Calculus from a virtual navigation problem

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Calculus appeared from the real world application, has a real world context, and is fundamentally a dynamic conception; this is why the framework of Realistic Mathematics Education (RME) should be the most efficient approach to teaching and learning calculus. The current study is devoted to investigation of the computer simulated bodily path optimization calculus. I adapted the conception of 'tacit intuitive model' for the particular calculus task of path optimizations. My hypothesis is that tacit mental modeling takes place with the allocentric frame of reference. I designed a paradigm in the Second Life virtual environment which allows simulating the navigational task of path optimization with two different mediums and with voluntary choice between allocentric/egocentric views. The reinventing the calculus problem of path optimization from the virtual navigation and its mathematizing would give a powerful intuitive link between the everyday real world problem and its symbolic arithmetic.