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Interaction of E-Learning: Student Self-Efficacy in Using the "Learning Management System (Sipejar)"

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Universitas Negeri Malang (UM) developed the Sistem Pengelolaan Pembelajaran (SIPEJAR), an e-learning learning management system integrated with UM's academic system. SIPEJAR is designed to increase self-efficacy when performing various learning tasks. The purpose of this study is to therefore describe students' self-efficacy in using and interacting with the SIPEJAR system for learning purposes. The subjects of this study were students of UM FIP, with whom a quantitative descriptive survey method was used. Results showed that students of the Faculty of Education at the Universitas Negeri Malang displayed good interactions with the SIPEJAR system. Of the four variables that affect self-efficacy, the average indicates a value of 72. 96% in both categories. It can therefore be concluded that students have good self-efficacy when using SIPEJAR and are highly confident in achieving successful learning.

Keywords: *Sipejar, self-efficacy, e-learning, blended learning*

INTRODUCTION

The Universitas Negeri Malang (UM) is accelerating the integration of technology within the teaching and learning processes to produce immediate benefits. Learning environments must therefore be constructed in ways that allow students to take full advantage of this technology in their learning. Through improving such learning atmospheres and technological resources, students can be granted more opportunities to properly apply their life-based learning activities. Instruments and learning environments based on the field of Information and Communication Technology are crucial aspects in the management and sharing of knowledge, and are thereby expected to improve learners' motivation. Effective learning environments also support the learning process, both formally and informally (Ordóñez de Pablos, 2012; Praherdhiono et al., 2018a; Praherdhiono, n.d.; Praherdhiono and Pramono Adi, 2017; Prihatmoko, 2013; Zhang et al., 2012).

The University of Malang (UM) is identified as *The Learning University* and has a superior vision of becoming an esteemed college and reference for science, technology and education. The provision of comfortable and successful learning environments is therefore very important to UM (El-Hmoudova, 2014; Praherdhiono, 2016). Conventional learning is transforming into more modern teaching through the implementation of model variations and diverse learning strategies with the use of technology (Al-Okaily, 2015; Bogdanov et al., 2012; Praherdhiono et al., 2018a). In line with this, the SIPEJAR model has become one of the Universitas Negeri Malang's key developments in modern e-learning.

SIPEJAR was first launched through the Universitas Negeri Malang in 2018 as an integrated learning system which provides content on lectures, the academic information system and other educational arrangements beyond UM. SIPEJAR facilitates learning throughout the UM campus by realising the implementation of learning technologies into real life situations (Praherdhiono et al., 2018b; Slavin and Davis, 2006; Susilaningsih et al., 2018). The management system is very rich with content learning and provides freedom for students to apply such content to their everyday lives through its life-based learning strategies. However, not all students have the confidence or willingness to engage with or understand the e-learning format. This confidence factor is important as it can influence student learning motivation, which subsequently impacts on learning outcomes (Abulibdeh and Hassan, 2011; Dubien et al., 2019; Fongkong-Munga and Emmanuel, 2019).

This research will not discuss the results of learning, but will rather focus on the learning process. The study examines individual student confidence in conducting and managing organisational activities, engaging in tasks through the SIPEJAR system and the completion of such tasks. This idea of an individual's confidence or belief, as expressed by Bandura (2010),

is also referred to as self-efficacy (Bandura, 1977, 1989, 2010; Schunk, 2012a, 1991). Bandura (2010) suggests that self-efficacy is a form of self-confidence surrounding an individual's ability to achieve success in a particular field. Further, Santrock and Santrock (2007) explain that self-efficacy is a person's belief in their ability to self-manage a situation and produce something beneficial.

Self-efficacy plays an important role in the amount of individual effort applied to a given task. An individual with high self-efficacy, for example, will utilise toughness and tenacity in the face of setbacks during the completion of a task, whereas someone with low self-efficacy may be unable to push through such difficult situations. A student with low self-efficacy in mathematics may, for example, avoid signing up for a challenging and potentially beneficial mathematics class.

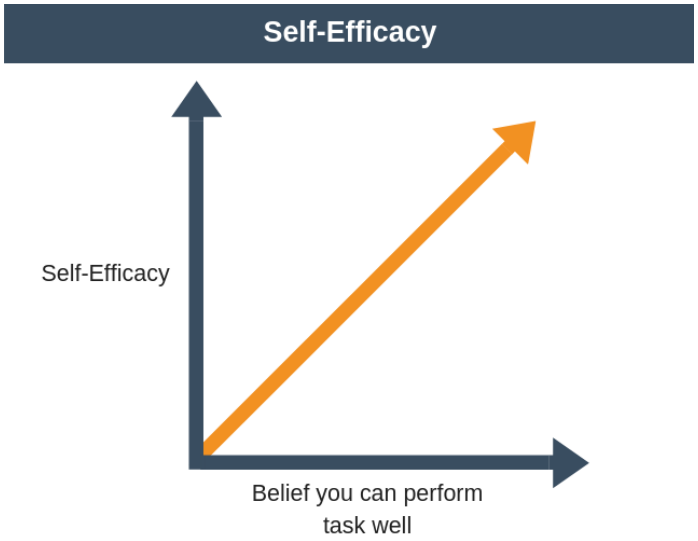

Figure 1. Self-efficacy as motivation in performing a task ("Expert Program Management," n.d.)

