Development and Validation of a Quantitative Measure of Engagement in the Analysing Aspect of Dialogical Inquiry

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Abstract : The Map of Dialogical Inquiry provides a conceptual look at the underlying nature of future-oriented skills. According to the Map, learning is learner-oriented, with conversational time shifted from teachers to learners, who play a strong role in deciding what and how they learn. For example, in courses operating on the principles of Dialogical Inquiry, learners were able to leave the classroom with a deeper understanding of the topic, broader exposure to differing perspectives, and stronger critical thinking capabilities, compared to traditional approaches to teaching. Despite its contributions to learning, the Map is grounded in a qualitative approach both in its development and its application for providing feedback to learners and educators. Studies hinge on openended responses by Map users, which can be time consuming and resource intensive. The present research is motivated by this gap in practicality by aiming to develop and validate a quantitative measure of the Map. In addition, a quantifiable measure may also strengthen applicability by making learning experiences trackable and comparable. The Map outlines eight learning aspects that learners should holistically engage. This research focuses on the Analysing aspect of learning. According to the Map, Analysing has four key components: liking or engaging in logic, using interpretative lenses, seeking patterns, and critiquing and deconstructing. Existing scales of constructs (e.g., critical thinking, rationality) related to these components were identified so that the current scale could adapt items from. Specifically, items were phrased beginning with an "I", followed by an action phrase, to fulfil the purpose of assessing learners' engagement with Analysing either in general or in classroom contexts. Paralleling standard scale development procedure, the 26-item Analysing scale was administered to 330 participants alongside existing scales with varying levels of association to Analysing, to establish construct validity. Subsequently, the scale was refined and its dimensionality, reliability, and validity were determined. Confirmatory factor analysis (CFA) revealed if scale items loaded onto the four factors corresponding to the components of Analysing. To refine the scale, items were systematically removed via an iterative procedure, according to their factor loadings and results of likelihood ratio tests at each step. Eight items were removed this way. The Analysing scale is better conceptualised as unidimensional, rather than comprising the four components identified by the Map, for three reasons: 1) the covariance matrix of the model specified for the CFA was not positive definite, 2) correlations among the four factors were high, and 3) exploratory factor analyses did not yield an easily interpretable factor structure of Analysing. Regarding validity, since the Analysing scale had higher correlations with conceptually similar scales than conceptually distinct scales, with minor exceptions, construct validity was largely established. Overall, satisfactory reliability and validity of the scale suggest that the current procedure can result in a valid and easy-touse measure for each aspect of the Map.

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