

Seirs Mathematical Model to Analyze Cases of Gadget Addiction in Elementary School-Aged Children

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ABSTRACT

Gadgets have become an inseparable part of human life. In fact, elementary school-aged children already have gadgets. Using gadgets has many benefits but can have negative impacts if used excessively. Excessive gadget use during elementary school years can significantly impact a child's development. Therefore, it's crucial to analyze the excessive use of gadgets in elementary school-aged children. This analysis will help identify potential solutions. The aim of this research is to analyze cases of gadget addiction in elementary school-aged children using the SEIRS model. Additionally, it aims to propose solutions using the 5th order Runge-Kutta method assisted by the MATLAB program. This qualitative research will focus on students in grades 4-6 of Shafiiyyatul Amaliyyah Private Elementary School in Medan and Harapan Private Elementary School in Deli Serdang. The research object will be the use of gadgets in these schools. The data collection method used is the questionnaire method, which will be analyzed numerically to determine the initial values and parameters of the SEIRS model for gadget addiction cases. The next step is to solve the SEIRS model using the 5th Order Runge-Kutta method and MATLAB programming to visualize the graph and assess the effectiveness of the method in solving the SEIRS model in cases of gadget addiction.

Keywords: Mathematical Modeling, SEIRS Model, Cases of Gadget Addiction in Elementary School-Aged Children

