Development of Electronic Portfolios and Self-Assessment Based on High Order Thinking Skills in Pancasila and Citizenship Learning at Students of Al-Islam Bandung Polytechnic

Muh. Husen Arifin
Universitas Pendidikan Indonesia
Jl. Dr. Setiabudi No. 229 Isola, Kec. Sukasari Kota Bandung

husenarifin2889@gmail.com

Abstract. Electronic portfolio and self-assessment are not yet an option in assessing learning outcomes for students so that student learning outcomes are still low. Although students try to get a superior assessment of the tasks carried out, students cannot complete the task properly. Students at the Al-Islam Polytechnic Bandung said that they had difficulty understanding and completing their assignments. So students can use electronic portfolio and self-assessment, with the maximum learning outcomes can motivate students to achieve learning goals by being able to measure their ability to think highly in Pancasila and Citizenship subjects. In the process, students must be able to have competence in assessing learning effectively. Students who have high thinking ability will have good cognitive abilities and representative effective abilities. In connection with this phenomenon, it is very important to be able to develop an electronic portfolio and self-assessment based on HOTS (high order thinking skills) so that students can have increased assessment skills and are very efficient in determining learning outcomes. This research method uses pre-test and post-test control group design. While data analysis includes tests and non-tests. The instruments used were the e-portfolio rubric, the student response questionnaire and the learning assessment observation sheet using HOTS. Then analyzed with descriptive qualitative. The purpose of this study can produce an electronic portfolio and self-assessment that continues to be developed as a lecturer reference to training students to have an independent assessment ability and to be able to use an electronic portfolio in each learning activity, becoming a reference for other researchers to conduct further research. The results of the research are students can develop themselves into independent students and have skills using electronic portfolio and self-assessment in HOTS-based learning.

1. Introduction
Electronic portfolio and self-assessment have not been chosen in the assessment of learning for students so that student learning outcomes are still low. While students try to get a superior assessment of the tasks carried out, students can use electronic portfolio and self-assessment, with the maximum learning outcomes that can motivate students to achieve learning goals by being able
to measure their ability to think highly in Pancasila subjects and citizenship. While the student semester achievement index in the subject must be included in the sufficient category. Based on the results of interviews with several students, this is caused by students being unable to complete assignments due to difficulty understanding how to do self-assessment.

The specialty of portfolio assessment is because it can provide documents as evidence and learning outcomes [1] and portfolio assessment is suitable for active learning. Due to the portfolio as an alternative method of assessment for students[2] but using e-portfolios is very effective and easier[3] so students can increase their skills in conducting self-assessment when students still have difficulties in completing assignments in learning on Pancasila and Citizenship.

Electronic portfolio is a student assignment that is collected digitally and systematically with continuity in one semester[4] including the use of technology developed in audio, video, graphic and text formats[5]. The electronic portfolio development was designed with 4 stages according to Ivers & Barron[5] namely 1) assessment 2) planning / designing 3) development 4) Implementation 5) evaluation.

An electronic portfolio is also provided for students to self-regulate from the learning process to the learning outcomes independently. Also, e-portfolios are used to make students more active who are integrated into learning and the learning process.[6]

The use of electronic portfolios is a learning tool that not only organizes but also is designed to support the learning process and assessment objectives.[7] and electronic portfolios have general objectives, namely processes, activities, and assessments. The student portfolio process is an individual learning management tool. They prioritize individual student development, individual growth, and commitment in learning.

Electronic portfolio to develop students' general skills, critical thinking, problem-solving, and collaboration.[4] This study also developed with self-assessment. Self-assessment is the assessment of students as a reflection in the learning activities that they participate in[8] and integrated assessment can help students to improve their learning[9] inline that Boud stated two main elements of self-assessment namely creating expected performance standards and quality of performance by involving students[10] as defined that students can reflect and evaluate the quality of their learning by using the identification of strengths and weaknesses in learning[10] So students in their learning are important to use electronic portfolio and self-assessment with thinking skills. The thinking skill is an educational process in which there are concepts, analysis, application and evaluation scaled by observation, experience or reflection[11] while the high order thinking skill (HOTS) is the highest level in the cognitive skills process[11] and HOTS is also defined as potential thinking in competition, where the individual is able to interpret and analyze information[11]. In HOTS, there are indicators of cognitive abilities that will be tested on students including cognitive level analyzing (C4) to creating (C6).

Research on e-portfolio and self-assessment has been carried out by several other researchers. But the researchers developed it by using its relation to high order thinking skills in learning for students. Based on relevant research reviews, researchers believe the development of HOTS based on e-portfolios and self-assessments can increase motivation in learning for students at Al Islam Bandung Polytechnic.

2. Method
This research method uses qualitative research methods with the case study method. The techniques used in this study are tests and non-tests. The instrument used in this research is this research which aims to develop HOTS based on electronic portfolio and self-assessment on Pancasila and Citizenship learning at Bandung Al Islam Polytechnic.

This study applies the development of self-assessment models and electronic portfolios conducted using pre-test and post-test control group design. While data analysis includes tests and non-tests. The instruments used were the e-portfolio rubric, the student response questionnaire and the learning assessment observation sheet using HOTS. Then analyzed descriptively.
3. Result and Discussion

Electronic portfolio development is designed in 4 stages according to Ivers & Barron [5] namely 1) assessment 2) planning / designing 3) development 4) Implementation 5) evaluation. From this design can then be done by determining the shape of the e-portfolio, also e-portfolio is used to make students much more active who are integrated with learning and the learning process[6] self assessment is the assessment of students as a reflection in the learning activities that they participate in[8] and integrated assessment can help students to improve their learning[9].

