Motives and Methods for Differentiating Student Confidence and Certainty in Knowledge Assessments

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ABSTRACT

PURPOSE: Knowledge is learned information that is true and justified; it is multidimensional. Knowledge assessments that evaluate response truthness (i.e., correctness) and justification can accurately detect all knowledge levels. Evaluating response justification involves comparing what students know to what they answer, something about which clear, consistent, absolute, and certain distinctions, student motives, and certainty have been used interchangeably as response justifications. The objective of the present study is to investigate whether there are critical differences between student confidence and certainty in knowledge assessments.

METHODS: A literature review was conducted to ensure comprehensive analysis, substantiate working hypotheses, assess the best fit term meanings, and compare student confidence and certainty. A customized questionnaire will be administered to students to survey and compare their interpretations of confidence and certainty.

RESULTS: Confidence refers to a student’s degree of belief in their ability to provide a correct response to an assessment item (given some frame of reference for what the item will entail and context). Confidence as a construct follows the method of evaluating the likelihood of that student applying learned information (correct and validated, or not to skills and decision-making (i.e., competence). The Method of Evaluation: as a prompt for self-assessment before the associated assessment item (s) were presented to the student. Pre-Item Self-Assessment was conducted to assess student confidence and certainty as an indicator of what students will do in the context of assessing knowledge.

CONCLUSIONS: A study reveals that student confidence and certainty share similar metacognitive origins and assessment formats but exhibit different, independent roles in assessing knowledge and timing of evaluation. Student confidence is proper for justifying assessment item responses in knowledge assessments. Differentiating student confidence and certainty may improve knowledge assessment efficacy, inform other strategies for enhancing knowledge assessments, and benefit student learning and long-term knowledge retention.

INTRODUCTION

Since knowledge is multidimensional, the conventional, single-dimensional “number correct” assessment method presents many limitations for accurately assessing knowledge as it only considers correctness of student responses to interpret knowledge. Disregarding students’ justifications for their responses to assessment items leaves evaluators unable to conclude whether a correct response is the result of complete, partial, or absent knowledge and whether an incorrect response is the result of partial, absent, or flawed knowledge. To overcome these limitations, educators, scholars have developed methods for assessing both dimensions of knowledge – correctness and justification. This method prompts students to report how confident they are that each one of their constructed or responses is correct. By comparing what students think they know (a metacognitive justification) to what they actually know (determined by response correctness), these “Confidence-Based Assessments” enable educators to accurately assess all levels of knowledge. As Confidence-Based Assessments were further utilized, some authors believed certainty was a more appropriate term for the knowledge level students were demonstrating. Meta-analyses on the association of knowledge and confidence, and as a result the name of these assessments was appropriately changed to “Certainty-Based Assessments.” This modification did not change previous studies’ findings or in other versions of this assessment method. These findings shaped the present study’s objective to investigate whether critical differences exist between the roles of student confidence and certainty in knowledge assessment. The authors hypothesize the terms’ contrasts will translate to significant motives for differentiating them in knowledge assessments.

METHODS

1) Noted differences between student confidence and certainty discovered from the author's past study of confidence/certainty-based assessments were compiled and further analyzed.
2) A literature review was conducted for completeness and to substantiate working postulations.
3) Best fit meanings for student confidence and certainty (relative knowledge assessment) were collected from consistent, accumulated definitions.
4) The terms were scrutinized for comparability in their meanings, motifs for use, and methods of evaluation in knowledge assessments.
5) Students’ perceptions of confidence and certainty in regard to knowledge assessments were surveyed with a customized questionnaire administered via Qualtrics online survey software.
6) Agreement between this study’s findings and student perceptions were analyzed and discussed.

REFERENCES


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