Student Self-Efficacy In The Teaching And Learning Environment Of Undergraduate Natural Sciences

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Abstract

A study was conducted to determine the status of student self-efficacy and identify interrelated issues in the teaching and learning environment of undergraduate Natural Sciences students. Self-efficacy refers to people's beliefs in their capabilities to achieve. Students with high self-efficacy generally have adequate levels of academic achievement and use more effective learning strategies. Self-efficacy theory postulates a bi-directional influence between self-efficacy and achievement. In conjunction with its determining issues, the self-efficacy theory provided the platform for instrument development to determine student self-efficacy and bridge the identified gap. A mixed-methods study with a sequential explanatory research design was conducted with a quantitative and qualitative phase. This design answered the research questions within a pragmatist paradigm. The research methods comprised instrument development (questionnaire), implementation of the questionnaire and semi-structured interviews. Internal consistency estimates of reliability were calculated for the four questionnaires from which questionnaire development was done. The quantitative phase revealed the status of student self-efficacy with total scores, indicating overall low (43.4%) and high (56.6%) self-efficacy among participants, respectively. Participants demonstrated the lowest self-efficacy for the hypothetical construct of student engagement in class. The highest self-efficacy was demonstrated for hypothetical construct motivational strategies for learning in the teaching and learning environment. The identified questions were used to compile the questions for a semi-structured interview. This study generated comprehensive knowledge regarding student self-efficacy status and issues interrelated with self-efficacy among undergraduate students in Natural Sciences. Various hypothetical constructs were identified as issues that influence the status of self-efficacy.

Keywords: instrument development; interrelated issues; motivational strategies; semi-structured interviews; student engagement