

TEACHING PROGRAMMING USING VISUALIZATION

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Andrew Rudder
andrew.rudder@gmail.com

Dr. Margaret Bernard
mbernard@fsa.uwi.tt

Shareeda Mohammed
shareeda.mohammed@gmail.com

The University of The West Indies
St. Augustine Campus, Trinidad and Tobago.

ABSTRACT

Teaching computer programming to young students is a major challenge. This paper describes a web-based course for teaching programming using visualization and a gaming theme. Concepts are taught using real world examples that the target students can identify with; in this way some of the problems related to understanding abstract concepts are alleviated and learning occurs in context. The full range of multimedia technology including animation, sound and video are used to immerse the student in an environment where learning is fun and visual display of the concepts reinforce learning. A gaming theme is used for formative assessment. Students are provided with 'game' activities such as "spot the error", "predict the output" and "put in order". These enhance critical thinking. They test comprehension and knowledge as well as higher order thinking skills.

KEY WORDS

Computer programming, Visualization, Web-based, Education