

Using factor analysis to validate a questionnaire to explore self-regulation in learner-generated digital media (LGDM) assignments in science education

Jorge Reyna

Faculty of Science, University of Technology Sydney

Jose Hanham

School of Education, Western Sydney University

Panos Vlachopoulos

Faculty of Arts, Macquarie University

Peter Meier

University of Technology Sydney

This research is a validation study of a survey instrument to assess student self-regulation which aims to fill a methodological gap by capturing self-regulation processes while completing learner-generated digital media (LGDM) assignments. For this purpose, the study developed and validated a self-regulation learning questionnaire. Data were gathered from seven science subjects (Years 1 to 3, $n = 341$) which used LGDM assignments during Semester 1, 2017. Students were asked to complete a 40-item online questionnaire. The questionnaire was administered at three times during the semester (Weeks 2, 6, and 10). Exploratory factor analysis was used to identify factor structures, followed by confirmatory factor analysis to test the validity of the constructs defined by exploratory factor analysis. Analysis of the data revealed a ten-factor structure – six concerning self-regulation, two concerning student attitudes towards LGDM assignments, one concerning assignment ownership, and one concerning assignment motivation. The variables empirically verified in this study have important practical implications, as they could provide educators with the direction in which to target interventions to improve learners' experiences with LDGM. The study findings also contribute to the field by providing scholars with a validated research instrument that can be used in future studies.

Corresponding author: Jorge Reyna, jorge.reyna@uts.edu.au

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