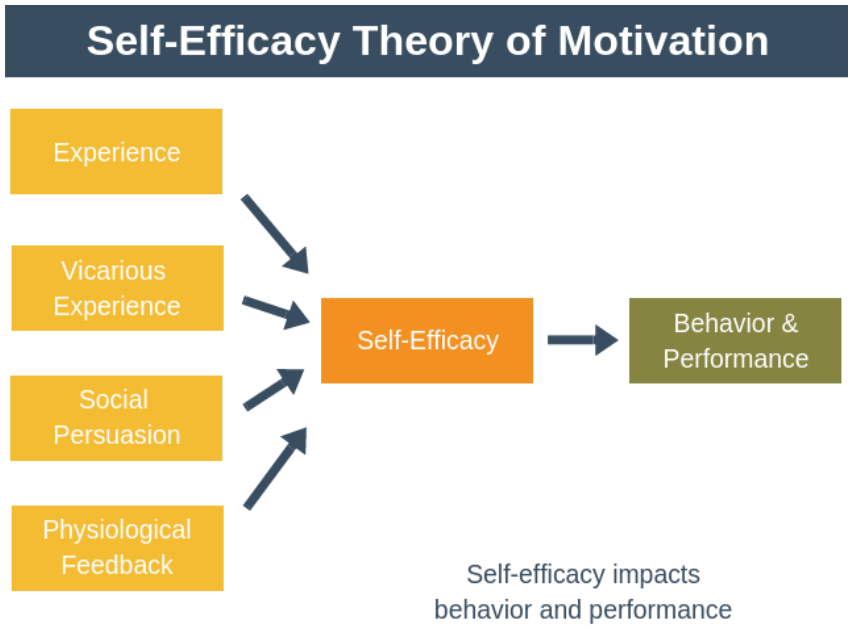

Figure 2. Supporting self-efficacy ("Expert Program Management," n.d.)

As depicted in Figure 2 above, four factors lead to high or low levels of self-efficacy (Bandura, 1997, 1977). The first is experience, which refers to past situations dealing with the same problem or task or the lack of such similar experiences. This problem is the most important factor in self-efficacy (DiBenedetto and Schunk, 2018). If tasks are previously performed well, confidence will increase which leads to higher motivation and belief in the successful accomplishment of the same task in the future (Januszewski, 2001; Januszewski et al., 2008; Januszewski and Molenda, 2013). The second is vicarious experience, which refers to the knowledge gained from the observation of other people's experiences. Vicarious experience can increase self-efficacy by witnessing others' successes in similar tasks or situations. This element can also lower self-efficacy levels, however, if the witnessed experience fails or is perceived as a failure. The third is social persuasion, which increases self-efficacy through the motivation of others to boost the perform of a task. Disappointing or disparaging comments about one's ability to do a task may, however, reduce self-efficacy. Finally, physiological feedback influences self-efficacy through bodily conditions or reactions when faced with a task. The body may, for instance, experience a thrill or adrenaline rush which signals the effects of self-efficacy.

Variable key strengths of self-efficacy in social cognitive theory are to influence individual behaviour and the environment (Bandura, 1977, 1997; Schunk, 2012a, 1991). Individuals with high self-efficacy will be more engaged in learning and self-regulation tasks like setting goals, using various learning strategies and evaluating their understanding of, and progress in, a certain task. Such individuals can also create effective learning environments for themselves

that can eliminate or minimise distractions and utilise social interactions with peers to strengthen learning outcomes. Over time, self-efficacy can be effected by behavioural results like progress goals and achievements, as well as by environmental inputs like feedback from teachers and social comparison with peers.

Bandura (1997) suggests that learners gain information to measure their self-efficacy through their performance achievements, their absorption and experience of content, through forms of social persuasion and through physiological indices (Figure 1). Individuals also receive information about their capabilities through the knowledge others' behaviours (Bandura, 1997), The same is signaling to measure self-efficacy (Schunk, 2012b). Individuals also develop self-efficacy through social persuasion (e.g., "I know you can do it") that they receive from others (Bandura, 1997). These kinds of social beliefs must be credible and can thereby cultivate confidence in one's abilities to successfully achieve results. Despite the strengthening of self-efficacy through such positive feedback, improvement will not be sustained if a student performs poorly (Schunk, 2012b). Conversely, negative persuasion can lower levels of self-efficacy.

Individuals can also obtain self-efficacy information through emotional and physiological indices, such as anxiety or stress (Bandura, 1997). A strong emotional reaction to a task may influence an individual's anticipated success or failure of that task. When learners experience negative thoughts or fears about their capabilities, for example nervousness about taking a test, stress signals are triggered which subsequently detracts from performance. This kind of physiological response can have adverse effects on an individual's self-efficacy.

The purpose of this study is to investigate students' interactions with e-learning, particularly with the Sistem Pengelolaan Pembelajaran (SIPEJAR) at the Universitas Negeri Malang. Interactions are described in this study as students' levels of self-efficacy when using SIPEJAR. These interactions comprise of students' knowledge gained through the experience of others (modeling), social persuasion, and feedback on certain conditions in the form of individual motivation. The High levels of self-efficacy will determine the success of the individual in the SIPEJAR learning process.

METHOD

Sample and Instrument Design

This research uses a descriptive quantitative approach to best handle the numerical data. Statistical analysis will then be conducted on the gathered data to show the results of the Malang State University student interactions with e-learning, as well as their levels of self-efficacy when utilising SIPEJAR in the learning process.

