The Effectiveness of Social Media as An Online Learning Pattern in Improving the 3 Domains of Student Intellectual Ability During the Pandemic (Covid-19)

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ABSTRACT

Covid-19 has become an important note for the revolution of human civilization, various speculations that discuss the negative impact more intensively than the positive impact of this problem (a case study of a private university in West Manggarai, East Nusa Tenggara). The use and utilization of technology is an alternative way for a private higher education institution to respond to the government's prohibition of conducting face-to-face lectures with online learning. After this rule was implemented, problems began to arrive on the part of students regarding the effectiveness of online learning with the constraints of inadequate network technology in their area. Using social media as an effective learning tool during a pandemic is an easy alternative to implement. Research on students and teaching staff can affect the effectiveness of online learning. Bloom's Taxonomy Learning Theory is used to identify the skills of students starting from a low level with three domains of intellectual ability, namely. Cognitive, Affective, Psychomotor. Social media is a means of proving the effectiveness of online learning applied to students, by conducting research and development on thinking skills in the teaching and learning process to produce students who are competent in their fields.

Keywords: E-Learning Patterns, Pandemic Period, SocialMedia, Bloom's Taxonomy.

1. INTRODUCTION

Information technology is an important facility in the structure of education and research. The impact of the Covid-19 Pandemic has changed the way we work and carry out activities in teaching and learning activities. The new life order (new normal) requires us to be able to adapt, one of which is the use of information technology in schools and colleges. The pandemic period (Covid-19), imposing Physical Distancing to prevent the spread of the coronavirus, of course requires innovation or patterns in fulfilling the educational curriculum with a composition of 40% theory learning and 60% practice, so that the application of distance learning (e-learning) can be realized by effective social media learning patterns.

At present, utilizing information technology for the learning process must understand the characteristics of the conditions and situations of the Covid-19 pandemic [1]. IT is the right strategy to deal with changes in the learning environment in higher education [2]. The higher education curriculum must be consistent even though there are government regulations regarding the protocol (Covid-19) with the e-learning learning process in order to still produce competitive graduates [3]. Social media describes a variety of digital technologies that are in great demand and allow data to be accessed, transmitted, stored and modified over the network. Social media platforms (such as Facebook, Twitter, YouTube, Instagram, TripAdvisor, and LinkedIn), are some examples of information technology media that are well known to all ages [4]. Integrating digital media in tertiary institutions and study programs during a pandemic offers innovative potential in the teaching and learning process due to consideration of student performance evaluation and academic success with dimensional teaching methods integrated with digital media [5]. Effective exchange of information, enhances intelligence for students facilitated in two directions between teaching staff and students, thus supporting the collection of internal and external information data when e-Learning is carried out [6].

Organizations are undergoing a global digital revolution with a very large impact on the business models and electronic business processes they use [7]. It is generally accepted that there are differences in the way children and adults learn, adults want more instruction, independent learning, and emphasis on their individual needs [8]. Teachers or lecturers must be ready to implement new teaching and learning practices along with deeper understanding during the Covid-19 pandemic [9]. Transition of Teaching and Learning in Information Technology Classrooms includes the use, application of current technology concepts and practices in utilizing computer programming, networks, hardware, databases, web technology and social media [10]. The term technology can represent the simplest tool to help the learning process [11]. The biggest challenge in using technology for education is the focus not on technology itself but on students and learning [12]. The growth of online education still raises concerns about the quality of curriculum and teaching, student experience, and technology use [13]. The changing information environment affects student education, and also emphasizes the need for lifelong education to prepare a reliable workforce [14]. Wireless connections and cellular technology have changed the flow of information and changed the way students learn [15]. Some faculty members think this is a good idea because they will be able to reach students they previously could not reach and provide insights from the learning material that is conveyed repeatedly [16]. Formal and informal education are now more needed during the Covid-19 pandemic [17].

