

Gamification and game-based schooling in nervous system science and neuroscience: Applications, difficulties, and openings

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Introduction:

Gamification offers a broad range of options to tackle a number of applications with potential for improved accessibility. Game-based approaches have the potential to be used both as a training tool and as a summative or formative assessment in neurology education. In its simplest form, an easily implementable gamification element for the neurology curriculum can be a digital multiple-choice question quiz show game. This can be played either individually or in teams to assess knowledge and collaborative skills. As the gamification element taps on the competitive nature of the learners, it can be exploited to 'put to the test' the collaborative skills among the team. In more details, a random team-allocation may favour the development of collaborative skills among residents and fellows whereas a 'blind' topic allocation (i.e. only seconds before the start of the game) can prevent strategic learning of the tested material. While some data exist to guide the optimal design of these game-based learning platforms as was discussed above, there is a wide gap in the optimal approach in neurology education whether at the undergraduate or graduate medical education level.

Objectives: Although the focus of this module was not on primary neurologic concepts, but rather communication, it nonetheless highlights broad potential applications of gamification even in more substantial learning circumstances (in this case, seventy-nine pharmacy students). Notably, between the first "quest" and the second "quest", attitudes of the students worsened, with more students having negative feelings about the Mimycx system. The authors do note that, at the time of their study, the system was still in a beta testing stage

Results: One hundred 51 people reacted to the study. Most respondents were award specialists (52%) and directed clinical examination (69%). Exploration regions included epilepsy (23%), neurodevelopmental and chemical imbalance (16%), neurocritical care and stroke (11%), neurogenetics and neurometabolics (9%), neonatal nervous system science (8%), and others. The most well-known subsidizing source was the National Institutes of Health (37%). Shared significant exploration concerns were subsidizing, use of distant innovation, beating variations, regular history and multicenter examines, worldwide nervous system science, and expansion of the examination portfolio. Obligation to proceeding and expanding research endeavors was apparent.

Conclusions: The integration of game-based learning with technology has become more frequent and contributed to a growing body of literature supporting the use of game-based learning techniques. The potential for leveraging game-based learning is evident in the literature and represent an important educational opportunity for the years to come. However, gaps in its application to learning in neurology and graduate medical education persist. The use of quiz games and similar techniques in the learning setting is not rare in neurology, but the data to support their benefits are. Therefore, collaboration across programs to assess novel learning approaches to teaching and learning through gamification and the development of successful, shared resources have the potential to fast forward neurologic and neuroscience education.