

Observable and Unobservable Involvement Behaviours of a Climatology Course's Undergraduate Students

T. M. Seixas^{1*} and M. A. Salgueiro da Silva²

¹Department of Physics and Astronomy, Faculty of Science, University of Porto, Rua do Campo Alegre, 687, 4169-007 Porto, Portugal and Centre for Earth and Space Research of the University of Coimbra (CITEUC), Av. Dr. Dias da Silva, 3000-134 Coimbra, Portugal

²Department of Physics and Astronomy, Faculty of Science, University of Porto, Rua do Campo Alegre, 687, 4169-007 Porto, Portugal and Centre for Earth and Space Research of the University of Coimbra (CITEUC), Av. Dr. Dias da Silva, 3000-134 Coimbra, Portugal

Abstract.

This study investigated students' observable and unobservable involvement behaviours and their possible relation with academic achievement in a Climatology course at the Department of Physics and Astronomy of the Faculty of Sciences of the University of Porto, Portugal, in the Fall 2018/19. A structured online questionnaire titled "Observable and Unobservable Student Involvement Behaviours (OUSIB)" featuring a zero-centred 5-point Likert scale was used to collect the data. The OUSIB questionnaire comprised 20 multiple-choice questions, which were divided into two subscales: (1) Observable Involvement Behaviours; (2) Unobservable Involvement Behaviours; it was validated using Cronbach coefficient alpha. The collected data show that unobservable involvement behaviours are more frequent than the observable ones. This may reflect the difficulties that most students face in understanding the course contents, which likely triggers their introspective (unobservable) in detriment of their observable involvement behaviour. We notice that most of the Climatology syllabus consists of new subjects for which students generally have no prior knowledge or experience. It may constitute a great challenge for students being able to provide regular observable feedback during an entire problem-solving class. Moreover, there is a common tendency for high-grade students to prepare the classes in advance and involve less both observably and unobservably in classroom activities. We found no significant correlation between students' final grades and their replies to the OUSIB questionnaire, which precludes any possible relationship between students' academic achievement and their involvement behaviours in problem-solving classes.

Keywords: classroom involvement behaviours, scaffolding collaborative problem-solving, observable and unobservable attitudes, Cronbach alpha coefficient.