2. METHOD

The type of research used is qualitative research with data collection through observation and interviews first. The research objective is to describe the online learning carried out at the Information Technology Study Program of the Polytechnic eL Bajo Commodus Labuan Bajo as an effort to suppress the chain of Covid-19 spread in the education area. Online learning referred to in this research is learning that uses learning media that can be accessed using internet services [10]. The research was conducted by conducting a survey of students regarding the application of online learning. The survey is distributed using a google form which is given to students via WhatsApp messages so that they can consume, participate, contribute, and share online [18].

2.1. Social Media

Media is a platform that focuses on the existence of users that facilitates them in their activities and collaboration [19]. Social media can Along with the growth of online education in times of pandemic, there are still concerns about the quality of curriculum,

teaching, student experience, and the use of technology to explore their knowledge [13].

2.2. Social Media Characteristics

The characteristics of Social Media are the driving force for the contribution and feedback of every student who is interested or has an interest in using the media and the audience. Perceptions of ease of use and perceptions of the usefulness of social media by distance learners can influence their acceptance of social media learning which is very likely to hold conversations or use in both directions [20]. Some of the characteristics of Social Media are as follows. Network (Network) is an infrastructure that connects computers with other hardware. Distance learning gives students the privilege of being free from time constraints, limited space and offers flexible learning opportunities for anyone who has a predisposition to higher education [20][14]. This connection is necessary because communication can be connected between computers, including data transfer. Information (Informations) is an important entity in Social Media because social media users create representations of their identity, produce content, and interact based on information. Students use this as a medium of communication and serve as a tool to build a positive impression [21]. Archives (Archive) For Social Media users, archives become a character that explains that information has been stored and can be accessed at any time and through any device, Social networks, blogs, wikis, and other collaborative applications where the end user is no longer just an audience, but a participant which generates content continuously [22]. Interactivity (Interactivity) Social media forms a network between users that does not only expand the relationship of friends or followers (follower), but must be built with the interaction between these users in two directions [18]. Social media is unique and patterned. User-generated content on social media, the content is entirely owned by the user or account owner. This is different from the old (traditional) media where the audience is limited to being a passive object or target

2.3. Communication Effectiveness

CommunicationCommunication is the process of delivering a message by a person to another to inform or change an opinion, or behavior, either verbally or indirectly through the media, with the aim of informing, or changing the attitude, opinion, or behavior [19]. Internet users for the learning process are 20% Whatsapp and 80% YouTube, so these numbers show that the level of use of social media in the current generation is more effective if applied [21]. This is also the reason why universities in the country have begun to utilize social media for teaching and learning purposes by using some of the effectiveness of communication technology which continues to develop and change lightning fast [23] as

follows. **Determining the Object**, Before launching communication, it is necessary to learn who will be the target of communication. Of course this depends on the purpose of communication, to know (with informative methods) or take certain actions (persuasive and instructive methods) [19]. **Selection of Communication Media,** many in number to achieve communication goals must be able to choose one or a combination of several media, depending on technological advances that offer significant innovation potential in education [24]. **Objective assessment** is a communication message (message) that has a specific purpose for students who need assistance in their learning [25]. This determines which technique to take, whether it is information technique, persuasion technique or instruction technique. Whatever the technique, communication must understand communication messages that affect the use of technology [26]. Communication messages consist of the content of the message, or symbols. The contents of the communication message can be one, but the javelin can be used of various kinds [19]. **The role of the communicator,** in communication, becomes an important factor in communicators when communicating, namely source attractiveness and source credibility [19].

2.4. Bloom's Taxonomy

Taxonomy Taxonomy comes from two words in Greek, namely tassein which means to classify and nomos which means rule. So Taxonomy means a hierarchy of classification based on basic principles or rules [27]. This term was later used by Benjamin Samuel Bloom, an educational psychologist who conducts research and development on thinking skills in the learning process [27][28]. Objectives of Bloom's Taxonomy Theoretically determining educational goals which are divided into three domains, namely: Cognitive Domain , which contains behaviors that emphasize intellectual aspects, such as knowledge, understanding, and thinking skills. Affective Domain , contains behaviors that emphasize aspects of feelings and emotions, such as interests, attitudes, appreciation, and ways of adjustment. Psychomotor Domain (Psychomotor domain), contains behaviors that emphasize aspects of motor skills such as handwriting, typing, swimming, and operating machines. Bloom's Taxonomy has undergone two changes, namely Bloom's taxonomy and Anderson and KrathWohl's revised Taxonomy [[28][29]. The discussion of each is explained as follows:

2.4.1. Cognitive Realm

Goals or cognitive domains are the domains that include mental activities (brain). According to Bloom, all efforts related to brain activity are included in the cognitive domain [27]. In the cognitive realm, there are six levels of thought processes, from the lowest level to

the highest level which includes 6 levels, among others [30]. Knowledge (Knowledge) - C1 At the lowest level or level, this is intended as the ability to recall material that has been studied, for example: (a) knowledge of terms; (b) knowledge of specific facts; (c) knowledge of the convention; (d) knowledge of trends and sequences; (e) knowledge of classifications and categories; (f) knowledge of the criteria; and (g) knowledge of methodology [38]. Comprehension - C2 At this second level, understanding is defined as the ability to understand certain material, it can be in the form of: (a) translation (changing from one form to another); (b) interpretation (explaining or summarizing the material); (c) extrapolation (extend / expand the meaning / interpret data) [38].Application - C3 In this third level or level, application is intended as the ability to apply information in real situations or the ability to use concepts in practice or new situations [28]. Analysis - C4 Analysis is the 4th category or level in Bloom's taxonomy of cognitive domains. Analysis is the ability to decompose a material into its parts. The ability to analyze can be in the form of: (a) element analysis (identifying parts of the material); (b) relationship analysis (identifying relationships); (c) analysis of organizing principles (identify organizing / organization [28]. Synthesis (Synthesis) - C5 The fifth level is synthesis which is defined as the ability to produce. This fifth cognitive level can be: (a) producing unique communication; (b) produce a plan or activity that is intact; and (c) generate / produce a set of abstract relations [28]. evaluation (evaluation) - C6 Level 6th of Bloom's taxonomy in the cognitive domain was evaluated. the ability to conduct an evaluation is defined as the ability to assess the 'benefits' an object / thing for a specific purpose based on clear criteria There are at least two forms of evaluation according to Bloom, namely: (a) evaluation based on internal evidence, and (2) evaluation based on external evidence [28].

2.4.2. Affective Domain

Domain includes everything related to emotions, such as feelings, values, appreciation, enthusiasm, interests, motivation, and attitudes. These five domain categories are ordered from the simplest to the most complex behavior [26][31]. Receiving - A1 Refers to the ability to pay attention and respond to appropriate stimulation. Acceptance is the lowest level of learning outcomes in the affective domain. And the ability to show attention and respect for others [28]. Responsive (Responding) - A2 One level above acceptance. In this case, students become involved in an effective way, become participants and are interested. The ability to actively participate in learning and always motivated to immediately react and take action on an event [28]. Adhered value (Value) - A3 Refers to the value or importance of attaching ourselves to certain objects or events with reactions such as accepting, rejecting or ignoring them. These goals can be classified into

"attitude and appreciation". As well as the ability to show the values adopted to distinguish which ones are good and bad about an event / object, and these values are expressed in behavior [28]. Organization - A4 Refers to the unification of values, attitudes that cause internal conflicts and form an internal value system, including behavior that is reflected in a philosophy of life and the ability to form value systems and organizational culture by harmonizing value differences. Characterization - A5 Refers to a person's character and life force. Values are highly evolved, regular values so that behavior becomes more consistent and more predictable. The goals in this category have to do with the personal, social and emotional order of the soul [28].

2.4.3. Psychomotor Realm

Domains Psychomotor domains include physical movement and coordination, motor skills and physical abilities. This skill can be honed if you do it often. This development can be measured by the angle of speed, accuracy, distance, method/technique of implementation. There are seven categories in the psychomotor realm ranging from simple to complex levels [28][29].

