Self & Portfolio Assessments as a Learning Evaluation System in Virtual Learning: A Case of Riau Province - Indonesia

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***Abstract*: One of the major issues of designing self & portfolio assessments as a learning evaluation system is to help teachers assessing students' works in virtual learning. So, through the application of this type of assessment system, it is expected that three parties: teachers, students, and parents will get involved proportionately in determining the aspects to be evaluated by each of them. In this descriptive quantitative study, this paper aimed at describing the application of self & portfolio assessments as a learning evaluation system in virtual learning within the elementary, lower and higher secondary school teachers in Riau Province-Indonesia. Findings show that out of 25 principles that the learning evaluation system has, the principle of 'simple' is at the lowest level (0.400 > 0.2242) while the principles of 'accountable, objective, critical, innovative, creative, quality, apprreciation, students' participation, and teachers' participation are at the highest level of validity (0.888 > 0.2242); however, all of the principles are at the highest level of reliability (0.938). In terms of hypothesis testing, there is no positive and significant differences on the aspects of education units (0.335 > 0.05); regency (0.558 > 0.05); gender (0.928 > 0.05); and on the aspect of teaching experience (0.471 > 0.05). In conclusion, the teachers within Riau Province-Indonesia have shown their higher consent and approval on the application of the principles of self & portfolio assessments as a learning evaluation system in virtual learning in terms of validity and reliability as well as the aspects to be evaluated by teachers (80%), to be evaluated by students (10%) and to be evaluated by parents (10%).**

***Key-words*: application, self & portfolio assessments, virtual learning**

I. INTRODUCTION

Virtual learning has been implemented since 16 March 2020 at each education unit in Indonesia (Harnani, 2020; Kemendikbud, 2020). As a consequence, teachers, students and parents within the Province of Riau– Indonesia have many obstacles in conducting virtual learning. Teachers, for example, have problems in designing a set of teaching instrument such as power-point, modules, video, portable document format, and launching them through various types of virtual applications; parents, particularly with more than one child, have problems in facilitating their children with communication tools and internet access; while students would have not well-prepared to study without having smart phones with android application system.

So, in order to be fair in terms of learning evaluation system, the three parties consisting of teachers, students, and parents should be given special opportunities simultaneously to assess students learning achievement. To reach this purpose, a set of model of learning evaluation system in virtual learning which is based on the principles of self & portfolio assessments have been developed through research and development method (Sugiyono, 2012:30-34). Then, due to the final decision resulted in Focus Group Discussion with three different experts (Krueger, 1994:9-10), an article entitled 'Factors Influencing Virtual Learning and the Development of its Learning Evaluation System' containing the model of learning evaluation system has been sent to be published in one of international journals (Azhar, 2022:224-233) as in Figure 1.

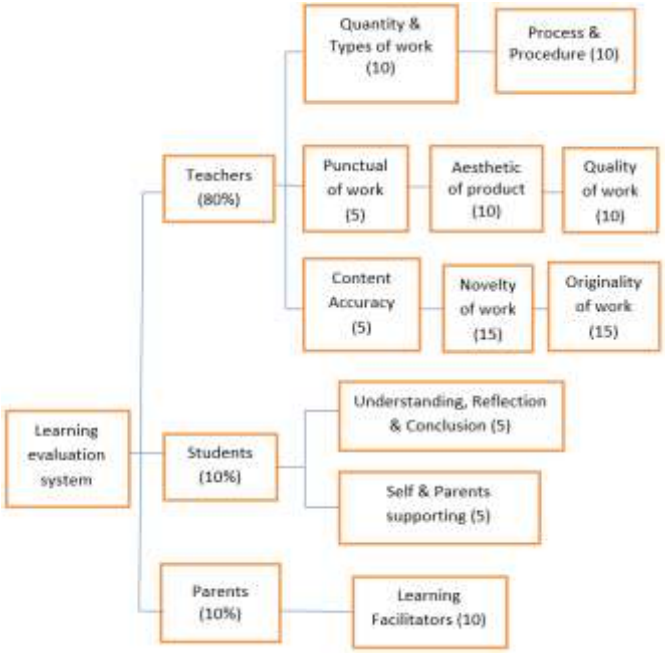

Figure 1: Azhar's Learning evaluation based on Self & Portfolio Assessment

In Azhar's learning evaluation system which is focused only on self & portfolio assessments, it is clearly seen that three parties get involved in it: teachers, students, and parents. Teachers in this context have a right to evaluate eight components, namely, quantity & types of students work (10 points); process & procedure of producing the work (10 points);

