

Developing a Dual Approach, Convergent, Self-Validating and Self-Correcting Scheme for the Assessment of Affective Domain Attributes

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ABSTRACT

As affective attributes, such as motivation, curiosity, honesty, etc., are vital for effective graduates; hence gauging these attributes effectively at various stages of a degree program can allow a teaching institute to continuously improve the quality of its learning environment and teaching activities. Purely self-report-based assessment provides a single approach of measurement, and may be prone to issues such as social desirability bias, etc. The current article attempts to develop a novel dual-approach survey, employing the approaches of self-reporting (rooted in Iceberg model of Systems Thinking) and scenario-based questioning (linked with Bronfenbrenner's Process-Person-Context-Time model), to gauge the affective attribute status of a student. For the soundness of this framework, both the approaches need to converge (within an allowed tolerance) to a single measurement of the latent affective attribute, thus lowering the probability of a bias-contaminated final evaluation. An initial test of the proposed framework was performed via developing a pilot survey instrument and administering it to a small number (N=22) of undergraduate students of electrical engineering degree program. Factor analysis of resultant data indicated an overall convergence for the dual approaches. Furthermore, Bland-Altman plots (and relevant data) were used to detect outliers in the data, which were subsequently resolved. Moreover, a certain degree of resilience to weakness in the implementation of this framework was also demonstrated via achieving suitable values for Cohen's Kappa coefficient.

Keywords: affective attributes, iceberg model, ppct model, surveys, systems thinking