Research Based Learning in Environmental Health

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Background

In the final year of Environmental Health program in School of Public Health, students are required to attend the course “Environmental Health Project”, where they are required to develop a research question and topic. This research topic is used as an input for selecting their bachelor thesis supervisor. The course was conducted about 6-9 months. When the course end, students are required to give oral presentation about their research as well as to prepare a final report submitting to the committee.

Challenges

Students have no idea of what research they can do and the most importance is that students are seldom read scientific reports. Furthermore, their research skills is not the best

Activities

The class activities were designed to improve student motivation and critical thinking using research based learning. The details are as follows:

1. In the first week, students clearly make up a setting plan and goal for research work with thesis supervisor.
2. Develop research proposal with supervisor. This period takes about 3-4 weeks. Students are assigned to read scientific reports and summarize in a paper and also face to face discussion with supervisor in each week. (Practice reading skills and summary skills)
3. Students allow to try their research method in the field/laboratory, upon to their research proposed, with the support of supervisor. This is to increase students confident and independent for research work. (Practical skills)
4. Fruit salad activities and Padlet are occasionally used to let student share about their research in the big class room. Fruit salad activity may help the student to recognize their problem and knowledge[1,2,3].
5. Students present a progress report in the small group session. Other students are allowed to ask question. (Practice writing short reports and critical thinking skills)
6. Revise the group working plan and modify if it’s needed. (self-regulate skills).
7. Collection data (Problem solving, practical skills) and summarize the results (writing skills)
8. Plan for writing and presentation

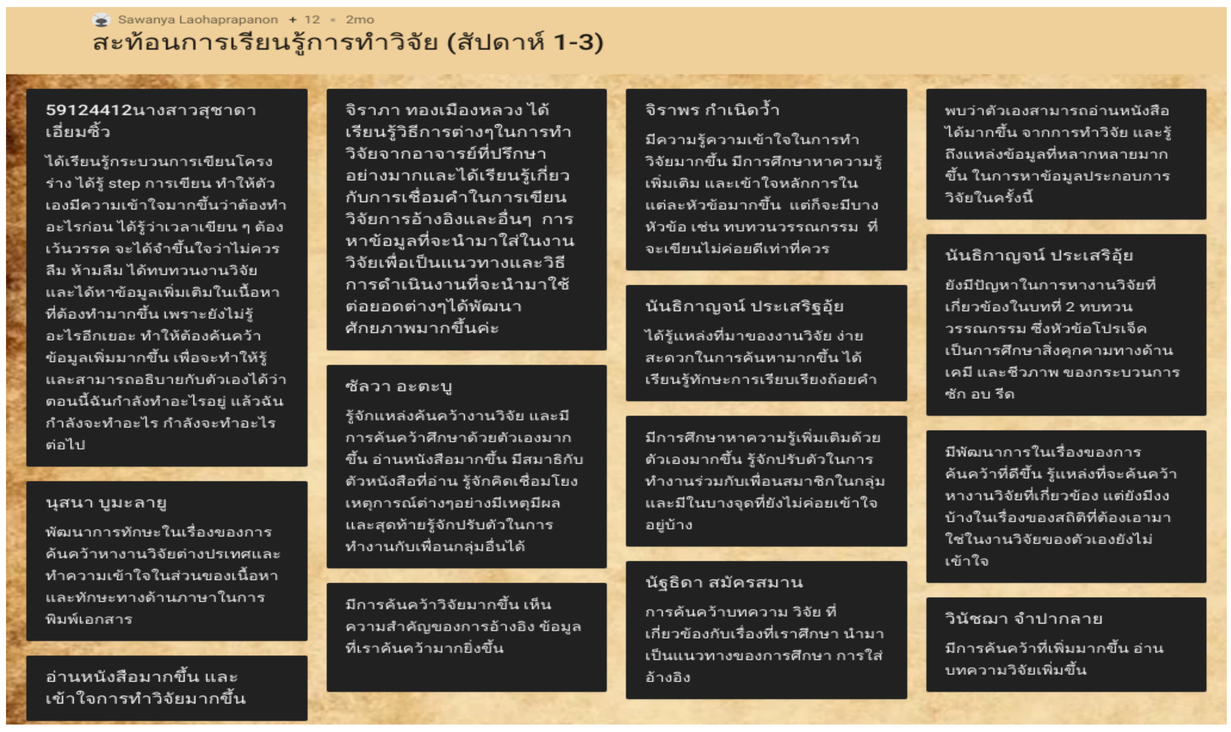
References

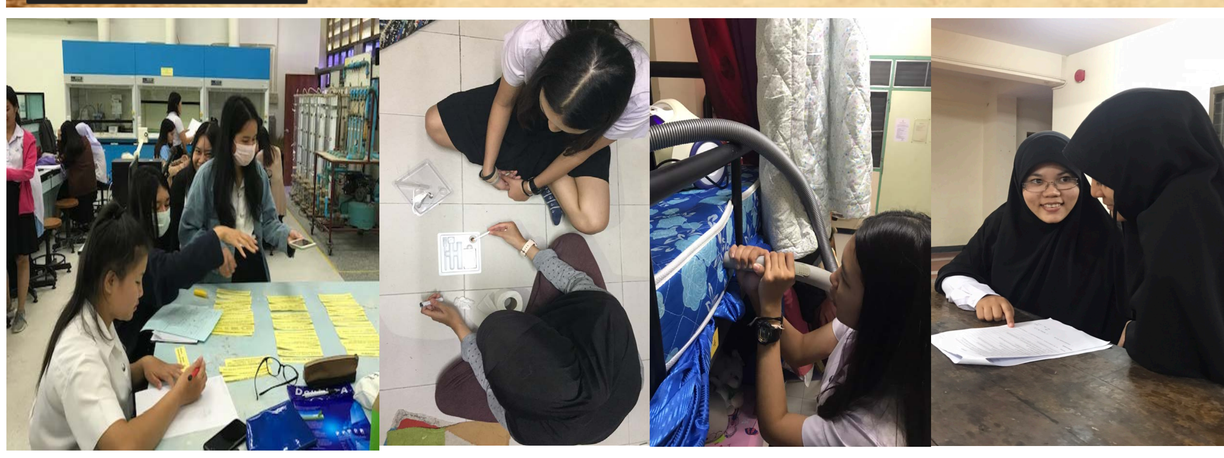
1. Allen and Tanner. Cell Biol Educ. 2005 Winter; 4(4): 262–268.
2. Wilson et al. Curr Pharm Teach Learn. 2017 Nov; 9(6): 1151-1159.
3. Phillips et al. Am J Pharm Educ. 2015 Aug 25; 79(6):90.

Assessments

Various methods are used to assess student’s improvement in reading and critical thinking such as

1. Small group discussion and weekly reports from thesis supervisor – Formative assessment using rubric scale.
2. Research proposal and presentation (summative assessment)
3. Padlet and Fruit salad (Formative assessment for class)





Outcomes

1. Coaching session by thesis supervisor in a small group discussion can create friendly environmental for students to develop research proposal and also give a chance for 2 way communication between student and supervisor. This can result to improve critical thinking of students.
2. Fruit salad and Padlet activities in a big class room are kind of peer assessing among students that can help students to recognize their problem and knowledge compare to the others.
3. Technical practice (Try out their research methods) under supervision of lecture can increase student confidents and make them more understand their research

Future Development

Short-term:	Motivate student read more scientific report.
Mid-term:	More fruit salad and Padlet activities are required in the class.
Long-term:	Find out effective method to help student to work in the real world.