The Effects of Number of Turns and Attention on the Perceived Distance and Time in Children and Adults

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The present study examined the effects of number of turns (0 vs. 5) in a path and participants' attention (focused vs. divided) on their perceived walking distance and walking time. The participants were 50 children from 5 to 6 years old and 60 adults whose average age was 22.75 years. On each trial, the participants had to walk along two 29-meter long paths for 30 seconds (led and controlled by the experimenter). On two trials, the two paths varied with respect to the number of turns. On another two trials, the two paths varied with respect to whether the participants had to simultaneously perform a concurrent digit counting task. At the end of each trial, the participants had to determine which path was longer or of equal length, or which path took longer or equal time to walk. The adult participants had to additionally estimate the distance of the path or the time of walking. Results showed that among the adult participants the path with 5 turns was perceived to have a longer distance and took longer to walk than the path with 0 turn. The path was also perceived to have a longer distance and take longer to walk when the adult participants walked without performing a concurrent cognitive task than when they walked with one. However, the adult participants perceived distance did not correlate significantly with their perceived time. The children also perceived the two paths with different numbers of turns to have different distances and take different amount of time, but they were unable to tell which one was longer or took longer. Contrasted with the adults, the path was perceived by the children to have a shorter distance and take shorter time to walk when they walked without performing a concurrent cognitive task than when they walked with one. The children's perceived distance also correlated significantly with their perceived time. We offered a number of explanations of the results based on the concept of cognitive load and the participants' different strategies.

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