Understanding and Assessing Engineering Practices in Indian Context

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ABSTRACT

For engineers and other technical professionals, working with individuals in a global context is often challenging and requires understanding and openness to other cultures. However, the core of engineering education has historically been focused on mathematical and technical foundations, with a lack of emphasis on broader capabilities such as global competency. Further research is needed to better understand differences in engineering education and practice across national and cultural boundaries, as well as to develop new instructional content and assessment techniques to improve and evaluate the global competency of engineering students and other technical professionals. This project addressed these needs through three sub-projects, with a particular focus on India. India was selected as a target country due to its close business relations with the United States, and status as a rising world economy.

First, data was collected and analyzed to identify common themes related to engineering practice in the Indian context, based on the extant literature and relevant stories and examples collected during focus groups with technical experts. Second, a set of India scenarios and response options for a new Situational Judgment Test (SJT) were developed based on pilot data collected from novices and subject matter experts (SMEs). Third and finally, a cultural knowledge test focusing on India was developed, using information gathered from SME data and responses from the SJT scenarios. Taken together, the findings and materials from these projects include a spreadsheet containing the SME data coded and categorized into three main sections, complete sets of responses developed for India SJT questions, and a Cultural Knowledge Test with questions based on themes from the SME data and knowledge and sensitivity dimensions from the SJT scenarios.

KEYWORDS
Culture, Cultural knowledge test, Engineering practice, Engineering cultures, Global engineering competency, India, Situational Judgment Test (SJT)