distance education is an education system that provides opportunities for students and teachers to explore distance learning places in the wider world. The change in education system has had a major impact in the world of education. This educational change is a condition that requires students to enter information literacy in an academic culture. One of the reasons for this big change is that distance education is happening suddenly. This has a major impact on the readiness of schools, teachers, and students in carrying out inadequate learning [6]. This is in contrast with [7] that not all of offline learning can be switched to online learning.

The distance education program is in force to any or all education institutions. It is undertaken the learning from historically face-to-face approaches to remotely digital platforms. This unforeseen transformation has been debatable because of the quality of education resulted. Some previous studies unconcealed that the online learning throughout the Covid-19 pandemic era in Indonesia has caused blessings whereas others has caused disadvantages. On one hand, online learning was rumored useful for students as a result of they had high interaction to rich learning materials regardless time and place additionally as high chance to experience digital learning programs.

SMK Negeri 1 Kepil is one of the Vocational High Schools in Wonosobo district that has four departments, the departments are Motorcycle Business Engineering (TBSM), Fashion Design (TB), Audio Video Engineering (TAV), and Accounting (AK). Online learning at SMK Negeri 1 Kepil has been carried out since the implementation of work from home on 16 March 2020 during the Covid-19 pandemic periods. In the online learning process, many students from Audio Video Engineering Department are not doing assignments. Moreover, student activity in online learning is also low, particularly in learning mathematics subject.

As distance education needs students' participation on their own responsibility for their own learning, they're unable to just be a part of on the category with alternative students. The requirement forces them to participate in the online class with their own awareness, to gain new knowledge and data whereas interacting with teacher and other students. One of the successes in learning is related to the motivation possessed by students. Motivation is considered an important factor for successful learning including in online learning environments.

Selvi states that online learning is often required to be more motivated because the learning environment usually depends on motivation and characteristics related to curiosity and self-regulation to be involved in the learning process [8]. The challenge with an internet learning activity is that students opt for however they interact with activities, the teacher and alternative students. Once designed carefully, however, instructors will use numerous techniques to form online activities pertinent and interesting to students. So it is necessary to reconsider the motivation to learn in the learning environment in depth about how motivated students are in learning, especially learning activities carried out during the Covid-19 pandemic. The indicators in this study are related to the 8 indicators described by Hamzah B. Uno [9], namely concentration, curiosity, passion for learning, independence, readiness, enthusiastic, never giving up, and self-efficacy. This study is expected to provide an objective description of how is the students' motivation in distance education on Department of Audio Video Engineering during the Covid-19 pandemic, so that this can be used as an evaluation material in creating effective distance education in the midst of Covid-19 pandemic.

## II. METHOD

The research is conducted at SMK Negeri 1 Kepil with a sample of 89 students. The sampling technique used in this study is saturated sampling. Data is collected through a survey technique with a Likert scale. Survey is made in google form so that it is easily accessible by students. The data analysis is to use a percentage of data, then interpret the presentation score and analyze it in depth

TABLE II. STUDENT MOTIVATION IN DISTANCE EDUCATION

Indicator	Aspect	Percentage	Criteria
Concentration	Paying attention to the teacher's delivery and explanation	73.93%	Very good
	Taking notes on the materials delivered during the learning process	66.74%	Very good
Curiosity	Interested in the teaching materials and materials presented	77.75%	Very good
	Asking questions about the materials being taught	70.34%	Very good
Passion for learning	Having a passion for learning to convey ideas and opinions during the learning process	72.58%	Very good
Independence	Using free time to review lessons	58.43%	Good
Readiness	Ready to answer or do the assignments	59.06%	Good
Enthusiastic	Having a desire to get a good score from each assignment	75.73%	Very good
Never giving up	Never giving up on studying even if you have difficulties	70.06%	Very good
	Being able to solve problems even if the problem has never been experienced before	75.06%	Very good
Self-efficacy	Believe in the abilities that are owned	74.61%	Very good
Average		70.39%	Very good

This study is a quantitative research. The characteristic of quantitative research is that the data analysis technique uses quantitative techniques (statistics) objectively [10]. While the type of study uses a survey method with a Likert scale. According to [11] survey research is seen as a method to describe quantitatively specific aspects of a certain population so that data collection is carried out to a group of people whose results can be generalized back into a certain population. Survey research is very suitable to be used in revealing how is the student learning motivation in distance education in mathematics subject during the Covid-19 pandemic. The subjects in this study are students of Audio Video Engineering Department at SMK Negeri 1 Kepil, Jawa Tengah.

The instrument used in this study is a survey data. The survey is in the form of a questionnaire which is made on google form so that it is easily accessible to students. This survey aims to reveal in detail about the student learning motivation of Audio Video Engineering Department in distance education in mathematics subject during the Covid-19 pandemic. This type of survey uses a Likert scale. As for the interpretation of the score based on the intervals in Table I below.

