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A Case Study of Mobile Game Based Learning Design for Gender Responsive STEM Education

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Abstract : Designing a gender responsive Science, Technology, Engineering and Mathematics (STEM) mobile game based learning solution (mGBL) is a challenge in terms of content, gamification level and equal engagement of girls and boys. The goal of this case study was to research and create a high-fidelity prototype design of a mobile game that contains role-models as avatars that guide and expose girls and boys to STEM learning content. For this research purpose it was applied the methodology of design sprint with five-phase process that combines design thinking principles. The technique of this methodology comprises smart interviews with STEM experts, mind-map creation, sketching, prototyping and usability testing of the interactive prototype of the gender responsive STEM mGBL. The results have shown that the effect of the avatar/role model had a positive impact. Therefore, by exposing students (boys and girls) to STEM role models in an mGBL tool is helpful for the decreasing of the gender inequalities in STEM fields.

Keywords : design thinking, design sprint, gender-responsive STEM education, mobile game based learning, role-models
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