Using Edmodo as assessment for learning to facilitate improvement of 21st century health literacy

I Fathimah*, A R Wulan and R Solihat
Departemen Pendidikan Biologi, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudi No. 229, Bandung 40154, Indonesia

*ismahfathimah@student.upi.edu

Abstract. In this 21st century era student health literacy is becoming increasingly important to improve and can see as an asset for students. Assessment for learning are viewed as powerful levers for improving student health literacy by giving feedback, so student as learners know their strengths and weaknesses and how to improve their learning. This study aimed to investigate Edmodo as Assessment for learning to assess student performance during the biology learning process. Data collection techniques used are teachers and students questionnaires, documentation, and students digestive system tasks based on health literacy indicators. The analytical technique used in this study is descriptive method. The result showed improvement students average score from task 1 to task 2 in every indicators that indicate by using Edmodo students can improve 4 dimension of health literacy indicators based on Partnership-21 Century Skills frameworks.

1. Introduction
Health literacy levels are the determinants of health outcomes which in turn determine the quality of life of individuals [1]. Health literacy includes the ability to obtaining, interpreting, and understand health information, and using available information to make appropriate health related decision [2,3,4]. This ability is one of the priorities that need to be developed to face the challenges such as low level of Indonesian public health suspected as an educational influence that has not touched the health literacy sphere [5,6]. Indicator that used to measure health literacy includes 4 dimensions: Dimension 1 access/obtain information relevant to health; Dimension 2 understand information relevant to health; Dimension 3 Process/appraise information relevant to health; and Dimension 4 Apply/use information relevant to health [2,4,5].

In order to improve student’s health literacy, assessment as one of the important factors in learning need to be consider. Assessment for learning is promoted internationally as a set of strategies to enhance student learning [7]. The basic assumptions are when students know what they learning, how they learn, and how to improve their learning, students will establish identity as an independent learner [8]. Educating students as next-generation citizens requires more than teaching for high-stakes test results [9]. In line with the development of technology and information, requires us to develop assessment that measure at once and develop 21st century ability in digital era. Web based assessment has several potential characteristics that can solve this issues such as provide immediate ‘real time’ feedback, provide for self-regulated learning, provide scope for flexible and appropriate response,
increase efficiency and reduce teachers’ workloads, offer a more positive experience of assessment, and integrate formative and summative assessment [10]. Edmodo is one of free and secure educational website as learning network, with similar looks and features as Facebook so it may not cause students to face any difficulties because students are familiar with Facebook before [11]. However, Edmodo has been designed and develop to be a private and safe learning environment. Edmodo provides a simple way for teachers to create and manage an online classroom as well as enable students to connect and work with their classmates and teachers anywhere and anytime [11].

2. Method
Data obtained by questionnaires, documentation, and students digestive system tasks based on health literacy indicators. Researchers made a questionnaire for 16 biology teachers members of Musyawarah Guru Mata Pelajaran Biologi Purwakarta and students from SMAN 1 Jati Luhur, Purwakarta, West Java to see how the implementation of assessment during the learning process and difficulty in conducting assessment for learning. Task were designed to improve 21st student health literacy based on health literacy indicators through the content of the digestive system. At the beginning of the lesson, researcher set up online classes via Edmodo. Then students were asked to register and join classes according to their groups and work on required task via their Edmodo. Documentation recorded by Edmodo when researcher giving score and feedback to students and field noted during the learning process.

3. Result and discussion

3.1. Implementation and difficulties during conducting assessment for learning
From the questionnaires, the researcher got some information about the implementation and difficulties in conducting assessment for learning before implementing Edmodo to provide feedback to students. Most of teachers find difficulties during the assessment such as record the result of each student performance (75%) and observe students’ performance in large classes (75%). So, teachers usually provide a feedback classical in front of the class (75%), and only a small number of teachers sometimes giving personal feedback (37.5%). In line with that, students’ perception about teacher’s feedback shows on Table 1.

| No | Statement                                           | Percentage (%) |
|----|-----------------------------------------------------|----------------|
|    |                                                     | Always | Frequently | Occasionally | Rarely | Never |
| 1  | Work result return                                 | 60     | 17         | 11           | 10     | 3     |
| 2  | Work result given feedback or comments             | 11     | 8          | 40           | 18     | 22    |
| 3  | Feedback or comments given in writing             | 4      | 1          | 29           | 35     | 31    |
| 4  | Feedback or comments given orally                 | 18     | 17         | 31           | 18     | 17    |
| 5  | Feedback provide individually to each students    | 6      | 8          | 32           | 29     | 25    |
| 6  | Feedback provide orally in front of the class     | 21     | 21         | 29           | 17     | 13    |

From table 1 it seen that teachers haven’t provide properly feedback because teachers encounter some difficulties such us crowded class [12]. It is found that teachers have outrageous number of students in the classroom, size consists more than 30 students. And also teachers attend more than two different classes. Having crowded classes make assessing take long time [12] as a result teachers cannot provide feedback objectively and choose classical method in front of class.
3.2. Edmodo’s feature support assessment for learning process
According to documentation and field notes, during the learning process it can be seen that among all functions of Edmodo some feature support teachers to provide feedback as assessment for learning. Figure 1 shows the data automatically recorded via Edmodo and there are feature to giving feedback and score directly based on how students complete the task. Teachers also can ask students to deliver their repair tasks after receiving feedback. This easier for teacher because the feature increase flexibility and appropriate response, increase efficiency and reduce teachers workloads [10].

![Figure 1. Edmodo's feature provide to giving score and personal feedback directly anywhere and anytime.](image)

Meaningful and effective feedback are if it can provide an opportunity for students to discuss their learning experiences, then students can know which parts have not been reached to the maximum so quickly fix them [13] Edmodo allows for bi-directional teacher-student interaction Not only teachers can communicate and giving comment to student’s work, but also student can connect to their teacher and their classmates to discuss their work by ‘comment’ feature or send a private message [14].

3.3. Improvement 21st students health literacy using Edmodo
Before the learning process, task has been upload to the online class via Edmodo used ‘task’ feature. Students asked to download, doing the task and submitted via Edmodo used ‘assignment’ feature. From the tasks, the researcher gets improvement students health literacy from XI grade of SMAN 1 Jati Luhur in every dimension from task 1 to task 2 that shows on Figure 2.
Figure 2. Improvement chart students average score in every dimensions.

As health is very important for education, education is also very important for health [3], schools are considered able to promote and increase student health literacy through education [15]. Figure 2 shows that every dimension of 21st century student literacy increased. Dimension 1 increased by 36 points, dimension 2 as much as 38 points, dimension 3 11 points and dimension 4 23 points. After students collecting task 1 the teacher giving feedback about their strengths and weaknesses, so student know how to improve their work on task 2. Assessment for learning is considered a powerful tool in student learning [16] and regards as a key to accomplishing improvement of students achievement through its provision of informative feedback [17]. Students focused on progress information of the learning process that can be utilized to redacted future learning [18].

4. Conclusion
In general it can be stated that the use of Edmodo as assessment for learning can solve some teachers problem such as to provide effective and appropriate feedback to students personally because some feature support to giving easier feedback anywhere and anytime. By using Edmodo, students average score increase in every dimension. This promotes to facilitate improvement of 21st century health literacy, particularly students need informative feedback from their teacher to improve the next learning.

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