submit the work at punctual time (5 points); aesthetic of product (10 points); quality of work (10 points); content accuracy (5 points); novelty of work (15 points); and originality of work (15 points). So, overall teachers have obtained 80% in this evaluation system.

The component of quantity & types of work is focused on two things, that is, the total number and the various models of works submitted by the students. This means that the bigger the number and the more models of works submitted, the maximum is the score or vice-versa. The component of process & procedure refers to the complexity in producing the product. This means that the more complicated the production of works or product, the maximum is the score or vice-versa. The component of punctual of work means that the works or product is submitted before or on the set-schedule. This means that the earlier the works or product is submitted, the maximum is the score or vice-versa. The component of aesthetic of product means that the works or product is assessed through its interesting and amazing appearance. This means that the more interesting and the more amazing the appearance, the maximum is the score or vice-versa.

The component of quality of work relates to the excellent feature of the works or product. This means that the more quality the works or product has, the maximum is the score or vice-versa. The component of content accuracy concerns the correctness of works or product. This means that the more precision the works or product, the maximum is the score or vice-versa. The component of novelty in this context means that the work or product produced by the students has a new valuable object, at least, showing a new model of appearance. This means that the higher the value of novelty, the higher is the core or vice-versa. Finally, the component of originality of works or product in this context aims to train students to produce the works or product by themselves; not exactly or directly copied or adopted but at least adapted or modified. This means that the higher the value of originality, the higher is the score or vice-versa.

Meanwhile, students have opportunities to evaluate two components, namely, understanding, reflection & conclusion (5 points) and self & parents' supporting (5 points). The first one means that the students feel that they are able to identify the content of the lesson; they can show their capability about the lesson; and even they can elaborate or expand the lesson in their own background knowledge. However, the second component shows that the students' success in yielding the works or product is because of two major things: the students themselves and the help of their parents. So, in this case students have obtained 10% in this evaluation system.

Last but not least, parents only get one component, that is, teaching-learning facilitators (10 points). In this case, parents play an important role in helping students accomplishing works or product. In summary, 80% of the learning evaluation system is done by teachers; 10% done by students and the other 10% is done by parents.

The next model of learning evaluation system is the model which is designed by Liu (2020) as in Figure 2.

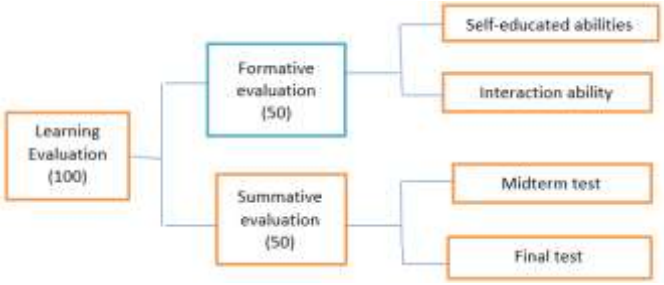

Figure 2: Liu's Learning evaluation based on Formative & Summative Evaluation

From the model of learning evaluation designed by Liu (2020), it can be seen that there are two main types of evaluation to be evaluated: a) formative evaluation; and b) summative evaluation. Formative evaluation contains two substances to be evaluated while summative evaluation contains two substances. This model seems to be much simpler in practice.

If we look at the difference beween the two figures, Liu (2020) focuses learning evaluation on two main aspects: formative evaluation and summative evaluation without taking care of teachers' roles, students' roles, and parents' roles. Meanwhile, Azhar's learning evaluation model (2022) is focused on these three parties roles in virtual learning tasks without taking care of mid test and final test.