The SIPEJAR system is actively used by 91 students in the UM Faculty of Education as part of their learning process. The data collection instrument used in this study was a questionnaire, comprising of 15 affidavits to measure student scores. A modified Likert scale was used to determine the answer scores of each statement.

Table 1: Total population research

Department	Class	Amount
Education technology	B	**30**
Education technology	C	**29**
Counselling guidance	A	**28**
PGSD	B	**31**
Total		**118**

The samples to be studied were taken using the Slovin formula with an error level of 5% or 95% level of confidence. The calculation of the sample using the Slovin formula is as follows (Husein, 2011).

As seen in Table 1 above, results of sample calculations from a population of 118 amounted to 91 respondents. Preliminary research will be conducted to determine the questionnaire's levels of validity and reliability with 25 respondents. Prepared using a Likert scale, as depicted in Table 2, the questionnaire's measurable variables can be described as indicators.

Table 2: Alternative score answer instruments

Statement Positive (+)	
Alternative answers	Score
Strongly agree (SS)	4
Agree (S)	3
Agree (KS)	2
Disagree (TS)	1

The data will be processed using descriptive analysis techniques through SPSS 22.0 for Windows. The number of respondents engaged to test the instrument was 25 (n = 25), taken from 25 people in a 2018 Comparative Education technology classroom and by looking at the price chart criticism of product-moment (Arikunto, 2014). Based on the 95% confidence

intervals, the 25 respondents obtained a value of 0.396, which thus declared the instrument invalid. $r_{tabel} r_{tabel}$.

Test reliability in this study also uses SPSS 22 for Windows by calculating the values of Cronbach's Alpha for the tested variables. Reliability is achieved if the value of Cronbach's Alpha i greater than 0.600. Reliability test results obtained a value of 0.944, meaning that the interpretation of the value of *r* is higher than the required value. It can therefore be concluded that the instrument is reliable and can be used in the research (Table 3).

Table 3. Results of the reliability test

Cronbach's Alpha	N of Items
.944	15

Technical Analysis Data

Data was analysed using descriptive statistical techniques which calculated the average of the mean, median, mode, standard deviation, maximum value, minimum value and frequency distribution for each variable or indicator. To determine the number of class intervals, the formula Stages K = 1 + 3.3 log n was employed, where n refers to the number of respondents.

The length of the class was calculated by dividing the range by the number of class intervals. Collected data was then grouped into a frequency distribution table and described by the corresponding histogram. The data was then processed to determine the propensity score average (mean) and the percentage (Hadi, 1967) .

Determining a distance of 1.5 SDI for this category was based on a normal distribution curve which is theoretically within 6 standard deviation (6SDi). The calculated propensity score average (mean) and percentage were collated as pie charts. Further analysis was then conducted to obtain a score of each item in the statements of each variable by calculating the average (mean) and the standard deviation. The obtained data was then grouped into corresponding tables which display the mean score and standard deviation of each statement.

RESULTS AND DISCUSSION

This study aims to describe levels of self-efficacy surrounding SIPEJAR student learning. Student self-efficacy is strongly influenced by the acquisition of information concerning: (1) actual experience; (2) vicarious experience; (3) social persuasion, and (4) physiological feedback.

A. Actual experience distribution frequency using SIPEJAR.

The SPSS 22.0 for Windows analysis revealed the following scores:

The mean (Mean)	= 11.4396
median	= 12
modus	= 12
standard deviation	= 1.74
Maximum value	= 16
Minimum value	= 5
Range (Range)	= 11
Total grade interval	= 1 + 3.3 log n
	= 1 + 3.3 log 91
	= 7.4 or 7
The length of the class	= Range / number of interval classes
	= 11/7
	= 1.57 or 2

From the results of this data, the following frequency distribution table has been constructed:

Table 4: Distribution frequency: actual experience using SIPEJAR

		frequency	*Percent*	*valid Percent*	*Cumulative Percent*
valid	5-6	1	1.1	1.1	1.1
	7-8	5	5.5	5.5	6.6
	9-10	16	17.6	17.6	24.2
	11-12	53	58.2	58.2	82.4
	13-14	14	15.4	15.4	97.8
	15-16	2	2.2	2.2	100.0
	Total	91	100.0	100.0	

As seen in Table 4 above and in the histogram in Figure 3, the highest frequency of 53 respondents were contained in the interval of 11.00-12.00 while the lowest frequency of 1 respondent was contained in the interval of 5.00-6.00.

Calculations were performed to determine the tendency of the average score of actual experience using SIPEJAR. This data was measured by four questionnaire statements with scores ranging from 1-4 as follows:

Idea minimum score	= 4 x 1 = 4
Ideal maximum score	= 4 x 4 = 16
The average value of the ideal (Mi)	= $^1/_2$ (16 + 4) = 10
Standard deviation ideal value (Sdi)	= $^1/_4$ (16-4) = 3
Very good / very high	= X> (Mi + 1.5 SDI) = X> 14.5

Good / high	= Mi s / d (Mi + 1.5 SDI) = 10 s / d 14.5
Enough / moderate	= (Mi - 1.5 SDI) s / d <Mi = 5.5 s / d <10
Less / low	= X <(Mi - 1.5 SDI) = X <5.5

Based on the results of these calculations, the study compiled a grouping of tendencies on the mean score of actual experience with SIPEJAR. This data is presented in Table 5 below:

