

# *The Relationship Between Internal Locus Control and Students Perception Toward E-Learning in Biology Subject in Senior High School*

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**Abstract** - The implementation of e-learning is not only seen from the perspective of the teacher but also students as a subject of learning. This study is aimed to reveal the relationship between Internal Locus of Control (ILC) and students' perceptions of e-learning. Both of these factors support the success of e-learning implementation from the student's factor. These factors are a consideration in designing an e-learning. The type of this research is a quantitative correlation study. The population was students that study Biology subject in Senior High School of Pariaman city. The sample was chosen by random sampling technique. Data were collected using questionnaires filled by 158 students. These data were analyzed by correlation techniques. The results of this study showed that there was a positive relationship between ILC and students' perceptions of e-learning. Students always try to think effectively and have a relatively high perception of e-learning.

**Keywords** - E-Learning, Internet, Internal Locus Of Control, Perception.

## I. INTRODUCTION

The industrial revolution 4.0, the era of digitalization, and the use of technology that is quite massive is a challenge and opportunity for researchers and education practitioners. This trend cannot be ignored even though for learning. Learning with a variety of objectives that should be achieved and they need to integrate with technology trends in their implementation. One way that has been done and needed to be improved is the implementation of e-learning. E-learning has begun to be applied in Senior High School of Pariaman city. All high schools in the district and the city of Pariaman already have a school website in support e-learning. Based on interviews conducted with schools in SMA 1 Pariaman, SMA 2 Pariaman, SMA 3 Pariaman, the use of the internet in schools is very diverse. In general, 60% of internet services have been used for

learning activities, especially in science subjects, and 40% is for administration. The selection of implementing e-learning in science subjects because the characteristics of science subjects are very appropriate to be delivered with e-learning. The use of the LMS platform in e-learning supports the transfer of content such as text, animation, video tutorials, simulations, and other multimedia content. E-learning has a very broad definition. The term e-learning consists mainly of online learning, virtual learning, distributed learning, network-based learning or web-based learning (Naidu, 2006). E-learning means delivering learning or training programs using electronic media (Chaeruman, 2010; Prawiradilaga, 2016; Stockley, 2006). Along with the development of information technology, understanding of e-learning is increasingly diverse. Such developments, for example, deliver computer learning programs through CD-

ROM, internet or intranet (Clark & Mayer, 2016; Munir, 2009) or through mobile devices (Clark & Mayer, 2016). Through this electronic equipment, learning can be more easily done and present a learning atmosphere that is favored by students. Therefore, e-learning is the use of electronic media such as computers and networks to create a conducive learning atmosphere. E-learning refers to the use of information technology networks and intentional communication in learning (Naidu, 2006). The presence of computers and networks into learning is not to transfer knowledge from educators to students. E-learning basically uses the information and computer technology to create student learning experiences (Horton, 2012; Khan, 2005; Rosenberg, 2001). Horton said that e-learning is the use of ICT in creating a learning environment. Although many students have succeeded in traditional learning, e-learning presents challenges and opportunities for students to succeed (R Watkins & Corry, 2011; Ryan Watkins & Corry, 2013) because the internet provides opportunities to develop learning and focus learning on students (Khan, 2005). It means that the creation of the environment as a setting that gives students room for movement to get the predicted learning experience they need in the future. The use of the internet in the application of e-learning offers advantages such as the flexibility of space and time, the availability of extensive learning resources and easy to access. However, behind these advantages, the use of the internet in learning raises problems, such as the emergence of negative links, content that is not relevant to teaching material, and data security. The aspect of e-learning supporting website which is the main media in implementing e-learning is the Learning Management System (LMS). The LMS provided also needs to be designed in such a way (FitzPatrick, 2012; Masoumi, 2010). On the other hands, LMS is built on the supporting components of e-learning implementation. However, the success of implementing e-learning is not only related to the availability of teaching content, supporting facilities, teacher capabilities, websites, and school policies but also determined by the independent aspects of students such as locus of control and their perception of e-learning. Locus of control consists of two dimensions, namely internal and external. Locus of control is one aspect that shapes a person's personality (Manichander, 2014) influences the level of trust in his ability to control something (Cakir, 2017).