Imitation - P1 Occurs when students observe a movement. Begins to respond similarly to those observed. Reduces coordination and control of nerve muscles. This imitation is generally global and imperfect [38]. Manipulation - P2 Emphasizes the development of the ability to follow directions, appearances, selected movements that determine an appearance through practice. At this level students display something according to instructions not only imitating behavior [28]. Appropriateness - P3 Requires greater precision, proportion and certainty in appearance. Responses are more corrected and errors are limited to a minimum [28]. Articulation - P4 Emphasizes the coordination of a series or movement by making the exact sequence and achieving the expected or internal consistency among different movements [38]. Experience - P5 According to behavior that is displayed with the least amount of physical and psychological energy expenditure. Movement is carried out regularly. Experience is the highest level of ability in the psychomotor domain [28]. Cognitive domain verbs, affective domain verbs, and psychomotor domain verbs are presented in Table 1 to Table 3.

Table 1. Cognitive Domain Verbs

Knowledge C1	Understanding C2	Application C3	Analysis C4	Synthesis C5	Assessment C6
Quoting	Estimating	Assign	Analyze	Abstract	Comparing
Mention	Explain	Sort	Audit	Set	Conclude
Explain	Categorize	Determine	Solve	Animating	Rate
Draw	Characterize	Apply	Confirm	Gather	Directing
Say	Detailing	Adjust	Detect	Categorize	Criticize
Identify	Associate	Calculating	Diagnose	Code	Weigh
Sign up	Comparing	Modify	Selecting	Combining	Deciding
Show	Calculate	Classify	Detailing	Arrange	Separate
Label it	Contrast	Calculate	Nominate	Compose	Predict
Give index	Change	Build	Diagram	Build	Make it clear
Pair	Maintain	Get used to	Correlate	Overcome	Assign
Names	Decipher	Prevent	Rationalize	Connect	Interpret
Mark	Intertwine	Determine	Test	Create	Maintain
Read	Distinguish	Describe	Enlightening	Create	Detailing
Be aware	Discuss	Use, Rate	Explore	Correcting	Measure
Memorize	Dig	Train, Dig	Imagine	Designing	Summarize
Imitate	Exemplifying	Put forward	Conclude	Plan	Prove
Take notes	Explain	Adapting	Find	Dictate	Validating
Repeat	Put forward	Investigate	Examine	Upgrade	Testing
Reproduce	Pattern	Operate	Maximizing	Make it clear	Support
Review	Expand	Troubled	Instruct	Facilitate	Choose
Choose	Conclude	Conceptuali	Editing	Forming	Projecting

Table 2. Affective Domain Verbs

Receive A1	Respond A2	Rate A3	Manage A4
Choose	Answer	Assume	Embrace
Questioning Following	Help	Believes	Change Styling
Give	Apply	Completing	Classify
Embrace	Compromise	Reassuring	Combining
Obey	I love it	Make it clear	Maintain
Interested	Welcome	Initiate	Build

Table 3. Psychomotor Domain Verbs

Receive A1	Respond A2	Rate A3	Manage A4
Choose	Answer	Assume	Embrace
Questioning Following	Help	Believes	Change Styling
Give	Apply	Completing	Classify
Embrace	Compromise	Reassuring	Combining
Obey	I love it	Make it clear	Maintain
Interested	Welcome	Initiate	Build

3. RESULT AND DISCUSSION

Changes in patterns between learning and teaching are very relevant to do to get renewal from a new learning system that is conceptualized to help the education process during the Covid-19 pandemic with the development of science and technology. E-learning should provide a means that acts as a liaison in the implementation of two-way learning, namely face-to-face in the classroom [32]. This pattern is done to increase effectiveness in the implementation of the learning process which in turn is expected to improve the cognitive domain, the affective domain, the psychomotor domain towards student learning outcomes

