



Albateel: A Micro-Adaptive Application for Improving Linguistic Skills for Arabic Language Learners

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ABSTRACT

“Albateel” is an Intelligent Tutoring System that aims to improve students’ Arabic linguistic skills by taking each student’s individual needs into consideration to produce efficient learners in the classroom. The motivation behind it is to allow electronic education to incorporate the value of the interactivity afforded to a student by an actual human teacher or tutor. For centuries, textbooks delivered all students the same content in much of the same way. However, each student is unique, ever changing and growing, and no two students learn in the same way. These differences between students’ learning levels present one of the most important challenges that face teachers in the classroom, since some students need to make more effort than others in order to learn, and that makes it challenging for the teacher to manage the variant levels in one classroom. This becomes especially difficult when a student has a learning difficulty (e.g. dyslexia).

Many software programs and applications have been made in all languages to help students learn faster and more efficiently, but there are not many applications available for improving Arabic linguistic skills. Our project intends to fill this gap by helping elementary students of the fourth, fifth and sixth level in learning Arabic linguistic skills in a simple and fun way, using stories, exercises and games. This tool is based on educational theories of cognition and learning which we gathered from a special education expert. Implementing these theories can be facilitated through the use of adaptive learning technologies, namely the Micro-adaptive approach.

The Micro-adaptive approach requires that the educational needs that emerged during the learning process be used to adapt the learning path. The needs are examined and the system responds to them with a redefinition of the path and then, with the redefinition of the sequence of activities to which the learner is exposed. The performance is observed by measuring the outcomes of the assessment test and response time.^[1] In Albateel, the system initially collects data about the student working with it using a screening test, which consists of questions that evaluate different linguistic skills according to the student’s level. Consistent with the test results, the system adapts the exercises in each skill to the student’s level based on their performance. This is done by varying the number and the difficulty of the questions given, starting with easy questions and continuing gradually until the student masters the skill; which is determined using metrics to observe the performance, such as number of questions given, response latency and error rate which are provided by experts in the education field.

The application will be accessible by children easily: the interface is in Arabic, and the information is presented in multiple formats, such as text, animation, and sound. The system enables the students to create an account, view and edit their information, take a screening test, and access lessons and games. Teachers are also able to create accounts and view or edit their information, and the system enables them to view a list of their students and classrooms, as well as display a report for each student’s performance.

Adaptive learning can offer great advantages in providing students with specific and personalized knowledge as and when is required, and we hope to accomplish that with our application. We are still in the developmental phase on Albateel, and we hope to test it out in the coming months in three different schools in Riyadh. After the testing phase, our experts will analyze the results, and provide us with feedback on any system problems, and we will then fix them accordingly.

^[1] Ardimento, Boffoli, V.N. Convertini, & Visaggi. Decision table for adaptive e-learning systems . *Education in a technological world: communicating current and emerging research and technological efforts*. Bari.