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MARS MISSION CONCEPT DESIGNS WITH GAMIFICATION AND KNOWLEDGE MANAGEMENT OUTCOMES

Abstract

The gamification is newly emerging concept that applications are being implemented in several of fields such as business management, knowledge management and education. Therefore, the convenient definition of the gamification is need in order to clarify the space applications. The objective of this study is to describe the gamification and to implement into the space literature by means of virtual reality and real time simulations. Virtual reality and simulations include Mars mission concept scenarios. Knowledge management outcomes of these scenarios are discussed in order to elevate space education and next generation workforce. Virtual reality applications include Mars surface tasks such as rover control, drilling and ISRU operations, bacteria growth and plant growth experiment tasks, micro air vehicle Mars surface scanning and Mars orbital tasks such as communication satellite control and atmospheric entry. Mars mission concept simulation mainly focus on journey to Mars from the Earth. The simulation scenario include life support system, EVA suits, food supply, oxygen/nitrogen generation, astronaut biological changes, risk factors and space environment parameters. It could be a real time simulation that able to pretend the journey to Mars within the microgravity environment. The goal of gamification tasks are to create an infrastructure for future Mars missions. Therefore gamification techniques would be able to extinguish the possible mission failures, reduce mission cost and assist the astronaut training. Subsequent goal of this study is implementing gamification techniques into the organizations, agencies and universities. Each mission task within simulation or virtual reality can be calibrated for different age and employee group that be assigned as users. Users could test the mission tasks in order to evaluate their decision making methods, team working abilities, snap decision efficiencies and leadership skills. Finally, data output from users are analyzed in order to discuss the knowledge management strategies for the future Mars missions.