

A Methodological Approach to Development of Mental Script for Mental Practice of Micro Suturing

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Abstract : Intro: Motor imagery (MI) and mental practice (MP) can be an alternative to acquire mastery of surgical skills. One component of using this technique is the use of a mental script. The aim of this study was to design and develop a mental script for basic micro suturing training for skill acquisition using a low-fidelity rubber glove model and to describe the detailed methodology for this process. Methods: This study was based on a design and development research framework. The mental script was developed with 5 expert surgeons performing a cognitive walkthrough of the repair of a vertical opening in a rubber glove model using 8/0 nylon. This was followed by a hierarchical task analysis. A draft script was created, and face and content validity assessed with a checking-back process. The final script was validated with the recruitment of 28 participants, assessed using the Mental Imagery Questionnaire (MIQ). Results: The creation of the mental script is detailed in the full text. After assessment by the expert panel, the mental script had good face and content validity. The average overall MIQ score was 5.2 ± 1.1 , demonstrating the validity of generating mental imagery from the mental script developed in this study for micro suturing in the rubber glove model. Conclusion: The methodological approach described in this study is based on an instructional design framework to teach surgical skills. This MP model is inexpensive and easily accessible, addressing the challenge of reduced opportunities to practice surgical skills. However, while motor skills are important, other non-technical expertise required by the surgeon is not addressed with this model. Thus, this model should act a surgical training augment, but not replace it.

Keywords : mental script, motor imagery, cognitive walkthrough, verbal protocol analysis, hierarchical task analysis

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