In addition, the success of implementing e-learning is also determined by the characteristics of high school students. High school students are qualitatively different from students in higher education and younger students in

junior and elementary schools. High school students have special characteristics related to developmental tasks. In accordance with the learning domain, the characteristics of high school students include cognitive, affective, and psychomotor characteristics. From the cognitive domain, developmental tasks are ages 11 or 12 until adulthood. This age is the age of adolescents who on average they are in high school. Most high school students have reached the formal operational stage (Piaget, 1970). This stage is the phase where students feel a) need to understand the purpose and relevance of learning activities, b) need internal and external motivation, c) have a history of cognitive barriers due to academic failure in previous years, d) lose their own way of learning, e) have a desire to determine personal goals, and f) have a high desire to assume individual responsibility to learn and develop towards the goals they have set.

## II. METHOD

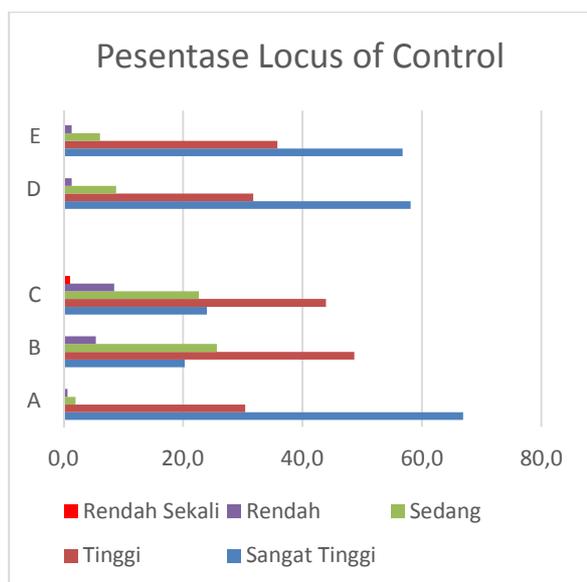
This study uses a descriptive correlational quantitative method. The study population was the first year students at SMA N 4 Pariaman with the total number of 158 students, a sample of 243 students, who were selected by proportional stratified random sampling technique. The instrument used is the Likert model scale. Data were analyzed by descriptive statistics, simple regression. Quantitative data was collected through a questionnaire filled by high school students in the city of Pariaman. This quantitative data explores the opinions and assessments of students on the use of ICT in learning specifically on Biology subjects. Quantitative item data questions include a) locus control, b) student attitudes towards Biology and e- learning subjects. Quantitative data that has been collected, then analyzed by correlation techniques.

## III. RESULTS AND DISCUSSION

The data in this study include the variables locus of control (X1), students' perceptions of education (X2). The following explanation is a description of the research data.

### 1. Locus of Control (X1)

Overall the number of items statement variable locus of control, a range of scores from 1-5, with the highest score is 120 and the lowest score is 24. The scale criteria for the locus of control totaling 158 respondents can be seen in Histogram 1.



Presentation of locus of control  
Very low, low, moderate, high, very high

Histogram 1 informs that the locus of control possessed by high school students in class X is very high. The results of the research data analysis show that on average overall students have a level of internal locus of control in the high category. It means that the student's locus of control is good. Based on the achievement of each indicator it is known that internality indicators are in the high category, while others and chance powerful indicators are in the medium category. This high condition of locus of control (internality) needs to be maintained, developed, and improved because the locus of control is a complex matter, especially in increasing learning motivation.

