Methodology for Developing an Intelligent Tutoring System Based on Marzano's Taxonomy

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Abstract : The Mexican educational system faces diverse challenges related with the quality and coverage of education. The development of Intelligent Tutoring Systems (ITS) may help to solve some of them by helping teachers to customize their classes according to the performance of the students in online courses. In this work, we propose the adaptation of a functional ITS based on Bloom's taxonomy called *Sistema de Apoyo Generalizado para la Enseñanza Individualizada* (SAGE), to measure student's metacognition and their emotional response based on Marzano's taxonomy. The students and the system will share the control over the advance in the course, so they can improve their metacognitive skills. The system will not allow students to get access to subjects not mastered yet. The interaction between the system and the student will be implemented through Natural Language Processing techniques, thus avoiding the use of sensors to evaluate student's response. The teacher will evaluate student's knowledge utilization, which is equivalent to the last cognitive level in Marzano's taxonomy.