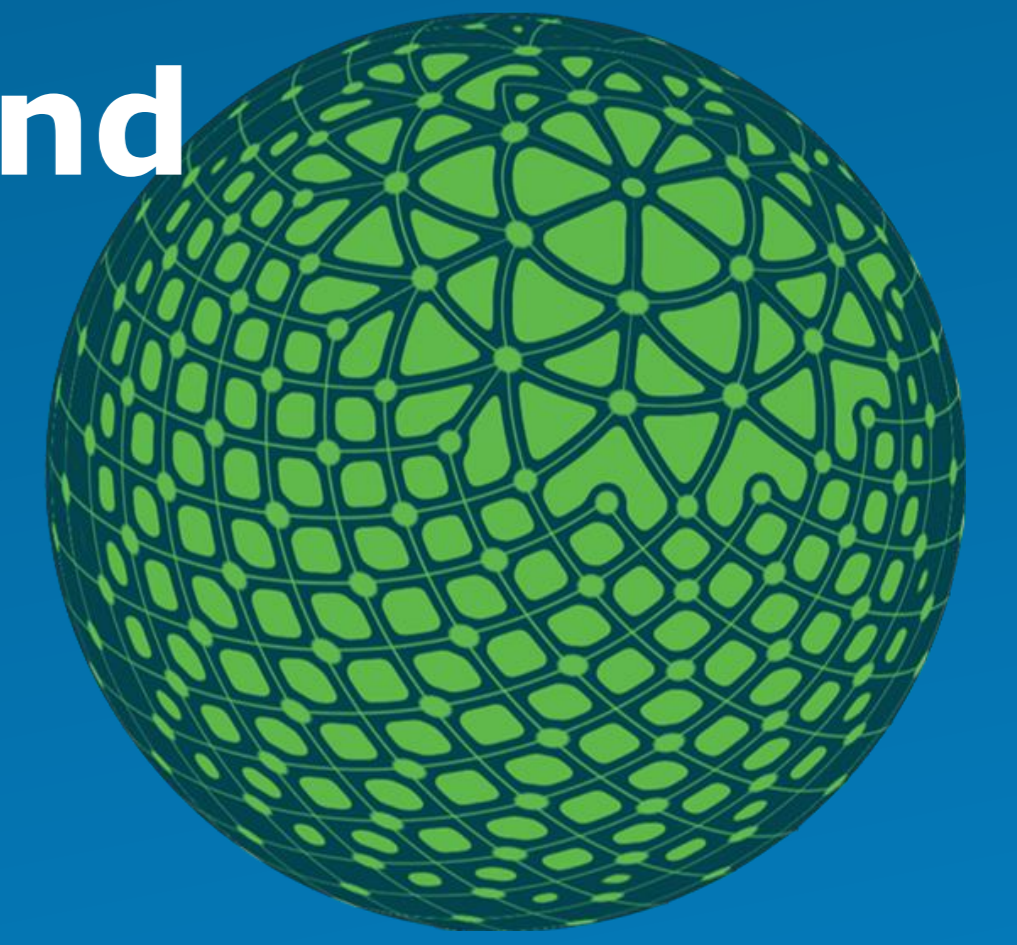


# Can children use temporal check-all-that-apply (TCATA) and temporal dominance of sensations (TDS)?



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## Background

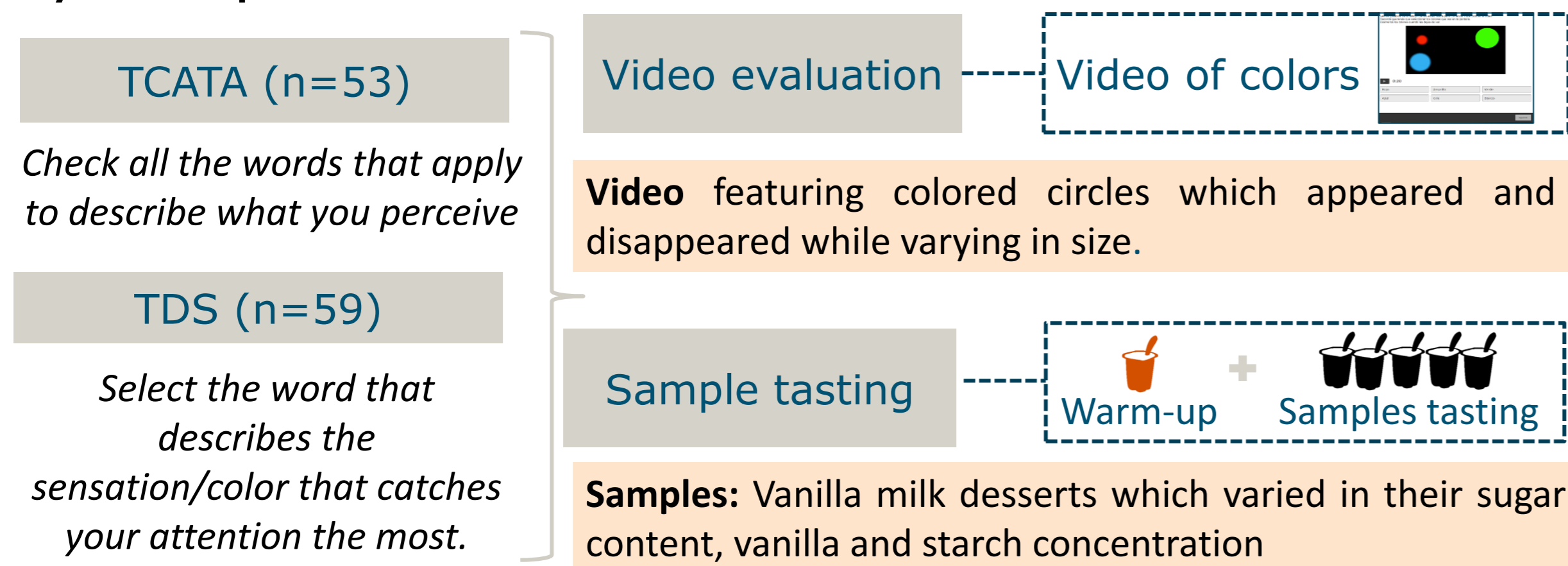
Temporal sensory methods have drawn increasing attention as a tool to better characterize the eating experience. Temporal Dominance of Sensations (TDS) and Temporal check-all-that-apply (TCATA) are the most popular methods nowadays. Although multiple methods have been used to explore how children perceive food and beverages, the application of temporal methods with children has been rarely reported in the literature.

## Objective

To evaluate the feasibility of using two dynamic methods, TCATA and TDS, for sensory characterization with children.

## Methods

A total of 112 children (8 – 12 years old, 54 % girls) were recruited from two schools in Montevideo (Uruguay). The study comprised two tasks framed as a secret mission.