Table 1. Frequency Distribution of Locus of Control

Sub Variabel	Very high	High	Moderate	Low	Very low
A	46	69	19	12	1
B	24	61	44	19	0
C	85	51	9	1	2
D	73	58	16	1	0
	228	239	88	33	3

Table 1 above shows that most students have an internal locus of control in the high category. However, there are still variations in the scores in the locus of control indicators. According to the results of research, the environment, which was developed considering the type of locus of control, has no effect on the online learning community and the level of academic success (Gökçearslan & Alper, 2015). In the context of online learning, locus of

control affects several variables, such as students' success, performance, satisfaction, adaptation to the environment, participation in activities, class attendance, attitudes toward web-based learning, the ability to complete education, participation in online activities, acceptance of e-learning (Hsia, Chang, & Tseng, 2014; Joo, Joung, & Sim, 2011; Severino, Aiello, Cascio, Ficarra, & Messina, 2011; Tekedere & Mahiroğlu, 2012). Hence, the internal locus of control is also called the factor of success and failure of someone (Algadheeb, 2015; Forte, 2005). In conclusion, the student's locus of control needs to be known to support the successful implementation of e-learning. Students who have a tendency to the locus of control internally believe that their success and failure in learning are the results of their own actions and efforts. For example, when students have a low value believe that they do not learn optimally, not because the teacher is favoritism. Conversely, students who have a tendency to an external locus of control will believe that their success and failure is due to factors outside themselves.

## 2. Students' Perceptions of E-Learning (X2)

In general, the number of items statement variable students' perceptions of education there are as many as 30 items, a range of scores from 1-5, with the highest score is 150 and the lowest score is 30. Criteria for the scale of student perceptions of education totaling 243 respondents that can be seen in Table 2.

Table 2. The Frequency Distribution of Student Perceptions about E-Learning

Sub Variabel	Very High	High	Moderate	Low	Very Low
A	66,9	30,4	2,0	0,7	0,0
B	20,3	48,6	25,7	5,4	0,0
C	24,0	43,9	22,6	8,4	1,0
D	58,1	31,8	8,8	1,4	0,0
E	56,8	35,8	6,1	1,4	0,0
Total	226,0	190,5	65,2	17,2	1,0

Students always try to think effectively and have a relatively high perception of e-learning. Students' perceptions of their expectations of e-learning are the main data for designing e-learning (Daniels, Sarte, & Cruz, 2019).

Students' perceptions of e-learning also increase student involvement during learning through e-learning (Martin, Wang, & Sadaf, 2018). Perception in the narrow sense is vision, which is how a person sees something, whereas in the broadest sense is the view or understanding, namely how someone perceives or interpret something. Perception is a process when individuals organize, recognize, and interpret the sensations they obtain from the environment. The purpose of the statement is perception is how a person views and interprets things obtained from the environment. With regard to school, students' perceptions of education are EXPLAINED AS THE VIEWS OR ASSUMPTIONS OF STUDENTS ABOUT education itself, whether or not the education is good.

### 3. Internal Correlation of Control with Perception

The results showed that locus of control had a significant relationship with students' perceptions of e-learning. This finding was obtained based on a data analysis series (table 3.)

Table 3. Correlation of locus of control with Student Perception of E-Learning

<b>Correlations</b>			
	Locus Of Control	perception of e-learning	
Locus Of Control	Pearson Correlation	1	,388**
	Sig. (2-tailed)		0,000
	N	148	148
perception of e-learning	Pearson Correlation	,388**	1
	Sig. (2-tailed)	0,000	
	N	148	148
** Correlation is significant at the 0.01 level (2-tailed).			

From the results of simple correlation analysis (r), the correlation between intelligence and learning achievement (r) is 0.388. This shows that there is a strong relationship between Internal Locus of Control and Student Perception. While the direction of the relationship is positive because the value of r is positive, meaning that the higher the intelligence, the more it increases learning achievement. That is, the success of e-learning is also determined by the independent aspects of students such as locus of control and

their perception of e-learning. The results of the study related to the characteristics of high school students in learning activities indicate that students experience increased involvement of activities when feeling challenged by the tasks and demands of the teacher (Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2014). The instructional instructions given are relevant instructions, according to the stage of development, and provide wider space for movement. In order to facilitate students with instructions that are relevant to the curriculum and needs of students, it is necessary to conduct an initial analysis including locus of control, attitudes towards subjects and e-learning

### IV. CONCLUSIONS AND IMPLICATIONS

Learning with a variety of objectives to be achieved needs to integrate technology trends in their implementation. One way that has been and needs to be improved is the implementation of e-learning. However, the success of implementing e-learning is not only related to the availability of teaching content, supporting facilities, teacher capabilities, websites, and school policies but the success of e-learning is also determined by the independent aspects of students such as locus of control and their perception of e-learning. Based on the results of this study, the authors recommend that in designing, developing, and implementing e-learning must pay attention to the locus of control and student perceptions, especially their expectations toward e-learning.

