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P01

What are Science and Engineering Students' Motivations in learning Generic Skills?

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Despite a general acceptance of the importance of generic skills, it is particularly true that in the science and engineering disciplines, there is often little time to develop generic skills in the already tight timetables, and both students and teachers often overlook the importance of developing these skills. This paper presents the findings of a study on science and engineering students' motivation for learning generic skills, which is part of a large research project on students' perception of generic skills in Hong Kong. In a questionnaire developed to measure students' attitude towards different generic skills, students were also asked to respond an open-ended question asking them to provide reasons for them to learn or not to learn generic skills. Content analysis was conducted to identify main themes from a total of 914 qualitative comments collected from 1232 science and engineering students. Themes that emerged on students' motivation for learning generic skills include career needs, academic-related needs, personal development and personal interest. On the other hand, perceived difficulty and time consumption emerged as the main reasons for students not want to learn generic skills. Implication of the findings on the teaching of generic skills will be discussed.

P02

Using learning cycle in combination with questioning technique to facilitate student learning genetics

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Many researchers have reported that genetics is one of the most important and difficult topics in the high school curriculum. This information is also consistent with most of the teachers' opinions. Generally, this is because the understanding of genetics requires abstract thinking and hypotheico-deductive reasoning. Understanding of genetics also requires knowledge of mathematics, chemistry and other branches of biology with many technical terms. In 2013, only 30.54% of 12th grade students from Phatthalung School could pass their genetics examination, because the students learned genetics by rote, learned as isolate topics, and could not integrate with other knowledge that they had already acquired.

The learning cycle is an inquiry-based teaching strategy developed by Jean Piaget. The learning cycle is divided into three phases: exploration, concept introduction and concept application. This approach has proven effective for helping student construct concepts and conceptual systems as well as develop more effective reasoning patterns. Moreover, the teachers question is a prominent feature of classroom talk, especially in classroom which focuses on inquiry approaches. The purpose of questioning is to elicit what students think, encourage them to elaborate on their thinking and help them construct conceptual knowledge. Therefore, using the learning cycle in combination with questioning technique to