Evaluation of the game *Synthesizing Proteins* addressed to high school students

C.C.P. da Silva; T.H.G. de Oliveira; N.F. dos Santos; N.R.S. Bossolan; L.M. Beltrami

Centro de Biotecnologia Molecular Estrutural (CBME/CEPID/FAPESP)
Instituto de Física de São Carlos – USP, São Carlos, SP
e-mail: leila@ifsc.usp.br

Studies demonstrate that a good strategy in education is the use of games in the school atmosphere, intensifying the teaching and learning process. The game as educational tool motivates the students in an emotional, motor, social and cognitive way, helping them to create mental outlines, to develop the reasoning and in the construction of the knowledge. In this context, the dissemination team of the Centre for Structural Molecular Biotechnology (CBME), in partnership with the Centre for Scientific and Cultural Dissemination (CDCC-USP), developed a board game entitled *Synthesizing Proteins*, in order to help the learning and the comprehension of the transcription and translation processes, and of the synthesis of proteins, using examples of human proteins. The game was applied and evaluated in a systematic way, in order to validate it as an educational tool of teaching-learning as well as to correctly disseminate it.

The CBME dissemination team planned activities like workshops, where the game was applied for high school students of public and private schools of São Carlos city (SP). As evaluation tool a questionnaire was elaborated containing questions regarding the concepts involved in the proteins synthesis process. This questionnaire was applied before (pre-test) and two weeks after the end of the activity (post-test), in order to check the previous and the acquired knowledge of the students after the manipulation of the educational material.

Analyzing the results of these pre- and post-tests, it was observed that, although most of the students has presented difficulties regarding the nomenclature and the details of the biochemical processes, these students were able to understand satisfactorily the following aspects: DNA is located in the nucleus of animal cells; the proteins are constituted of amino acids; the dynamics of the molecules of DNA, RNA and proteins during the interactions demonstrated by the game, and the structural difference among these molecules. The most of the students improved their knowledge after playing the game, which validates the game as an useful educational tool in the teaching of protein synthesis.

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