So, in reference to what have been discussed, the research problems to be answered in this research can be described as in the followings: (a) To what extent is the teachers' points of view towards the principles of portfolio and self-assessment as a learning evaluation system in virtual learning interms of validity and reliability?; (b) To what extent is the difference in applying the principles of portfolio and self-assessment as a learning evaluation system in virtual learning on the aspect of education unit?; (c) To what extent is the difference in applying the principles of portfolio and self-assessment as a learning evaluation system in virtual learning on the aspect of regency?; (d) To what extent is the difference in applying the principles of portfolio and self-assessment as a learning evaluation system in virtual learning on the aspect of gender?; and (e) To what extent is the difference in applying the principles of portfolio and self-assessment as a learning evaluation system in virtual learning on the aspect of teaching experience?

II. LITERATURE REVIEW

This part will explain the following sub-aspects concerning with th nature of virtual learning, the theoretical framework of self & portfolio assessments, and the Principles Underlying the Self & Portfolio Assessments.

a) The Nature of Virtual Learning

Virtual learning in a general concept can be categorized as a learning process in which teachers and students are

available in separated places; for example, teachers broadcast the lesson materials from schools while students are joining the class from their homes. In other words, virtual learning which is similar to e-learning, distance learning or web-based learning not only connects teachers and students in terms of teaching-learning process in face-to-face activities but also enables students studying by themselves through the recording as well as the modules, video and portable document format being well-prepared and sent by the teachers (Handoko, 2017).

So, virtual learning in the other side has several positive impacts to students themselves; among others are to overview the lesson material at any time, to share the lesson material to their seniors for tutorial purposes, and even to share with partners for discussion purposes. This is in line with the idea of Sherman (2016) who says that '*virtual learning is to keep students abreast of technology, an innovative collaboration tool, to help students use of downtime and improve motivation, to help students build a smarter workforce, and to give students aheadstart.'* This means that virtual learning in this context can be categorized as a type of teaching application which has multi functions.

In line with this, Rosenbilt (2005) defined virtual learning "*as electronic media used for various learning purposes ranging from conventional classroom add-on functions to online substitution for face-to-face meetings with online encounters".* In addition to this, Clark and Mayer (2016) said that virtual learning can be formulated as '*instructions delivered through digital devices with the intent of supporting learning.'*

To summarize, virtual learning not only train students to learn by themselves actively but also to make them more confident, more independent, more energic, to have more teaching-learning media, and to have learning autonomy. Meanwhile, for teachers, portfolio is very purposeful to assess learning process (that is, various types of works in progress prepared by students); learning product (that is, various types products completed by students).

b) The Theoretical Framework of Self & Portfolio Assessments

In line with those positive impacts of virtual learning; therefore, its learning evaluation system will be more valuable and fair if it is developed from the cohesiveness of portfolio and self-assessments. This is due to the fact that portfolio assessment in this context may function as the collection of students works and being kept by teachers either in-personal bundle, in-group bundle or in-class bundle. '*Portfolio assessment in education aims to equip learners with self-reflective capacity so that they are able to monitor, review, and improve their academic performances independent of the teachers' instructed guidance'* (Biglary, *et al*. (2021). This means that portfolio assessment makes students have their self-learning regulation in which students can regulate his or her personal learning styles.

So, through this type of portfolio assessment, teachers will be able to assess the students' *performance, weak & strong domain, and progress* in each type of bundle during office hours or at home if they work from home. In addition to this, Lowe (2022) mentioned several things related to the advantages of portfolio assessment; among others *self-evaluation* (that is, portfolio enables students to evaluate their work by themselves); *individualized assessment* (that is, portfolio enables students to assess their ability to produce works individually); *promote communication* (that is, portfolio enables students to communicate and share ideas both to students-to-students; students-to-teachers); and *accountability* (that is, portfolio enables students to have a strong responsibility on their works).

