

# HASIL CEK\_46. Engagement as a Cognitive

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**ENGAGEMENT AS A COGNITIVE BASE OF NEUROSCIENCE COHESION IN  
THE COVID-19 VIRTUAL LEARNING**

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**ABSTRACT**

This article includes a follow-up study on research into the effectiveness of online learning platforms in Indonesia during the Covid-19 quarantine. This paper explores the fundamental features that factor in selecting an online platform that can generate a high intensity of interaction. Neuroscience education is the study perspective used in this article. Authors seek to provide a thorough description of the possible participation of online learning platforms based on student neurological evaluations. The goal of this study was to define the characteristics of selecting and linking the right online platform to the individual cohesion of students in neuroscience. The method used in this study is the questionnaire of the author and NVivo qualitative analysis. Based on the research results, there are at least five specific features of digital platform selection that can increase the effectiveness of learning implementation during the Covid-19 quarantine period. Although there are some variations in the data collection outcomes on different types of learning material, the authors can assume that the average level of learning participation using these outcomes is due to the five outcomes mentioned in the study. Furthermore, this study supports further studies to illustrate the weak points of the lack of interest in the process of online learning.

Keyword: engagement, cognitive, neuroscience cohesion, virtual learning

**1.0 INTRODUCTION**

Recently, in educated people's lives, social media platforms with all their modern features are no longer something foreign and distant. When a pandemic virus that required quarantine activities in almost all parts of the world was declared to be Covid-19 (Ducharme, 2020), teaching and learning activities that initially tended to be centred in schools became centred in the environment where each student lived. Inevitably, teaching and learning activities must be carried out in a home state complete with all internal intrigue that, of course, varies between students. The field of education does not necessarily change, however. Through different types of systemized teaching and learning activities, education remains the primary space for fulfilling the prerogative of human self-development. Through curriculum development methods, pedagogical interventions, the implementation of decision-making models, as well as mechanisms to achieve an understanding of content in certain materials, the role of education is the central conceptual concept in promoting the individual personality of students (Hanifah Salsabila, n.d.).

On the other hand, the presence of social media as a virtual-based platform for social interaction is a constant means of finding solutive information, a place to satisfy curiosity, as well as a form of modernity during the Covid-19 pandemic in learning achievement strategies in the educational environment. In the Yogyakarta area, Indonesia, the reality of such circumstances causes polemics in the family environment and education stakeholders. During the Covid-19 quarantine period, most of the older generation, who act as educators and guardian parents of students, should be able to provide educational services. All parties must work together with the involvement of certain digital technology products to carry out the teaching and learning process at home that can help its implementation ([Surat Edaran Mendagri Untuk Cegah Penyebaran Corona | Republika Online](#), n.d.).

Suppose most of the online learning discourses carried out during the Covid-19 pandemic tended to concentrate on the effectiveness of online learning and offline learning comparisons. In that case, it is essential to examine the participation of certain brands in online learning models that inevitably involve digital technology products (Salsabila, 2019a). The intensity of students' participation in traditional learning platforms alone is, as is well known, a significant challenge for the national education system. So, of course, the involvement of students through online platforms in teaching and learning activities will create complex problems that need to be further studied. To engage students with them.

In most discussion activities, seminars, and promotion of digital products at conferences, Learner Engagement is a primary keyword that is the most popular curator. Engagement is defined in this context as a positive emotional response to something that is followed or done, resulting in an acute desire to continue looking for a similar response that feels pleasant. Naturally, high participation in learning will cause further curiosity about the learning content being discussed or taught (Noe et al., 2010).

There is an interesting assumption that what an educator should look for and explore more deeply in the learning process, philosophically, is how to create triggers that can be sustainable triggers for the continuity of the teaching and learning process. Teaching and learning activities often involve only aspects of formality, abortion obligations, or understanding targets (Salsabila, 2019). As a result, all aspects of these achievements do not leave an impression on students, even worse, they do not trigger students' curiosity about anything, whether related to learning material or the definition of learning in the sense of broad and comprehensive insights. Because in fact, the teaching and learning process at any level of education is a complex simulation of the actual implementation of learning in living relevant real life.