E-portfolio and self-assessment for students of the Al Islam Bandung Polytechnic Speech Therapy study program are carried out by making a design on the website used under the name SIPSAMA (Electronic Portfolio & Self Assessment System).

SIPSAMA is implemented to manage e-portfolios and self-assessment of students. Website design created based on the results of discussions with research members and expert validation. SIPSAMA which was designed through previous observations to students, students had difficulty in completing assignments in the Pancasila and Citizenship Education courses.

In SIPSAMA then students need to register first to verify. SIPSAMA is a representation in using e-portfolio and self-assessment for students.

Basically the application of portfolio assessment contributes to improving students' higher order thinking skills[12]. Meanwhile, evaluations using e-portfolios will help in developing collaborative skills working on student assignments and learning processes[13].

Therefore students get assignments with cognitive depth in their learning. In the learning process students work on assignments by analyzing according to the learning plan. Students can know the assignments to be done, then students can upload assignments independently.

The data obtained that 29 students did not experience difficulties in operating SIPSAMA. The assignment of Pancasila and Citizenship Education courses is obtained through SIPSAMA. 29 students were able to use SIPSAMA by doing assignments from the Pancasila and Citizenship Education courses very well. Based on the cognitive approach, students are able to analyze the tasks they get.

Figure 1. Dashboard SIPSAMA
From this assessment data, students of the Bandung Al-Islam Polytechnic Speech Therapy study program can complete the tasks well. Students carry out learning activities to the maximum and each task can be completed through SIPSAMA.

So based on these data that the results obtained are electronic portfolios and self-assessment of students using SIPSAMA can be used to improve cognitive aspects. Students get fun learning. With this SIPSAMA students can improve their knowledge in the Pancasila and Citizenship Education courses.

References
[1] A. Juhanda, A. R. Wulan, and A. Fitriani, “Pengembangan Asesmen Portfolio Elektronik (APE) dalam Menilai Sikap Ilmiah dan Penguasaan Konsep Siswa SMA pada Laporan Praktikum Pencemaran Lingkungan,” Pros. Semin. Nas. Pendidik. Biol. 2015 Prodi Pendidik. Biol. FKIP Univ. Muhammadiyah Malang, vol. 4, no. 2007, pp. 317–327, 2015.
[2] M.-M. Popescu-Mitroia, L.-L. Todorescu, and A. Grecescu, “The Usefulness of Portfolios as Assessment Tools in Higher Education,” Procedia - Soc. Behav. Sci., vol. 191, pp. 2645–2649, 2015.
[3] M. F. Baris and N. Tosun, “Influence of E-Portfolio Supported Education Process to Academic Success of the Students,” Procedia - Soc. Behav. Sci., vol. 103, pp. 492–499, 2013.
[4] Ramlawat, Litasari, M. A. Martoprawito, and A. R. Wulan, “The Effect of Electronic Portfolio Assessment Model to Increase of Students ’ Generic Science Skills in Practical Inorganic Chemistry,” J. Educ. Learn., vol. 8, no. 3, pp. 179–186, 2014.
[5] H. Barrett, “Create Your Own Electronic Portfolio Using Off-the-Shelf Software to Showcase Your Own or Student Work,” Learn. Lead. with Technol., vol. 27, no. 7, pp. 14–21, 2000.
[6] P. Amaya, J. E. Agudo, H. Sánchez, M. Rico, and R. Hernandez-Linares, “Educational e-portfolios: Uses and Tools,” Procedia - Soc. Behav. Sci., vol. 93, pp. 1169–1173, 2013.
[7] P. C. Abrami, C. A. Wade, V. Pillay, O. Aslan, E. M. Bures, and C. Bentley, “Encouraging self-regulated learning through electronic portfolios,” Can. J. Learn. Technol., vol. 34, no. 2007, pp. 1–16, 2008.
[8] Y. L. Rahmi and Ardi, “Perspektif Mahasiswa terhadap Peer Assessment dan Self Assessment pada Mata Kuliah Metodologi Penelitian Pendidikan,” Eksakta, vol. 2, pp. 88–91, 2016.
[9] Y. W. Purnomo, “Perbaikan Instruksional dalam Implementasi Assessment-Based Learning di Kelas Matematika,” Cakrawala Pendidik., vol. XXXV, no. 3, pp. 403–411, 2016.
[10] Y. Pantiwati, “Strategi Pembelajaran, Self Assessment, Dan Metakognisi Dalam Pembelajaran Sains,” Pros. Semin. Nas. Pendidik. Biol. 2015, pp. 677–685, 2015.
[11] M. H. Yee, J. M. Yunos, W. Othman, R. Hassan, T. K. Tee, and M. M. Mohamad, “Disparity of Learning Styles and Higher Order Thinking Skills among Technical Students,” Procedia - Soc. Behav. Sci., vol. 204, no. November 2014, pp. 143–152, 2015.
[12] Y. L. Rahmi and H. Alberida, “Peningkatan Keterampilan Berpikir Tingkat Tinggi Mahasiswa Melalui Penerapan Asesmen Portofolio Pada Mata Kuliah Telah Kurikulum Dan Buku Ajar Biologi,” Bioeducation, vol. 1, no. 1, pp. 22–33, 2017.
[13] P. Koraneekij and J. Khlasang, “Development of Learning Outcome Based E-Portfolio Model Emphasizing on Cognitive Skills in Pedagogical Blended E-Learning Environment for Undergraduate Students at Faculty of Education, Chulalongkorn University,” Procedia - Soc. Behav. Sci., vol. 174, pp. 805–813, 2015.