### REFERENCES

- [1] Algadheeb, N. A. (2015). Professional/Career Orientation, Awareness, and Their Relationship to Locus of Control. *Journal of College Teaching & Learning*, 12(1), 13–38.
- [2] Cakir, M. (2017). Investigating Prospective Teachers' Perceived Problem-Solving Abilities in Relation to Gender, Major, Place Lived, and Locus of Control. *Universal Journal of Educational Research*, 5(6), 1030–1038.
- [3] Chaeruman, U. (2010). E-learning dalam pendidikan jarak jauh. *Jakarta: Kemendiknas*.
- [4] Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. John Wiley & Sons.

- [5] Daniels, M. M., Sarte, E., & Cruz, J. Dela. (2019). Students' perception on e-learning: a basis for the development of e-learning framework in higher education institutions. *IOP Conference Series: Materials Science and Engineering*, 482(1), 12008. IOP Publishing.
- [6] FitzPatrick, T. (2012). Key Success Factors of eLearning in Education: A Professional Development Model to Evaluate and Support eLearning. *Online Submission*.
- [7] Forte, A. (2005). Locus of control and the moral reasoning of managers. *Journal of Business Ethics*, 58(1–3), 65–77.
- [8] Gökçearsan, Ş., & Alper, A. (2015). The effect of locus of control on learners' sense of community and academic success in the context of online learning communities. *The Internet and Higher Education*, 27, 64–73.
- [9] Horton, W. (2012). *E-Learning by Design* (2nd ed.). San Francisco: John Wiley and Sons, Inc.
- [10] Khan, B. H. (2005). *Managing E-Learning Strategies: Design, Delivery, Implementation and Evaluation*. <https://doi.org/10.4018/978-1-59140-634-1>
- [11] Manichander, T. (2014). Locus of Control and Performance: Widening Applicabilities. *Online Submission*, 3(2), 84–86.
- [12] Martin, F., Wang, C., & Sadaf, A. (2018). Student perception of helpfulness of facilitation strategies that enhance instructor presence, connectedness, engagement and learning in online courses. *The Internet and Higher Education*, 37, 52–65.
- [13] Masoumi, D. (2010). Critical factors for effective eLearning. *Goteburg University*.
- [14] Munir. (2009). *Pembelajaran Jarak Jauh Berbasis Teknologi Informasi dan Komunikasi*. Bandung: ALFABETA.
- [15] Naidu, S. (2006). *E-learning: A guidebook of principles, procedures and practices*. Commonwealth Educational Media Centre for Asia (CEMCA).
- [16] Piaget, J. (1970). *Piaget's theory*.
- [17] Prawiradilaga, D. S. (2016). *Mozaik Teknologi Pendidikan: E-Learning*. Kencana.
- [18] Rosenberg, M. J. (2001). E-learning: building successful online learning in your organization. *McGrow Hill, New York, NY, USA*.
- [19] Shernoff, D. J., Csikszentmihalyi, M., Schneider, B., & Shernoff, E. S. (2014). Student engagement in high school classrooms from the perspective of flow theory. In *Applications of flow in human development and education* (pp. 475–494). Springer.
- [20] Stockley, D. (2006). Building a successful e-learning strategy. *EI Magazine*, 2(7), 34–36.
- [21] Watkins, R., & Corry, M. (2011). E-learning companion. *A Student's Guide to Online Success*, Cengage Learning, USA, 45.
- [22] Watkins, R., & Corry, M. (2013). *E-Learning Companion: Student's Guide to Online Success*. Cengage Learning.