



Instructions for Structured Abstracts

The format for a structured abstract depends on the type of manuscript submitted. The format for research investigations is:

- Background – Briefly describe the context and motivation for the study
- Purpose (Hypothesis) – Summarize the research question/propositions(s) addressed
- Design/Method – Provide an overview of the research design, methods of data collection, and analysis
- Results – Summarize the key findings
- Conclusions – State the key conclusion(s) based on the findings

The format for research reviews is:

- Background – Briefly describe the context and motivation for the work
- Purpose – Summarize the research question/proposition(s) addressed
- Scope/Method – Provide a description of the literature considered and the methods used in the review process
- Conclusions – State the conclusion(s) of the review

Authors need to partition each part of the structured abstract into the appropriate subheadings. Two examples follow, one for papers that are research investigations and the other for papers that are research reviews. Abstracts are limited to 250 words (excluding the subheadings). This generally results in about 2-5 sentences per partition. Partitions do not need to be of identical length. A matter-of-fact, statement-oriented writing style is better suited for structured abstracts than an expository, conversational writing style (which is the more typical manner of expression of one-paragraph, unstructured abstracts).

WHEN ENTERING THE STRUCTURED ABSTRACT IN THE JOURNAL'S WEB-BASED SUBMISSION SITE, AUTHORS MUST ENTER THE SUBHEADINGS ALREADY EMBEDDED WITHIN THEIR NARRATIVE, BOTH IN THE SEPARATE BOX FOR THE ABSTRACT ON THE WEB SITE AND IN THE PAPER SUBMITTED. NOTE: THE ABSTRACT NEEDS TO APPEAR TWICE, ONCE ON THE WEB SITE AND ONCE IN THE PAPER. AUTHORS MUST USE THE JOURNAL'S SUBHEADINGS; NEW OR MODIFIED SUBHEADINGS ARE NOT PERMITTED. The examples below are prepared as they would appear on submission to the Web site (excluding the title "Sample Structured Abstract")

Sample Structured Abstract for Research Investigations

Background

Across many domains, research has shown that students often fail to select and apply appropriate conceptual knowledge when solving problems. Programs designed to support monitoring skills have been successful in several domains.

Purpose (Hypothesis)

Critical conceptual knowledge in statics appears to be cued by paying attention to the bodies that are present in a problem, as well as to which ones are interacting and how. The research question addresses whether students can be induced to think about the bodies present, and whether focusing on bodies improves problem solving performance.

Design/Method

Using a pre-post test design, written and verbal protocols were obtained for students solving problems before and after instruction. During instruction all students saw the same set of examples and corrected answers, but only the experimental group was asked questions designed to promote body centered talk. Solutions and protocols were coded and analyzed for frequency of body centered talk and solution quality.

Results

The experimental group showed statistically significant increases in relevant body centered talk after instruction. Both groups improved their ability to represent unknown forces in free body diagrams after instruction, with the experimental group showing a greater, but not statistically significant, improvement. However, for both groups, the error rate in representing unknown forces at an interaction was significantly lower when a student referred to the bodies in the particular interaction.

Conclusions

Problem solving in conceptually rich domains can improve if, in addition to acquiring conceptual knowledge, students develop strategies for recognizing when and how to apply it.

Sample Structured Abstract for Research Reviews

Background

Applied ethics plays a critical role in engineering, health, business, and law. Applied ethics is currently a required component of the pre-practice education for these professions, yet the literature suggests that challenges remain in how we define, instruct, and assess professions-based ethics education.

Purpose

Based on the on-going debate associated with the instruction and assessment of applied engineering ethics, an exploratory investigation was performed to determine what could be learned by looking across professions.

Scope/Method

Ethics, as an educational topic, can be very broad in scope. This study was limited to literature at the intersection of ethics terminology, historical development, instruction, and assessment within engineering, health, business, and law. Many references associated with each profession and the input of profession-specific content experts informed the literature survey.

Conclusions

The engineering, health, business, and law professions and ethics within these professions have historically developed in isolation. Even case studies, which the engineering profession seems to have adopted from law, are framed differently within engineering. There are common lines of debate related to instructional methods, curricular methods, and instructor qualifications, but no profession has resolved these debates. A common trend in applied ethics research is a focus on assessment of student learning, rather than evaluation of instructional methods and/or curriculum incorporation methods. Assessment tools have been developed and widely applied for many years in several of the health care sub-disciplines, business and law. An engineering-specific applied ethics assessment tool has recently been developed, but has yet to see extensive application.