The reason for choosing portfolio assessment is due to the fact that portfolio assessment seems to be a massive learning evaluation system. This is considered 'massive' since it is a huge collection of students' works or products; and at the same time, it functions as a physical evidence which demonstrates students' efforts, growths, and learning achievement either from time-to-time or from course-to-course (Popham, 1995: 163-165; Surapranata & Hatta, 2004:27-28). In addition to this, portfolio can also function as a 'track record' and a 'complete report of students' activities including competencies in the aspects of cognitive, affective, and psychomotor (Oosterhop, 2003:181; Ratumanan, 2021:172).

In connection with self-assessment, it purposely aims at giving students chances to identify their strengths and weaknesses in relation to their way of learning by themselves. Therefore, self-assessment is not only student-centered but also has several characteristics such as clarity, transparency, power, and freedom to build their own active learning system; to judge their learning outcomes; and to control their strengths and authority particularly in undertaking the given guidelines as well as requirements (Orsmond, 2021; Boud and Brew in Lesmana & Rokhyati, 2020). In line with this, self-assessment can be categorized as self-contributor, environment learning supporter, self-collaborator, and self-promoter in terms of learning activities. This is due to the fact that through self-assessment students are expected to be '*relaxed with assessment process, useful, adequate and accessible; this is because of its reliability and learning expectations improvement, its additional value to the learning process, and its learning process facilities which is bridging the gap between the starting level of the student and the goal level'* (Martinez, 2020). Therefore, it can be shortened that through self-assessment students will be able to activate themselves in various roles during learning activities and play important roles as a) self-confidence grower (willing to grow-up their sense of optimistic in learning), b) self-analyzer (willing to analyze their strengths and weaknesses in learning), and c) self-trainer (willing to train themselves to be fair and objective in valuing something).

Furthermore, there are six advantages of self-assessment: a) to check understanding (willing to know to what extent students have mastered all taught materials); b) to

promote independence (willing to give opportunities for students to study in accordance with their own learning styles); c) to consolidate learning (willing to improve misunderstanding which students have patterned in their opinion); d) to develop evaluative skill (willing to permit students free to make their own decision in learning); e) to increase engagement (willing to respect students' way of learning process); and f) to deeper understanding (willing to make students have much progress in learning mastery) (https://www.twinkl.co.id/teaching-wiki/self-assessment, 4 October 2022).

c) The Principles Underlying the Self & Portfolio Assessments

The principles of learning evaluation system in this context are modified from Barton & Collins, (2012); Bull, (2020); Cepiriyana, (2020); Elin, (2004); Erdoğan & Yurdabakan, (2010); Imania & Bariah, (2019); Jailani, (2012; and Kemendikbud, (2014). These principles are related to the following things: portable (…used for different subjects); massive (…used in big class members); simple (…be easily used), transparent (…be seen by various parties); accontable (…full of responsibility); fair (…train teachers, students, parents to be open-minded)); objective (…based on quality, aesthetic, procedure & quantity); critical (…teachers, students, parents work critically); innovative (…train students to think innovatively); creative (…train students to create design or new types of work); collaborative (…force teachers, students, parents work together); communicative (…force teachers, sudents, parent talkative); flexible (…can be modified as needed); quality (…force teachers, students, parents produce work in good quality); heterogeneous (…mix students from different level of learning mastery); reward (…each work should be evaluated for gift); valid (…each work is considered legal and binding); integrated (…work consists of theory and practice); holistic (…work is assessed as a whole); meaningful (…work is considered expressive and significant); systematic (…work is orderly assessed); criterion-referenced (…the score given is based on the specific table); extended (…work is assessed in comprehensive form); students' participation (…students get involved in the process of evaluation); and parents' participation (…parents are included as facilitators).

III. METHOD

The primary data for this research is the teachers' opinion about the application of the cohesivenes of portfolio and self-assessment as a learning evaluation system in virtual learning. For this reason, a method of survey which is based on descriptive quantitative is used in this type of research (Creswell, 2005:353; Arikunto, 2010:152). This means that this type of survey can be categorized as an educational institution survey since Teacher Training and Education Faculty Universitas Riau-Indonesia is the affiliation of the researchers.