## 2.0 LITERATURE REVIEW

If examined from a neuroscience perspective, the need for involvement in the educational process is a condition relevant to the continuity of chemical reactions that occur in the human brain. When understanding learning content, there are hundreds of millions of electrical 'neuron shots' called synapses. It is using various kinds of chemicals that formed from the students' 'moods, the focal points of the students, and also the transfer of students' attention, which can move from one neuron to another neuron (Marchette et al., 2011).

The various quantities, types, and ratios of these neurotransmitters then released to the other end of the neuron from one axon terminal (the end of the neuron). When students learn from one learning experience to another, this sustainable situation continuously altered. The combination of certain types of neurotransmitters, such as serotonin, dopamine, and norepinephrine (which in turn end up as hormones and neurotransmitters), from the 'release' and 'take up' process will have a substantial impact on the individual's learning experience and emotional development. Apprentices (Lipina & Roder, 2013).

When they both experience intense participation in the teaching and learning process, millions of neurons will continue to fire at each other in the brain of the child and the teacher. Of course, digital media needed during the Covid-19 pandemic, which requires quarantine with a separate learning system between educators and students, which can intervene in the teaching and learning process that occurs. In order to be able to affect the biological condition of neurotransmitters in the brains of learners in their respective homes, the totalisator media must have the correct participation value. The effectiveness of such synergy expected to produce an online learning experience that is equivalent to the classroom's face-to-face teaching and learning process. Besides, education staff have not been able to confirm when the pandemic will end until now.

Through the selection of neurological processes in the brains of the students, the process of preparing and organizing teaching must carefully adjust so that the learning experience gained during learning from home has a significant influence on the intellectual and emotional development of students. In order to create a comprehensive and meaningful learning experience during the Covid-19 pandemic, the complexity of this neurological interconnection will later become a structured synergy with the involvement of digital learning media. Neuroscientists call this synergistic brain condition the plasticity process, in which the biological tendency of the brain (literally, defined as the synaptic ability to form connections and memories) to perform unique mechanisms of self-control and change (Lipina & Roder, 2013). During the Covid-19 pandemic, the education system that succeeded in creating an intense relationship between the education system and students through digital technology platforms considered to have a significant influence on the value of creativity and the effectiveness of student understanding in the future.

The initial discussion of the essential components of the characteristics of participation that must be present in the learning platform will discuss in this article in order to create continued involvement between students and the educational system that organized so that it has positive implications for students' neurological conditions. This study urgently needed to design, under any conditions, including during the Covid-19 pandemic, an effective and efficient learning experience within the education system.

### **3.0 METHODOLOGY**

In this article, the fundamental discussion relating to learning participation examined from the point of view of neuroscience, which obtained from field data on students in Indonesia's educational programs. The literature technique and descriptive qualitative method using NVivo software as a medium for data reduction is the research method used. The primary characteristics of learning using a digital technology platform, which alleged to have a significant value of involvement, are the primary variable in the research in this article and can be used as a trigger factor for further participation in the brains of the students. If this pattern of engagement designed efficiently, the accuracy would result in an effective and efficient process of learning experience formation.

### **4.0 RESULT**

Here are some of the characteristics of the availability of engagement features that need to use as a standard in choosing a learning platform when looking at the different needs for essential participation in online learning. For each learning content that will hold, these reference points may be different because of the choice of learning media base on the conditions of the needs of students in the classroom in order to be useful.

#### 4.1 Creating a Memorable experience

The hardest thing an educator has to face in the online realm is how, from the first sight, the educator must build interest and experience without being able to meet face to face. In this context, the right first step to take is how an educator generates a pleasant response from students when they visit a learning platform. It often based on habits and accessibility in everyday life to choose a digital platform that can trigger engagement. Most of the student community during the pandemic will consider the use of a platform that is considered universal. Thus, it can conclude that one cannot rule out elements of the user experience when talking about engagement. The ease of access obtained and the ease of use that starts from the habit of using specific digital platforms often caused by the feeling of interest in further access to learning content. The use of chat messenger platforms such as What's App Group, Line, and other instant chat apps as the learning platform of choice during the Covid-19 quarantine period is an example of a situation in this case, as shown in Figure 1 below.