Table 5: Distribution trends score average: actual experience using SIPEJAR

No.	range	Category	Frequency	Percent (%)
1.	X> 14.5	Very good / very high	2	2.2
2.	10 s / d 14.5	Good / high	77	84.6
3.	5.5 s / d <10	Enough / moderate	11	12.1
4.	X <5.5	Less / low	1	1.1
AMOUNT			91	100

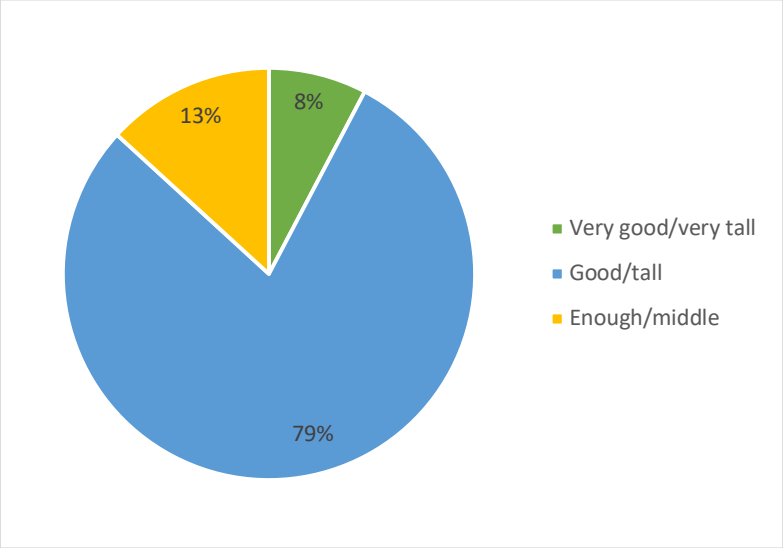

Figure 3: Distribution pie chart of trends score average: actual experience using SIPEJAR

Figure 3 above shows that using SIPEJAR from the aspect of the actual experience was successfully achieved. This result is indicated by the number of students who answered in the top two categories of excellent / very high (2 students at 2.2%) and the majority answering with good / high (77 students at 84.6%). These were followed by 11 students (12%) voting in the enough / moderate category, with only 1 student (1%) opting for the lowest category of less / low.

Based on these calculations, it can be concluded that the actual student experience of using SIPEJAR within the UM Faculty of Education was in a good category with a mean score of 11.44 and an overall percentage of 71.5%

B. Overview of the distribution frequency of vicarious experience using SIPEJAR.

Based on the analysis using SPSS 22.0 for Windows, the data reveals the following scores:

The mean (Mean)	= 5.7
median	= 6
modus	= 6
standard deviation	= 1.02
Maximum value	= 8
Minimum value	= 4
Range (Range)	= 4
Total grade interval	= 1 + 3.3 log n
	= 1 + 3.3 log 91
	= 7, 46 or 7
The length of the class	= Range / number of interval classes
	= 4/7
	= 0.6

The following frequency distribution table was constructed based on the above calculations:

Table 6: Frequency distribution of student perceptions of vicarious experience using SIPEJAR

		frequency	***Percent***	***valid Percent***	***Cumulative Percent***
valid	4:00	12	13.2	13.2	13.2
	5:00	20	22.0	22.0	35.2
	6:00	47	51.6	51.6	86.8
	7:00	5	5.5	5.5	92.3
	8:00	7	7.7	7.7	100.0
	Total	91	100.0	100.0	

Based on Table 6 above and the histogram in Figure 3, the highest frequency of 47 respondents were contained in item 6:00 while the lowest frequency of 5 respondents were contained in item 7:00.

Potential trends in the data were then calculated using the mean score perceptions of students as measured by the same four categories. A Likert scale with a score of 1-4 was again carried out with the following calculations:

Ideal minimum score	= 2 x 1 = 2
Ideal maximum score	= 2 x 4 = 8
The average value of the ideal (Mi)	= $^1/_2$ (8 + 2) = 5
Standard deviation ideal value (Sdi)	= $^1/_4$ (8-2) = 1.5
Very good / very high	= X> (Mi + 1.5 SDI) = X> 7.25
Good / high	= Mi s / d (Mi + 1.5 SDI) = 5 s / d 7.25
Enough / moderate	= (Mi - 1.5 SDI) s / d <Mi = 2.75 s / d <5
Less / low	= X <(Mi - 1.5 SDI) = X <2.75

Based on these calculations, the grouping tendency and average scores of students' perceptions of vicarious experiences with SIPEJAR are presented in Table 7 below:

Table 7: Distribution trends and mean score of student perceptions of vicarious experiences using SIPEJAR

No.	range	Category	Frequency	Percent (%)
1.	X> 7.25	Very good / very high	7	7.7
2.	5 s / d 7.25	Good / high	72	79.1
3.	2.75 s / d <5	Enough / moderate	12	13.2
4.	X <2.75	Less / low	0	0
amount			91	100.0

Table 7 above shows that of the 91 total respondents, a majority of 72 (79.1%) reported good / high perceptions of vicarious experiences with the learning system. 7 students (7.7%) opted for the very good / very high category; 12 respondents (13.2%) answered with enough / moderate, and none of the respondents gave answers for the lowest category. Further details on this data can be seen in Figure 4:

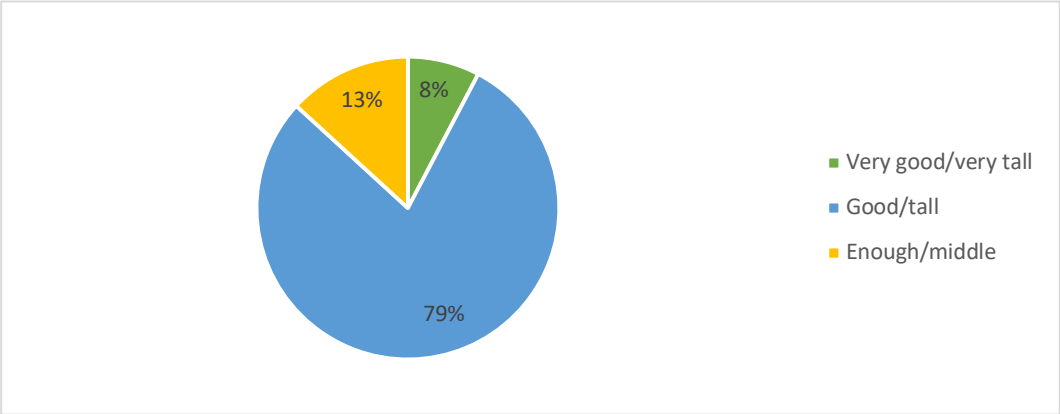

Figure 4: Pie chart distribution of trends and score average on vicarious experience using SIPEJAR

Results show that the element of vicarious experience with SIPEJAR obtained a mean score of 5.7, which is contained in the class range of 5 s / d 7.25 and is included in both categories. It can therefore be concluded that students' perceptions of their vicarious experiences with the SIPEJAR model are categorised as good, with a mean score of 5.7 and an overall percentage of 71.25%

C. Description of the frequency distribution of social persuasion for SIPEJAR

Results of the analysis using SPSS 22.0 for Windows reveal the following scores:

The mean (Mean)	= 8.94
median	= 9
modus	= 9
standard deviation	= 1.26
Maximum value	= 12
Minimum value	= 6
Range (Range)	= 6
Total grade interval	= 1 + 3.3 log n
	= 1 + 3.3 log 91
	= 7.46
The length of the class	= Range / number of interval classes
	= 6/7
	= 0.8

From these results, the following frequency distribution has been constructed:

Table 8: Frequency distribution of students' perceptions on social persuasion for using SIPEJAR

		frequency	*Percent*	*valid Percent*	*Cumulative Percent*
valid	6.0 - 6.8	4	4.4	4.4	4.4
	6.9 - 7.7	6	6.6	6.6	11.0
	7.8 - 8.6	15	16.5	16.5	27.5
	8.7 - 9.5	46	50.5	50.5	78.0
	9.6 - 10.4	10	11.0	11.0	89.0
	10.5 - 11.3	6	6.6	6.6	95.6
	11.4 - 12.2	4	4.4	4.4	100.0
	Total	91	100.0	100.0	

As seen in Table 8 and the histogram in Figure 4, the highest frequency of 46 respondents was contained in the interval from 8.7-95, and the lowest frequency of 4 respondents was contained equally in two intervals, one from 6.0-6.8 and the other from 11.4-12.2.

Data trends and the mean score were again measured by the same four categories in the 1-4 scored Likert scale as follows:

Ideal minimum score	= 3 x 1 = 3
Ideal maximum score	= 3 x 4 = 12
The average value of the ideal (Mi)	$= {}^{1}/_{2}$ (12 + 3) = 7.5
Standard deviation ideal value (Sdi)	$= {}^{1}/_{4}$ (12-3) = 2.25
Very good / very high	= X> (Mi + 1.5 SDI) = X> 10.875 or 11
Good / high	= Mi s / d (Mi + 1.5 SDI) = 7.5 s / d 11
Enough / moderate	= (Mi - 1.5 SDI) s / d <Mi = 4,125 s / d <7.5
Less / low	= X <(Mi - 1.5 SDI) = X <4.125

Based on these calculations, the grouping tendencies and mean scores of social persuasion for using SIPEJAR are presented in Table 9 below:

Table 9: Distribution trends and mean score of social persuasion for using SIPEJAR

No.	range	Category	Frequency	Percent (%)
1.	X> 11	Very good / very high	4	4.4
2.	7.5 s / d 11	Good / high	77	84.6
3.	4,125 s / d <7.5	Enough / moderate	10	11.0
4.	X <4.125	Less / low	0	0
amount			91	100

Table 9 shows that while only 4 respondents (4.4%) answered in the very good / very high category, a majority of respondents (84.6%) answered in the second highest category of good / high for social persuasion. This data was followed by 10 respondents (11%) in the enough / moderate category, and finally, no respondents gave answers for the less / low category of social persuasion. Further details on this data can be seen in Figure 5 below:

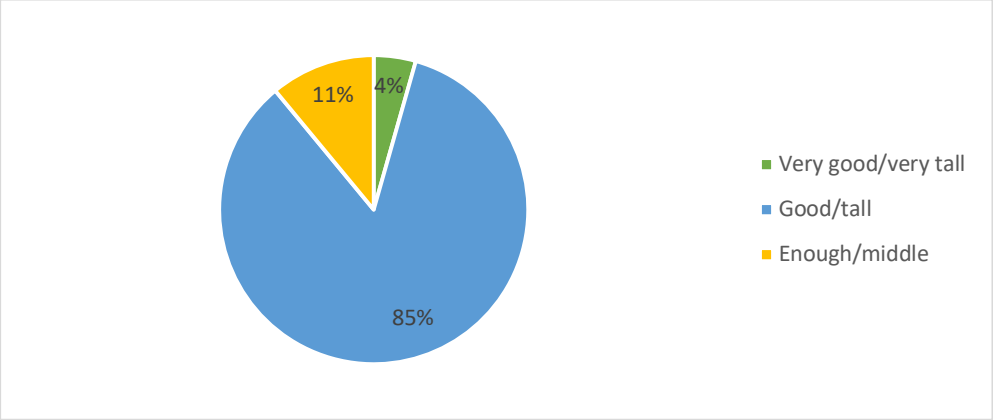

Figure 5: Pie chart distribution trends social experience persuasion score average using SIPEJAR

These results show that social persuasion for the utilisation of SIPEJAR obtained a mean score of 11.44, which was contained in the range of class X> 11 and was included in the category of very good / very high. It can therefore be concluded that the use of persuasive social experience in the SIPEJAR learning system are in the good category with a mean score of 8.94 and a percentage of 74.5%.

D. Description of distribution frequency physiological index using SIPEJAR

The analysis using SPSS 22.0 for Windows reveals the following data:

The mean (Mean) = 8.09
median = 8.00
modus = 9.00
standard deviation = 1.64
Maximum value = 12
Minimum value = 4
Range (Range) = 8
Total grade interval = 1 + 3.3 log n
= 1 + 3.3 log 91
= 7.46
The length of the class = Range/number of interval classes
= 8/7
= 1.1

From the results of this data calculation, the following frequency distribution table has been constructed:

Table 10: Distribution frequency of physiological feedback using SIPEJAR

		frequency	*Percent*	*valid Percent*	*Cumulative Percent*
valid	4.0 - 5.1	6	6.6	6.6	6.6
	5.2 - 6.3	10	11.0	11.0	17.6
	6.4 - 7.5	12	13.2	13.2	30.8
	7.6 - 8.7	21	23.1	23.1	53.8
	8.8 - 9.9	32	35.2	35.2	89.0
	10.0 - 11.1	7	7.7	7.7	96.7
	11.2 - 12.3	3	3.3	3.3	100.0
	Total	91	100.0	100.0	

Table 10 above and the histogram in Figure 9 show that the highest frequency of 32 respondents was contained in item 8.8-9.9, while the lowest frequency of 3 respondents was contained in item 11.2-12.3.

To identify the data trends and mean score of physiological feedback in using SIPEJAR, the same four categories were again used as measurements for the questionnaire with a Likert scale scoring system of 1-4, as depicted in the following calculations:

Ideal minimum score = 3 x 1 = 3
Ideal maximum score = 3 x 4 = 12

The average value of the ideal (Mi)	= $^1/_2$ (12 + 3) = 7.5
Standard deviation ideal value (Sdi)	= $^1/_4$ (12-3) = 2.25
Very good / very high	= X> (Mi + 1.5 SDI) = X> 10.875 or 11
Good / high	= Mi s / d (Mi + 1.5 SDI) = 7.5 s / d 11
Enough / moderate	= (Mi - 1.5 SDI) s / d <Mi = 4,125 s / d <7.5
Less / low	= X <(Mi - 1.5 SDI) = X <4.125

Based on the results of these calculations, the grouping tendency of the average score of physiological feedback are presented in Table 11 below:

Table 11: Distribution trends and mean score of physiological feedback for SIPEJAR

No.	range	Category	Frequency	Percent (%)
1.	X> 14.5	Very good / very high	3	3.3
2.	10 s / d 14.5	Good / high	60	65.9
3.	5.5 s / d <10	Enough / moderate	28	30.8
4.	X <5.5	Less / Low	0	0
Amount			91	100

Table 11 shows the results that 3 respondents (3.3%) answered in the category of very good / very high, while a majority of 60 respondents (65.9%) gave answers for the good / high category regarding physiological feedback. This data was followed by 28 respondents (30.8%) who answered in the category of enough / moderate, and none of the respondents answered in the poor category. Further details of this data can be seen in Figure 6 below:

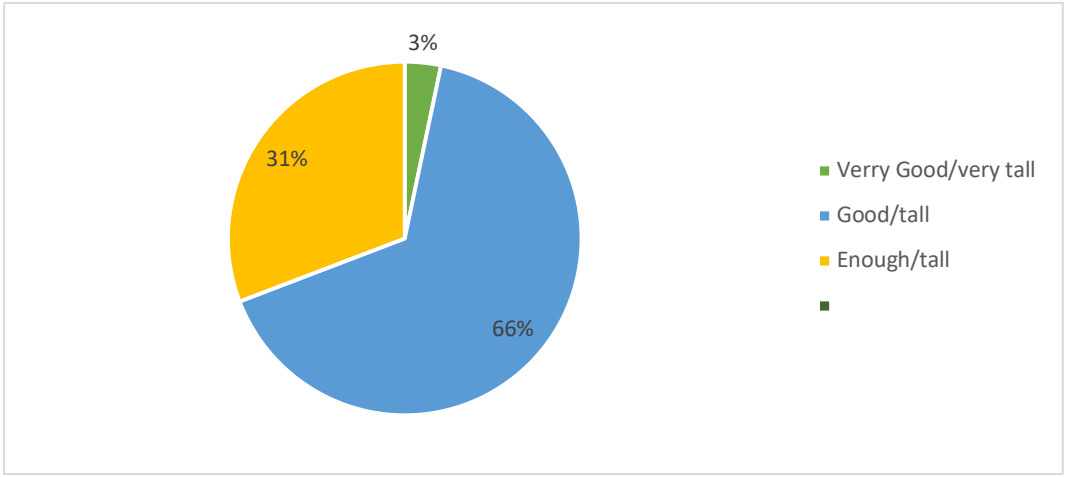

Figure 6: Pie chart distribution of trends and mean score of physiological feedback in using SIPEJAR

These results show that the use of physiological feedback with SIPEJAR learning obtained a mean score of 11.43, which was contained in the class range of 10 s / d 14.5 and was included in the category of good / high.