3.1. Social Media in the Effectiveness of Learning Communication

Effectiveness and efficiency of Information and Communication Technology on the use of the internet in learning is expected to stimulate students to learn more independently and sustainably according to their natural skills and potentials [31][33]. The development of creativity and independence of students is also very wide open by making the internet a network technology system in any climate [26]. The use of the internet as a learning system is quite useful to reduce the distance between teachers and students, some of the social media used in research. According to the survey, each user has an average of 11 social media accounts, with surfing time around three hours per day. E-learning provides multimedia content that students can select or personalize and use in online and offline learning scenarios [34][35]. Social networks that are familiar to students have the potential to be used as a learning tool, to replace the function of the learning management system software [35]. Compared to learning management system software, social networking has the advantage of being able to use it without having to rent or manage servers and most importantly, it is more familiar to students [36][37]. Social friendship sites like Facebook, Twitter, myspace and so on have become a trend and seem to be a major need for everyone.

3.2. Bloom's Taxonomy Pattern

Social networking sites can actually be used as a new alternative that can be used in the world of learning. This is related to efforts to increase students' enthusiasm for learning, which in the end is expected to be able to maximize learning outcomes at 4 levels of education from elementary school to college. It can be seen in Table 4. The majority of students, teachers and the wider community already have social network accounts, and this should be used properly to support the learning process, so that students have more variety in the learning process. Therefore, percentage of cognitive, affective, and psycomotoric is presented in Figure 1-3 and Table 5-7.

Table 4. Research objects

Primary school				Junior high school		
Cognitive Realm	Affective Domain	Psychomotor Realm		Cognitive Realm	Affective Domain	Psychomotor Realm
C1	A1	P1		C1	A1	P1
C2	A2	P2		C2	A2	P2
C4	A3	P5		C4	A3	P5
	A5				A5	
Primary school				College		
Cognitive Realm	Affective Domain	Psychomotor Realm		Cognitive Realm	Affective Domain	Psychomotor Realm
C1	A1	P1		C1	A1	P1
C2	A2	P2		C2	A2	P2
C4	A3	P5		C4	A3	P5
	A5				A5	

Table 5. Results of the Cognitive Domain Questionnaire

| Cognitive Realm	1	2	3	4	5
C1.1	21 (23,3%)	1 (1,1%)	10 (11,1%)	9 (10%)	49 (54,4%)
C1.2	21 (23,6%)	7(7,9%)	8 (9%)	9 (10,1%)	44 (49,4%)
C1.3	17 (18,9%)	1 (1,1%)	9 (10%)	14 (15,6%)	49 (54,4%)
C1.4	15 (16,9%)	2 (2,2%)	11 (12,4%)	13 (14,6%)	48 (53,9%)
C1.4	18 (20%)	2 (2,2%)	11 (12,4%)	13 (14,6%)	48 (53,9%)
C1.5	12 (13.3%)	2 (2,2%)	9 (10%)	18 (20%)	49 (54,4%)
C1.6	23 (25,6%)	5 (5,6%)	4 (4,4%)	12 (13,3%)	46 (51,1%)
C2	5 (5,6%)	11 (12,2%)	7 (7,8%)	8 (8,9%)	59 (65,6%)
C3	22 (24,4%)	2 (17,8%)	16 (17,8%)	11 (12,2)	39 (43,3%)
C4	7 (7,8%)	2 (2,2%)	9 (10%)	17 (18,9%)	55 (61,1%)
C5	7 (7,8%)	3 (3,3%)	7 (7,8%)	8 (8,9%)	65 (72,2%)
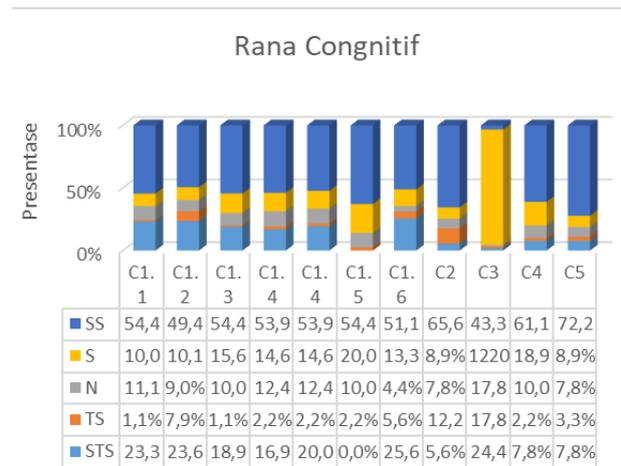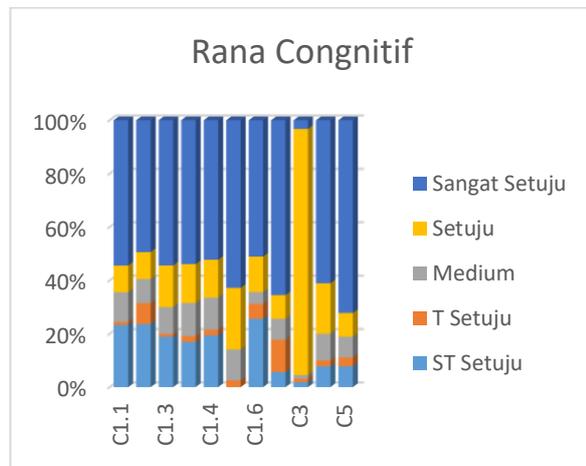
Figure 1 Percentage of cognitive shutter data results

