



Towards a new theory of student self-assessment: Tracing learners' cognitive and affective processes

Article Summary

Despite their essential role in learning, the cognitive and affective underpinnings of student self-assessment are not yet well understood. This research responded to calls to examine how students in K-12 contexts think and feel while engaged in evidence-informed self-assessment activities (i.e., self-assessment processes). We drew on a framework of classroom assessment as the co-regulation of learning to theorize the cognitive and affective self-regulatory operations learners may activate during self-assessment. Leveraging a collective case study, we collected digital trace data as participants, a class of Year 12 students ($n = 16$) in England, completed a self-assessment-based English literature lesson. In the lesson, participants completed a writing task, self-generated feedback using resources, and revised their writing using a study website. Matomo Analytics, a web analytics platform, ambiently collected session recording, heatmap, and keystroke log data. Participants also completed an exit survey to provide qualitative data on their cognitive and affective processes. We analyzed logs of trace data using transition graphs and graph theoretic statistics to identify patterns across participants' self-assessment processes. Analyzing trace data concurrently with qualitative and heatmap data, we mapped each participant's cognitive and affective processes as they self-assessed and revised their writing. Findings highlighted key cognitive and affective operations across participants, pointing to mechanisms whereby participants' self-assessment processes shaped their learning, and illuminated the recursive nature of self-assessment processes. Informing an initial theory of self-assessment processes, this research advances a core component of classroom assessment theory and practice.

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Rickey, N. H., DeLuca, C., & Beach, P. (2023).
Towards a new theory of student self-assessment:
Tracing learners' cognitive and affective
processes. *Metacognition and Learning*, 18, 1-37.



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