Figure 7 below depicts an overview of the current research results, including data of actual experience, vicarious experience, social persuaion and physiological feedback variables in the SIPEJAR learning model as used by the Faculty of Education at Universitas Negeri Malang:

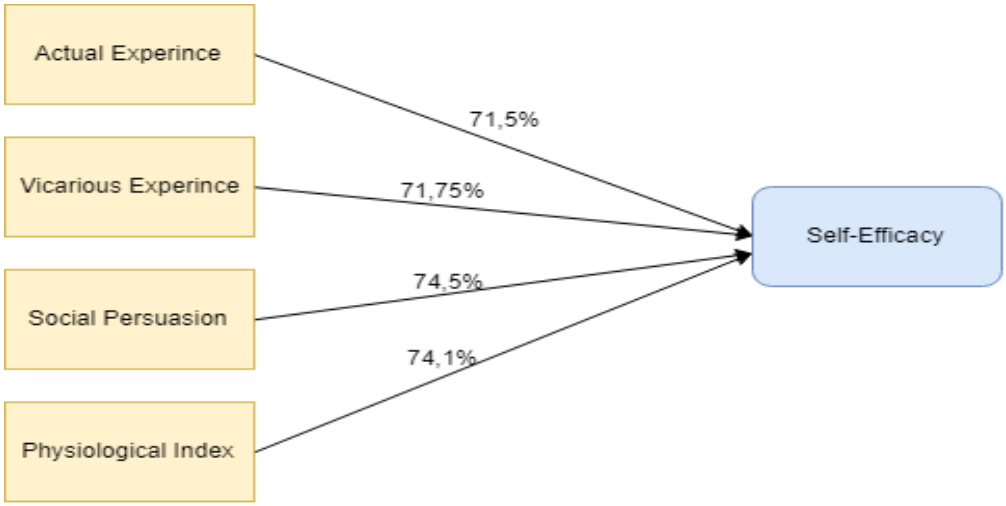

Figure 7: Diagram of average relationships between self-efficacy variables

Using SIPEJAR in learning has been included in the regulation rector. In one semester, students are expected to utilise SIPEJAR to a 40% accuracy level. Learners should acquire literacy enrichment which fosters the self-creation of learning resources. Learners are also allowed to see the results of their learning experience of the SIPEJAR system, as depicted in Figure 8.

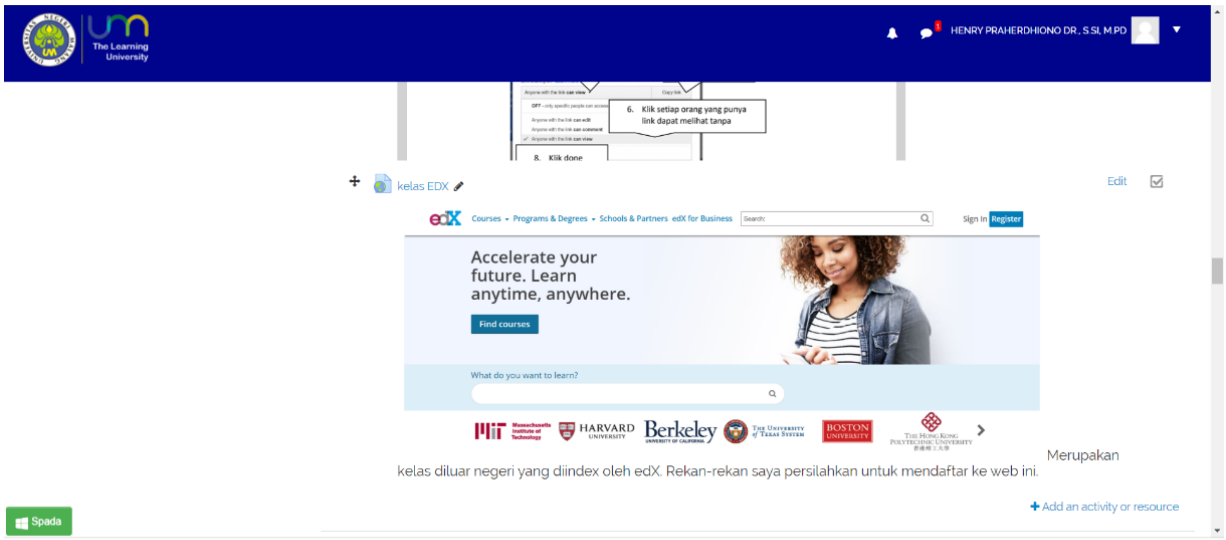

Figure 8: Implementation of embedding content enrichment in SIPEJAR (UM)

Students are also encouraged to build and share portfolios, an opportunity which allows them to think independently and construct their own unique projects. Figure 9 shows students' demonstrated abilities in building such projects and visions.

