

## Towards Developing A Rural South African Child Into An Engineering Graduates With Conceptual And Critical Thinking Skills

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**Abstract :** Students entering the University of Zululand (UNIZULU) Science Faculty mostly come with skills that allow them to prepare for exams and pass them in order to satisfy requirements for entry into a tertiary Institution. Some students hail from deep rural schools with limited facilities, while others come from well-resourced schools. Personal experience has shown that it may take a student the whole time at a tertiary institution following the same skills as those acquired in high school as a sure means of entering the next level in their development, namely a postgraduate program. While it is apparent that at this point in human history, it is totally impossible to teach all the possible content in any one subject, many academics approach teaching and learning from the traditional point of view. It therefore became apparent to explore ways of developing a graduate that will be able to approach life with skills that allows them to navigate knowledge by applying conceptual and critical thinking skills. Recently, the Science Faculty at the University of Zululand introduced two Engineering programs. In an endeavour to approach the development of the Engineering graduate in this institution to be able to tackle problem-solving in the present-day excessive information availability, it became necessary to study and review approaches used by various academics in order to settle for a possible best approach to the challenge at hand. This paper focuses on the development of a deep rural child in a graduate with conceptual and critical thinking skills as major attributes possessed upon graduation. For this purpose, various approaches were studied. A combination of these approaches was repackaged to form an approach that may appear novel to UNIZULU and the rural child, especially for the Engineering discipline. The approach was checked by offering quiz questions to students participating in an engineering module, observing test scores in the targeted module and make comparative studies. Test results are discussed in the article. It was concluded that students' graduate attributes could be tailored subconsciously to indeed include conceptual and critical thinking skills, but through more than one approach depending mainly on the student's high school background.

**Keywords :** graduate attributes, conceptual skills, critical thinking skills, traditional approach

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