Then, in order to obtain the data for this research, a questionnaire which contains twenty-five items on the principles of learning evaluation system for virtual learning is developed. All principles are modified from the concepts prepared by Barton & Collins, (2012); Bull, (2020); Cepiriyana, (2020); Elin, (2004); Erdoğan & Yurdabakan, (2010); Imania & Bariah, (2019); Jailani, (2012; and Kemendikbud, (2014).

Therefore, all data of this research is in the form of quantitative; so, descriptive statistics and inferential statistics are used for data analysis (Chua, 2006; Santoso, 2006). The sample of this research is taken through simple random sampling technique; particularly, for the teachers who returned the questionnaire. Since only 77 teachers returned the questionnaire (out of 100 sets of questionnaires), they are appointed to be the sample of this research.

IV. RESULTS AND DISCUSSIONS

This part contains results and discussions about the application of self and portfolio assessment in terms of validity and reliability.

a) Validity and Reliability of each Principle of Self & Portfolio Assessments

The purpose of test validity in this context is to measure the value of *Corrected Item-Total Correlation* of each principle of learning evaluation system. Then, the value of *Corrected Item-Total Correlation* of each principle is compared to $r_{tabel} = df(N-2) = df(77-2) = df(75) = 0.2242$. Each principle will be said valid whenever the value of $Corrected\ Item\ Total\ Correlation > r_{tabel}$ or vice-versa as in the following principles: portable (0.662); massive (0.569); simple (0.400); transparent (0.719); accountable (0.888); fair (0.539); objective (0.888); critical (0.888); innovative (0.888); creative (0.888); collaborative (0.592); communicative (0.690); flexible (0.537), quality (0.888), heterogeous (0.454); reward (0.888); valid (0.522); integrated (0.662); holistic (0.507); meaningful (0.545); systematic (0.719), criterion-referenced (0.662), extended (0.719); students participation (0.888) and parents participation (0.888). Meanwhile, in terms of test reliability, the Cronbach's Alpha is obtained 0.938. This mean that all principles have higher level of test reliability (Tanjung and Delsina, 2019:82); Santoso, 2006:9-10). In summary, all principles are categorized valid and reliable to be used to measure students' works or product either to be evaluated by teachers, students or parents.

b) Application of each principle based on the Aspect of Education Units

Kruskal Wallis test is chosen to analyze the following three independent groups: elementary, lower secondary and higher secondary school teachers as in Table 1.

Table 1: Mean Ranks based on the Aspect Education Units

	Education Units	N	Mean Rank
The application of Self & Portfolio Assessments in virtual learning	Elementary	39	41.76
	Lower secondary	18	37.03
	Higher secondary	20	35.40
	Total	77	

Based on the Mean rank, it is found that the Chi-Square with df = 2; so, the value of Asymp Sig. which is 0.335 (2-tailed) = 0.335 > 0.05. This shows that there is no positive and significant difference for teachers in applying self & portfolio assessment as learning evaluation system in virtual learning viewed from the aspect of education units.

c) Application of each principle based on the Aspect of Regency

Kruskal Wallis test is still chosen to analyze the following nine independent regencies as in Table 2.

Table 2: Mean Ranks based on the Aspect of Regency

	Regency	N	Mean Rank
The application of Self & Portfolio Assessments in virtual learning	Pekanbaru	12	42.92
	Siak	1	29.50
	Dumai	17	39.44
	Kampar	2	29.50
	Rokan Hulu	2	48.75
	Rokan Hilir	23	40.48
	Pelalawan	4	47.50
	Indragiri Hilir	6	35.92
	Bengkalis	10	29.50
	Total	77	

Based on the Mean rank, it is found that the Chi-Square with df = 8; so, the value of Asymp Sig. which is 6.801 (2-tailed) = 0.558 > 0.05. This means that there is no positive and significant difference for teachers in applying self & portfolio assessment as learning evaluation system in virtual learning viewed from the aspect of regency.

d) Application of each principle based on the Aspect of Gender

Mann-Whitney is used to analyze the following two independent sample groups as in Table 3.