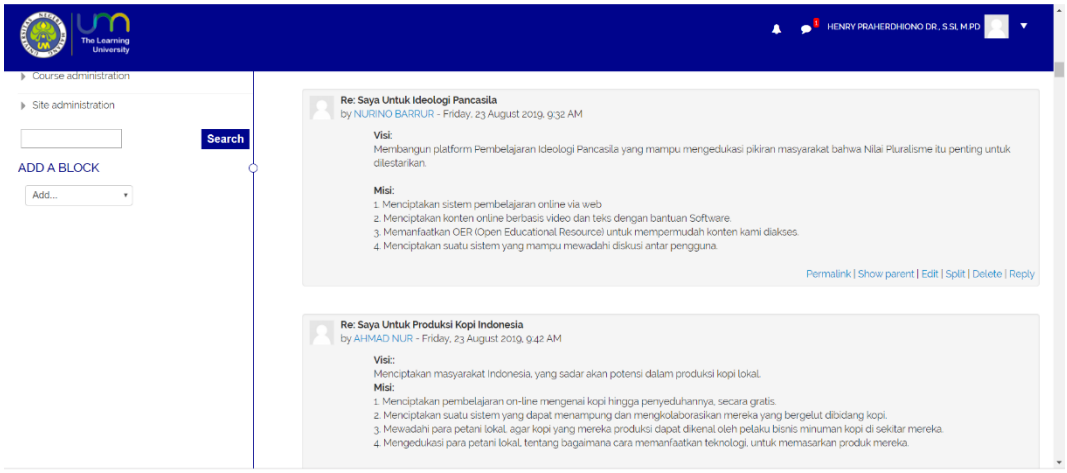

Figure 9: The ability to build student portfolios

Based on these calculations, it can be concluded that physiological feedback for the use SIPEJAR is in the good category with a mean score of 11.43 and a percentage of 74.1%.

Although self-efficacy is very important, as indicated in this study's research and discussion, it is not the only aspect of influence on behaviour. Social cognitive theory states that no amount of self-efficacy that will produce competent performance if the skills necessary for success are lacking (Schunk, 1991). Students' values and perceptions of the importance and utility of learning can also influence their learning behaviours (Wig field et al., 2004). Even learners who feel very confident in the mastery of knowledge may reject courses that are perceived to

be unnecessary for their goals or achievements. Assuming an individual has acquired the necessary skills, values and positive expectations for success, however, social cognitive theory predicts that self-efficacy will function as a key determinant of his or her motivation, learning, self-regulation and achievement (Schunk, 2012).

The effect of choice can also trigger self-efficacy in encouraging people to act (or not act) in pursuit of their goals (Bandura, 1997). Individuals tend to choose tasks and activities in which they feel competent and confident, while avoiding those they do not like. Unless people believe that their actions will produce the desired consequence, they have little incentive to engage in such actions.

Self-efficacy also helps to determine a learner's sense of confidence, his or her ability to handle obstacles, and the individual's resilience when faced with adversity. The learner with high levels of self-efficacy will handle such instances of adversity as challenges that must be regulated rather than as threats to be avoided. These individuals set challenging personal goals to which they maintain strong commitments. In real-world scenarios, this kind of self-efficacy can increase and sustain business ventures in the face of failure and allows the individual to appropriately deal with the disappointment of potential setbacks.

As previously mentioned, the term self-efficacy refers to an individual's personal confidence in his or her ability to complete a task (Hopper et al., n.d.). Current thinking suggests that this sense of self-confidence is highly influential in achieving success. Self-efficacy also refers to a set of beliefs held by an individual regarding his or her his ability to complete a task (Bandura, 2010, 1997, 1977). Literature suggests that two factors influence whether a person is involved in certain behaviours: self-efficacy expectations and outcomes. In other words, the ability to achieve a goal or complete a task depending on an individual's ability to believe in his or herself (self-efficacy), and the developed expectations of good results (expected results) (Bahorski et al., 2019; Bandura, 2010; Yehene et al., 2019).

CONCLUSION

Based on the results of the research and discussion, it can concluded that students of the Faculty of Education at Universitas Negeri Malang have a good interaction with e-learning, particularly with the use of Sistem Pengelolaan Pembelajaran (SIPEJAR). Of the four variables that affect self-efficacy, including actual experience, vicarious experience, social persuasion and physiological feedback, a majority of 72.96% of the total respondents were in the second highest category of good / high. This data indicates that students have good self-efficacy in using SIPEJAR and are highly confident in achieving successful learning.

The first variable of actual experience with the SIPEJAR learning system produced a mean score of 11.44 and apercentage of 71.5% in the good category. The second variable of vicarious

experience with SIPEJAR produced a mean score of 5.7 and a percentage of 71.25%. Next, social persuasion in the utilisation of SIPEJAR produced a mean score of 8.94 and a percentage of 74.5%. Finally, the physiological feedback variable for SIPEJAR use produced a mean score of 11.43 and a percentage of 74.1%.

To increase user acceptance of the application of SIPEJAR, the following recommendations are made as a result of the current research: (a) to initiate a social introduction of SIPEJAR in each university department and within the teaching faculty; (b) to improve the appearance and features of SIPEJAR on the university website, and (c) to add key features as suggested by the students who use SIPEJAR for their studies.

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