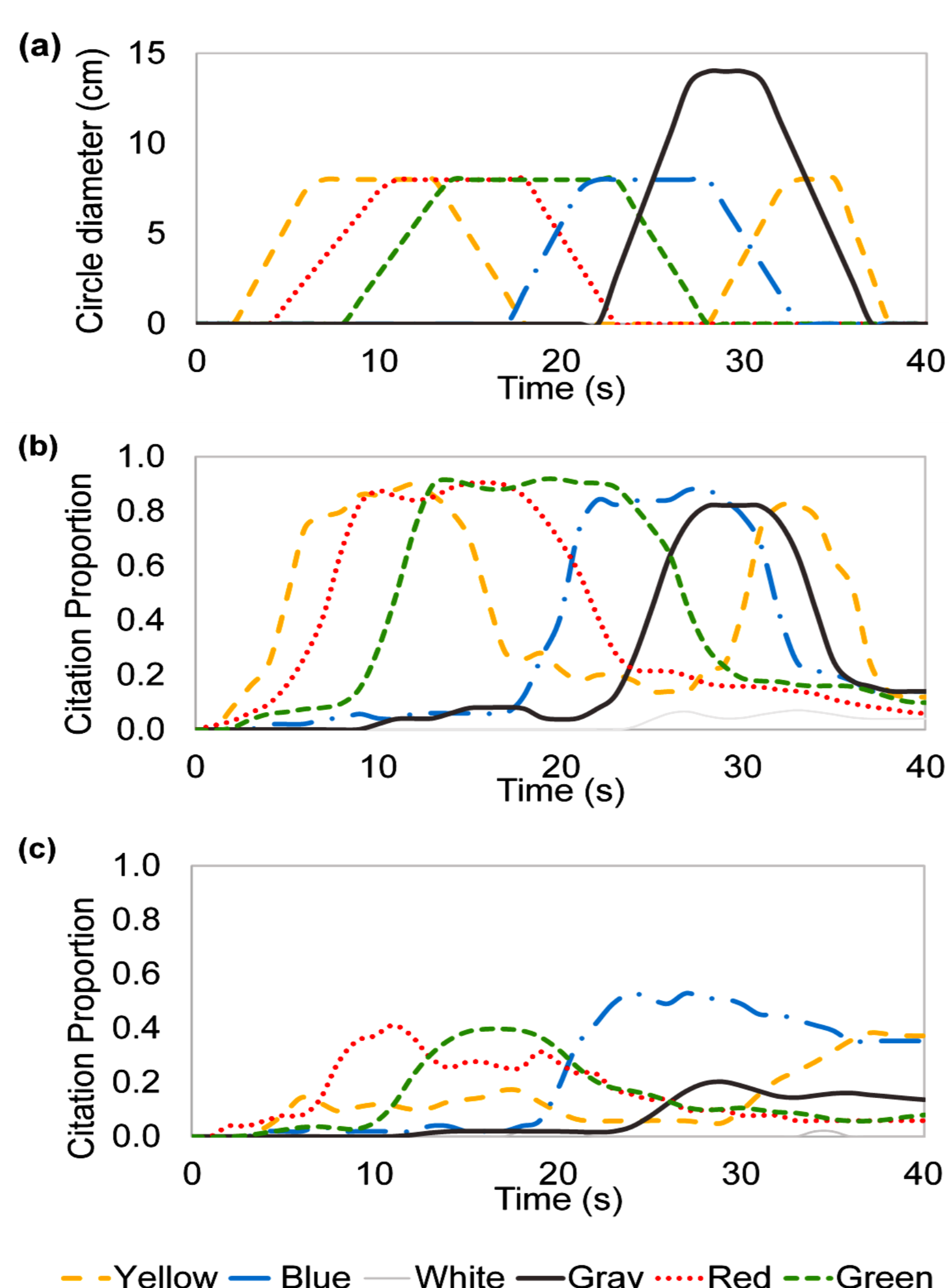
## Results

### Temporal evaluation of a video

Both methods allowed capturing the dynamics of the video. However, TCATA provided a more detailed description of the video than TDS (Figure 1).

In TCATA, 84% of the children successfully unchecked the colors as they disappeared from the screen.

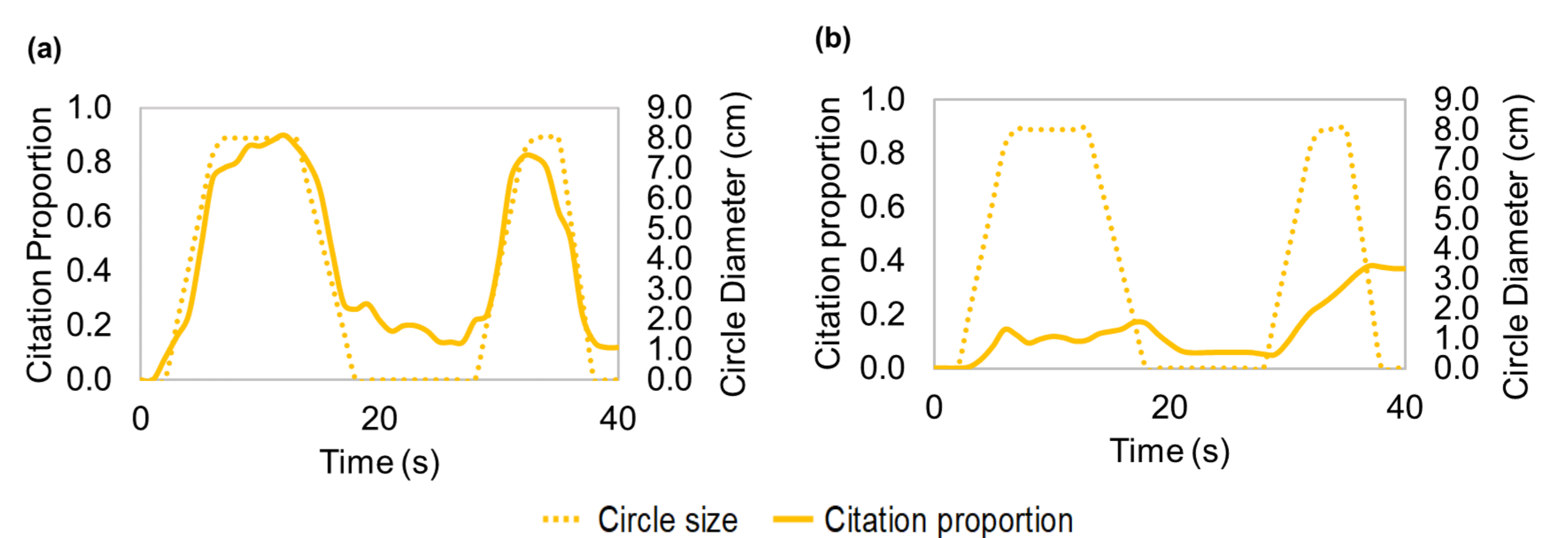
In TDS, 50% of the children tended to leave unchanged their selection, even when the color had disappeared from the screen.



**Figure 1.** Temporal evolution of the colored circles in the video: (a) Evolution of circle size in the video, (b) Citation proportions of the colors using TCATA, and (c) Citation proportion of the colors using TDS.

Although there was a delay between the appearance of the color in the screen and their selection in both methods, the gap was larger in TDS than in TCATA (11.0 s vs. 5.7 s).

TDS missed some details of the video. For example, yellow color, which was shown two times, was rarely selected during the first appearance with TDS (Figure 2).