Table 3: Mean Ranks based on the Aspect of Gender

	Gender	N	Mean Rank
The application of Self & Portfolio Assessments in virtual learning	Male	21	39.29
	Female	56	38.89
Total		77	

Based on the Mean rank, it is found that Mann-Whitney U (582.000), Wilcoxon W (2178.000), and Z (-.091); so, Asymp Sig. (2-tailed) = 0.928 > 0.05. This means that there is no positive and significant difference for teachers in applying self & portfolio assessment as a learning evaluation system in virtual learning viewed from the aspect of gender.

e) Application of each principle based on the Aspect of Teaching Experience

Mann-Whitney test is used to analyze two independent sample groups as in Table 4.

Table 4: Mean Ranks based on Teaching Experience

	Teaching Experience	N	Mean Rank
The application of Self & Portfolio Assessments in virtual learning	< 10 years	38	37.59
	> 10 years	39	40.37
Total		77	

Based on the Mean rank, it is found that Mann-Whitney U (687.500), Wilcoxon W (1428.500), and Z (-.721); so, Asymp Sig. (2-tailed) = 0.471 > 0.05. This means that there is no positive and significant difference for teachers in applying self & portfolio assessment as learning evaluation system in virtual learning viewed from the aspect of teaching experience.

Ma'arif, et al (2021) implied in their research that portfolio assessment has a crucial function in assessing students' learning process particularly in language ability. This is due to the fact that portfolio assessment according to Ma'arif is "*to grow self-monitoring, to create discipline, to direct autonomous learning, to diminish perceptual mismatches among teachers and students, and to encourage metacognitive awareness*." This means that by applying portfolio assessment students will be able not only to manage his or her time management in learning process but also to initiate their independent learning styles.

Then, Farid (2018) concluded that portfolio assessment reveals the students' efforts, progress, and achievements either in a specific subject matter or in various subject matters. Meanwhile, Birgin and Baki (2007) inferred that portfolio is better to be used in assessing not only learning process but also learning product. The reason for this according to these researchers that portfolio is "*nowadays, one of the alternative assessment techniques used in various disciplines such as mathematics, science and social sciences so forth is portfolio*." In another way, it can be said that portfolio assessment is portable in which it is available in multi disciplines.

In terms of self-assessment, Lesmana and Rokhyati (2020) made a conclusion in their research that through self-assessment, most students know their weaknesses in learning process, and time management. So, students believe that self-assessment could encourage them to progress their learning achievement. For this, Vasileadow and Ketadimdraou (2021) mentioned in their research that self-assessment can increase the interest and motivation level of students for the subjects leading to enhanced learning and better academic performance, helping them in the development of critical skills for analysis of their own work.

Jain, et al (2016) in their research found that there is an increase of the students' interest, motivation, and critical skills on academic performance. This is due to the fact that there is a significantly positive correlation between student and teacher marking (r = 0.79); even students and faculty have a similar idea to utilize self-assessment as self-directed learning skills. Andrade (2019) added that self-assessment seems to be a collection of ability, process, product including competence that a student has; however, these substances are dependent on

his or her reaction. In other words, the serious reaction he or she has made to the three substances, the better they are in conducting self-assessment. Last but not least, Martinez, et al (2020) accomplished from their research that e-self-assessment "*would assist students to take an active role in their learning process, increase their achievement, promote their self-regulated learning, and develop metacognitive skills*." This means that in this context, e-self-assessment encourages and inspires students.

V. CONCLUSION

Refer to all things that have been discussed about the theoretical concepts of portfolio and self-assessments, it can be inferred that the cohesiveness of portfolio and self-assessments have demonstrated their meaningful strengths, opportunities, and accuracy as a learning evaluation in virtual learning. Therefore, teachers, students, and parents are suggested to have a good deal or approval in utilizing the portfolio and self-assessments as a learning evaluation system in anticipating virtual learning in the next coming years.

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