Table 6. Results of the effective Domain Questionnaire

| Affective Domain	1	2	3	4	5
A1	30 (33,3%)	7 (7,8%)	6 (6,7%)	9 (10%)	38 (42,2%)
A2	19 (21,1%)	10 (11,11%)	8 (8,9%)	15 (16,7%)	38 (42,2%)
A3	33 (36,7%)	8 (8,9%)	13 (14,4%)	12 (13,3%)	24 (26,7%)
A4	15 (16,7%)	5 (5,6%)	4 (4,4%)	23 (25,6%)	43 (47,8%)
A5	21 (23,3%)	4 (4,4%)	6 (6,7%)	4 (4,4%)	55 (61,1%)
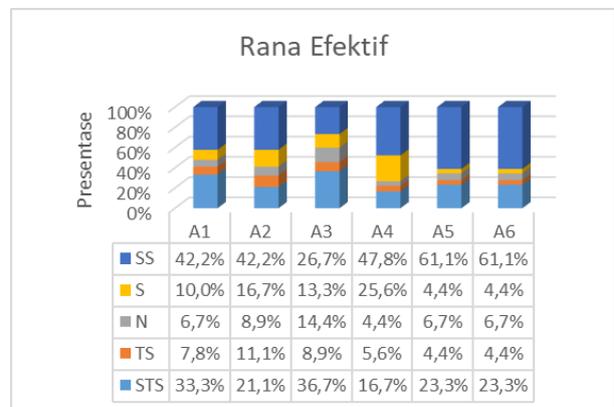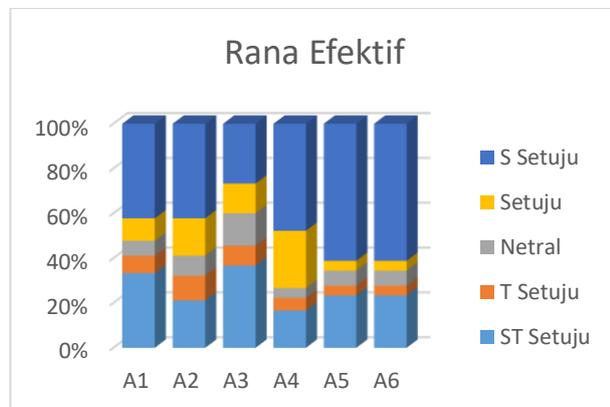
Figure 2 Percentage of effective shutter data results