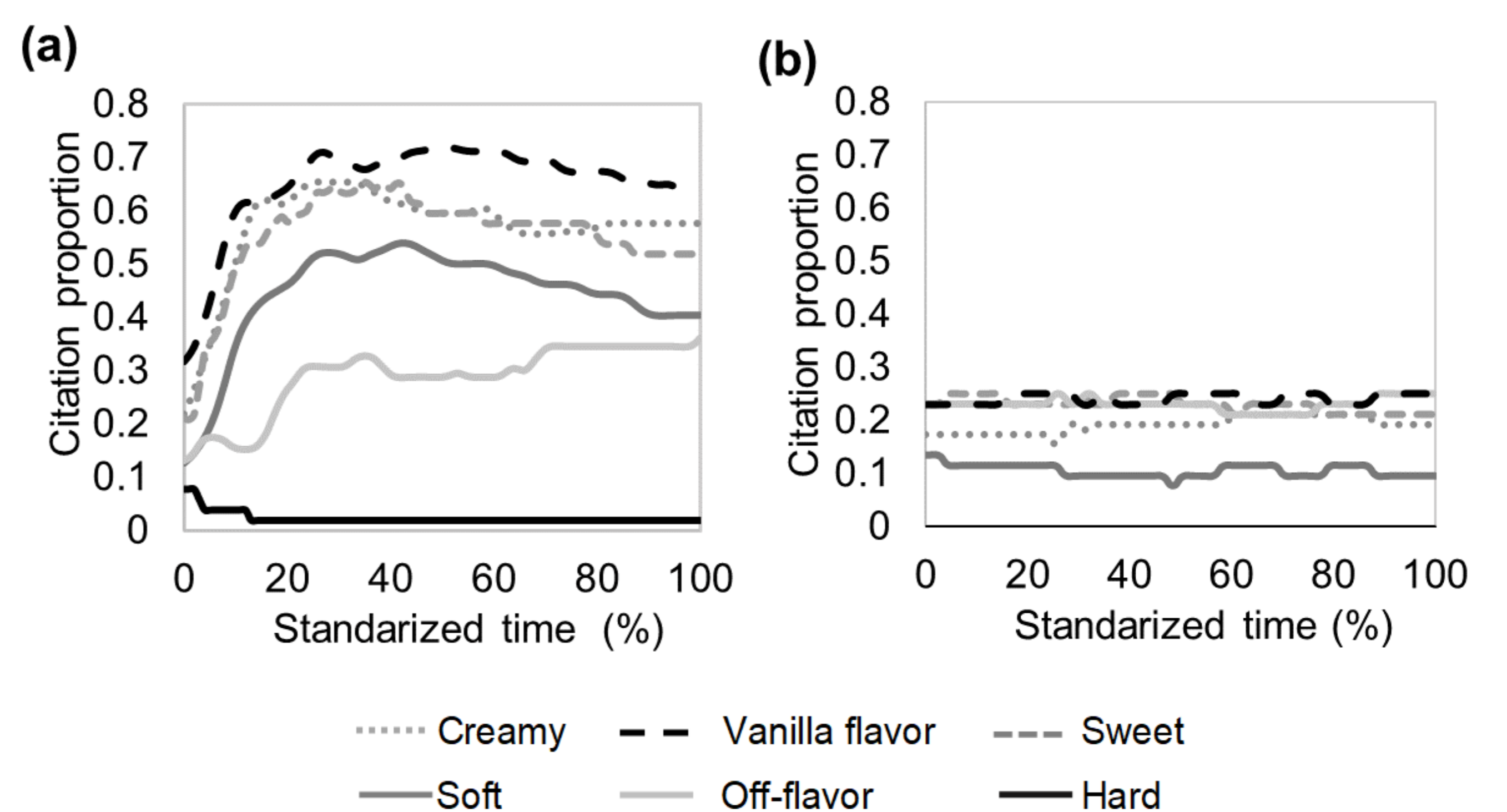
**Figure 2.** Comparison of temporal evolution of the size of yellow circles in the video against children characterization using: (a) TCATA and (b) TDS.

### Temporal evaluation of the food stimuli

Children needed a longer time to select their first attribute in TDS than in TCATA.

For TCATA, attribute selection increased rapidly over the first 15s, after which a plateau was observed (Figure 3a). Children rarely unchecked the attributes over the evaluation.

For the TDS, curves were mostly flat (Figure 3b). Children tended to select a single attribute during the evaluation.



**Figure 3.** Dynamic profiles of selected samples using TCATA (a) and TDS (b).

## Conclusions

Children can use TCATA and TDS to characterize a dynamic visual stimuli, but TCATA provided a more detailed description than TDS.

For the food stimuli, both TCATA and TDS were mostly used as static methods, suggesting that refinements are necessary to use them with children.



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