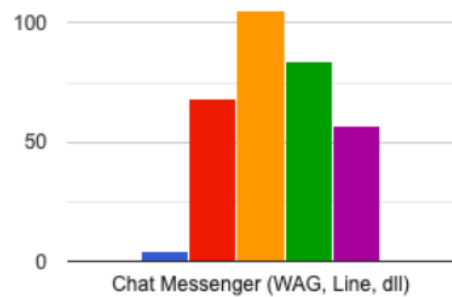


Figure 1. Survey of Learning Platform Selection Based on the Level of Ease

#### 4.2 Gamification Concept Development

Online learning with the gamification model had become a new trend in the world of contemporary education. Its popularity is supported by synchronizing the gamification platform with a website-based landing page that features an interface, as happened with Moodle. Besides that, gamification also tends to make it easier for users to model its simplification in the use mechanism. Some samples show high engagement through online concepts with online gamification using the Quizizz platform, Kahoot as shown in Figure 2 below. In the context of neuroscience, the learning process that considered to maximize brain function does not only empower one of the complex functions of the available hemispheres. Instead, it maximizes both hemispheric functions in a balanced manner. Suppose it is based on its function neurologically. In that case, the involvement of students with an efficient education system through the gamification platform model will be able to produce students who can think sequentially and structured while being able to think divergent, global, and also creative. The integration of virtual classrooms with the reality of challenges and challenging interactions that the gamification platform has will help shape students to activate the overall function of their brain.



Figure 2. Survey on the Selection of Gamification-Based Learning Platforms

#### 4.3. Access speed

In the marketing world, the rate of digital technology development in learning has resulted in a separate competitive polemic. It should consider the addition of characteristics which are often irrelevant to learn ignored. This time, the online learning period with the duration of creating online methods took a long time. This condition will have a massive impact on students' financial ability to access different learning characteristics. The correct choice to be used as an interactive engagement solution is not learning platforms with an excessive quantity of quota requirements. On the other hand, their existence, as shown in Figure 3, can be harmoniously combined to trigger the involvement of learning interactions in the field. The illustration of the results of the survey shows the interest in learning integration between platforms.

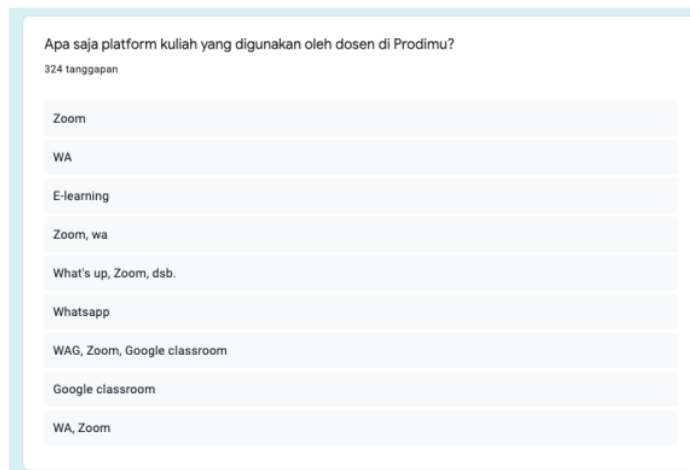


Figure 3. Survey Integrating Digital Learning Platform

#### 4.4. Public Interaction Curation

Curation is a critical advantage of providing a wide variety of social networking media that can openly pursue, both lawfully and unlawfully. Choosing a digital platform that offers curated access in this context can significantly help to aim for the emergence of variables that cause student participation. The primary key to the involvement of social precision in selecting a learning platform is the human instinct to obtain validation, constructive feedback, and positive

appreciation of the original uploaded content. The social brains of students often need connectivity with their peer environment in this sense. To be more relevant and contextual in the learning experience that produced. Figure 4 provides one example of using a social media site with its curated attributes. Lave and Wenger clarified that learning activities will always require social practices in which students among their peers gradually become members of the social community and engage in learning through their social environment