Table 7. Results of the psychomotor Domain Questionnaire

| Psychomotor Realm	1	2	3	4	5
P1	17 (18,9%)	0 (0%)	8 (8,9%)	12 (13,3)	53 (58,9%)
P2	9 (10%)	12 (13,3%)	9 (10%)	13 (14,4)	47 (52,2%)
P3	13 (14,6%)	0 (0,0%)	21 (23,6%)	17 (19,1%)	38 (42,7%)
P4	7 (7,8%)	3 (3,3%)	7 (7,8%)	28 (31,1%)	45 (50%)
P5	7 (7,8%)	2 (2,2%)	8 (8,9%)	8 (8,9%)	57 (63,3%)
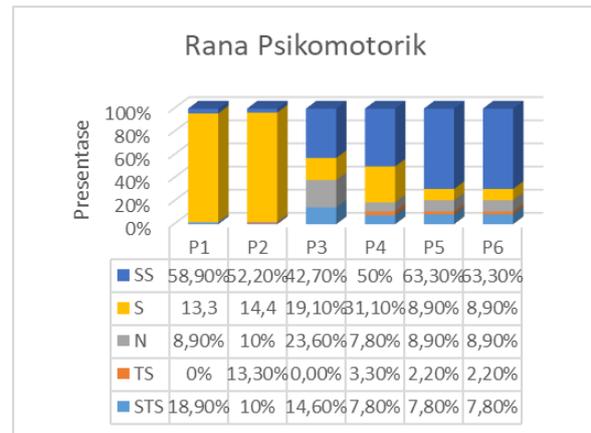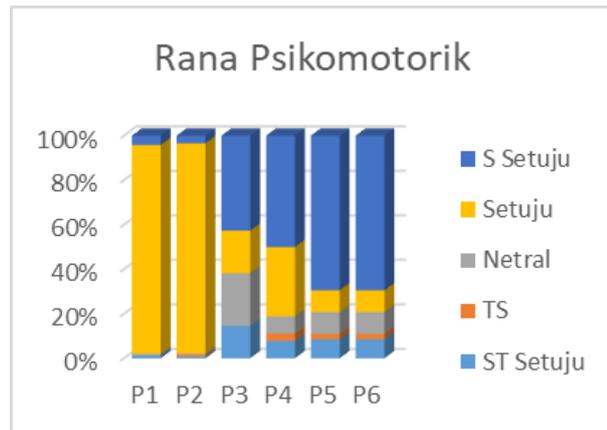
Figure 3 Percentage of psychomotor shutter data results

3.3. Sample Positive Shutter

From 98 students with different grades for the Positive Shutter questionnaire, the mean scores were as follows: Strongly Agree 55% | Agree 13% | Medium 10% | Disagree 5% | Strongly disagree 15%. So, it can be concluded that social media greatly affects the level of effectiveness of online learning during a pandemic.

3.4. Sample Effective Shutter

Of the 98 students with different grades for the Positive Shutter questionnaire resulted in the following mean scores: Strongly Agree 47% | Agree 14% | Medium 11% | Disagree 3% | Strongly disagree 17%. So, it can be concluded that social media greatly affects the level of effectiveness of online learning during a pandemic.

3.5. Psychomotor Shutter Samples

Of the 98 students with different grades for the Positive Shutter questionnaire resulted in the following mean scores: Strongly Agree 55% | Agree 16% | Medium 11% | Disagree 3% | Strongly disagree 11%. So, it can be concluded that social media greatly affects the level of effectiveness of online learning during a pandemic.

4. CONCLUSION

Social networks that are very attractive to students are not only more attractive, of course, easier to use because they can not only be accessed in class during lessons, but can be from anywhere even through personal cell phones. The results of the research on 3 Rana students' intellectual abilities by measuring the effectiveness of social media on the online learning process during the pandemic, with samples of Positive Shutter, Effective Shutter, Psychomotor Shutter on 98 students with different levels can be explained as follows. The presence of social media is an extraordinary development of information and communication technology in helping educational institutions during a pandemic. The question that arises is, what is the level of effectiveness of using social media to support the learning process of students in increasing their 3 intellectual shutter online. The conclusion of this study is that online learning can improve cognitive shutter, effective shutter and psychomotor shutter if done gradually and regularly, so the students' intellectual enhancement is very effective, even the effective level could be better than the offline learning system. The presence of social media has an impact on changing the way of communicating from conventional to modern and fully digital, but also causes communication to take place more effectively.

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