TABLE I. SCORE INTERPRETATION CRITERIA

Percentage	Criteria
0% - 19.99%	Poor
20% - 39.99%	Fair
40% - 59.99%	Good
60% - 79.99%	Very good
80% - 100%	Excellent

## III. RESULTS AND DISCUSSION

The learning motivation survey is given to students of SMK Negeri 1 Kepil, Jawa Tengah, involving 89 students of Audio Video Engineering Department, with details are 36 students in class X, 33 students in class XI, and 20 students in class XII. The survey results are described in Table II.

Students who have high learning motivation have a desire to get a good score, so that to achieve this goal students should study well and diligently. High student motivation to learn can be seen based on several indicators, one of which is related to concentration. According to [12], concentration will make students understand the material being taught, this is as a result of attention to focus on what the students are interested in.

Based on Table II known that several aspects that considered in seeing the concentration of students in the learning process are Paying attention to the teacher's delivery and explanation with a percentage score of 73.93% including a very good criteria. By paying attention to the the teacher's delivery and explanation in the learning process, students will be able to understand a lesson that is being explained. Taking notes on the materials delivered during the learning process with a percentage score of 66.74% including a including a very good criteria. Note-taking activity is one of the activities that will help students to achieve a good learning outcomes. Note-taking activities will help students to remember the lessons that the teacher has delivered during the learning process. Moreover, taking notes will become a good habit that will help students to achieve their goals. Of these two aspects, it can be concluded that the concentration of students in the learning process is included in a very good criteria with a percentage score of 70.34%.

The second indicator related to learning motivation is curiosity. Curiosity is a very important initial capital in the learning process, with high student curiosity about a lesson will encourage students to find what they want to know [13]. The aspects of curiosity of this study are Interested in the teaching materials and materials presented with a percentage score of 77.75% including a very good criteria, and Asking questions about the materials being taught with a percentage score of 70.34% including a very good criteria. This means that students are able to have the courage to ask questions so that active learning is created. Thus, it can be concluded that the curiosity of students in learning is included in a very good criteria with a percentage score of 74.05%.

The third indicator is related to passion for learning. Motivation and passion for learning have a very important relationship in learning activities, this shows that teachers and students must show high passion for learning. According to [14] the passion of learning of instructors in teaching students is closely related to student interest in learning. The aspect of this study is about having a passion of learning to convey ideas and opinions during the learning process with a percentage score of 72.58% including a very good criteria. That is, the students of Audio Video Engineering Department dare to convey ideas and opinions in online learning.

The fourth indicator is related to independence. Independence in learning is important things to explore every aspect that will be learned. Assegaf states that there is a significant relationship between independent learning and learning outcomes in online learning [15]. The aspect of concern in independence related to use free time to review lessons with a percentage score of 58.43% including a good criteria.

The fifth indicator relates to student readiness in learning. The aspect of this study is ready to answer or do the assignments with a score of 59.06%, so it could be interpreted that the readiness of students in doing any given assignment

is included in a good criteria. The conditions of online learning during the Covid-19 pandemic have quite limitations, this is what makes some teachers often give assignments that make students sometimes not to do these assignments, even students think that the assignments given during the Covid-19 pandemic are far more than face-to-face learning.

The sixth indicator is related to enthusiastic. The aspect of this study is about having a desire to get a good score from each assignment with a percentage score of 75.73% including a very good criteria. This shows that students have good enthusiastic to get a good score of each assignment given after the learning process. The desire to get a good score must be balanced with high effort and hard work, either in the learning process or when doing assignments.

The seventh indicator is about never giving up in learning. Never giving up is the main key for every student to get a good score. The aspects of this study are Never giving up on studying even if you have difficulties with a percentage score of 70.06% including a very good criteria, and Being able to solve problems even if the problem has never been experienced before with a percentage score of 75.06% including a very good criteria. Of these two aspects, it can be concluded that the indicator never giving up in the learning process is included in a very good criteria with a percentage score of 72.56%.

The last indicator is self-efficacy, while the aspect of this study is about believe in the abilities that are owned with a percentage score of 74.61% including a very good criteria. Thereby, it can be concluded that students have good confidence in their abilities, it's just that in doing assignments they are still not maximal and are included in good criteria.

Based on the results of the analysis obtained from Table II above, the student learning motivation of Audio Video Engineering Department in distance education in mathematics subject during the Covid-19 pandemic shows an average percentage score of 70.39%. Therefore, it can be inferred that the student learning motivation of Audio Video Engineering Department in distance education in mathematics subject during the Covid-19 pandemic is in a good category. Nevertheless, the indicators of independence and readiness are still in good criteria and need to get more attention from mathematics teachers so that the online learning process in the future can increase student motivation in doing assignments and using free time to review lessons.

#### IV. CONCLUSION

The final results that can be inferred from the results of the research and discussion that have been described are of the 8 indicators of learning motivation showed that the student learning motivation of Audio Video Engineering Department in distance education in mathematics subject during the Covid-19 pandemic is included in a very good category with an average percentage score of 70.39 %. Even if there are two indicators showed a good category, namely independence and readiness in learning with a percentage score of 58.43% and 59.06%. For future research, this study is good to continue with regression analysis so that this study is of better quality.

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