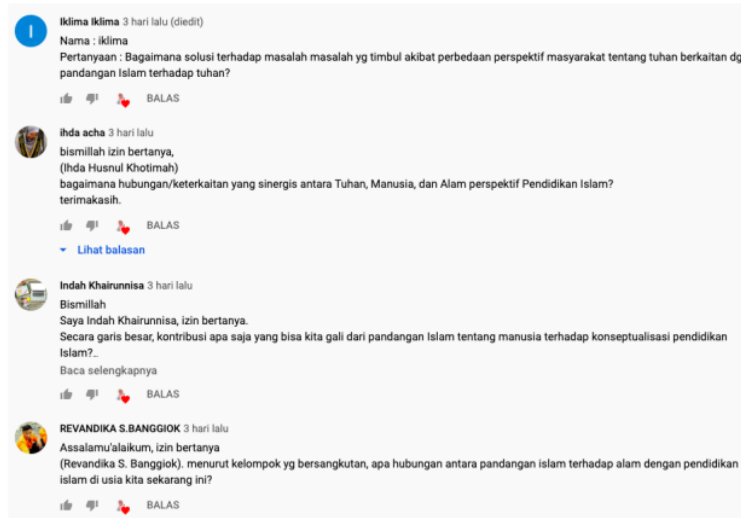


Figure 4. Curation of Digital Learning

#### 4.5. Constellation Between Characteristics

In this context, Rushton states that according to their level of development. A learning environment that is rich and equipped with relevant literature will make students able to create manipulations, spark scientifically stimulating questions, create instinctual triggers to study in different other learning spaces. Immersing the learner in such a learning platform would deeply explore the output of the senses in the most natural mechanisms of neurological networks and improve the imaginative and emotional elements. Learning consciousness will be automatically awakened via the learning platform with the availability of appropriate and applicable trigger media, as shown in Figure 5 in the sample response. It seems evident in the curve that using the availability of a specific learning platform is one of the reasons for problematic participation in the learning process. The relevance of the learner and the learning system applied not fully guaranteed by sophistication, feature completeness, and platform renewal.

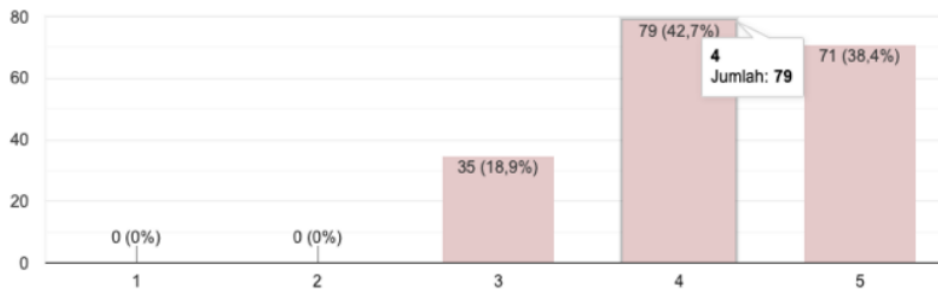


Figure 5. Learning Platform Integration Survey

## 5.0 CONCLUSION AND RECOMMENDATION

Pandemic conditions require all education stakeholders to engage intensively with digital technology. Unfortunately, not everyone realizes how an educator should condition the online class by utilizing this digital technology. The educational environment is a virtual space to create an electric glow in the brain so that meaningful memories and experiences occur in the learning process. This paper provides a detailed overview of the fundamental steps in choosing an online platform that educators should pay attention to in teaching. The assumption of the long duration of the Covid-19 quarantine period will force a deeper understanding of the constellation of digital learning products. It will be interesting if there is a further study of the implications of the loss of involvement in the teaching and learning process.

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