Does AR-Mediated Object Interaction Affect Young Children's Caring Behaviors?

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Augmented reality (AR) technology overlays virtual elements onto real-world environments, allowing users to see and interact with both physical and digital features of objects simultaneously. AR has been successfully applied in fields such as medicine, retail, and, most prominently, education, where it has been shown to enhance engagement, motivation, and learning. While much of the research has centered on how AR improves knowledge acquisition, less attention has been paid to its potential to influence children's everyday behaviors.

This study examined how AR influences children's willingness to care for everyday objects. A total of 78 six-year-old children (35 girls) from Japan participated in the study. Each child was introduced to a simple object (a paper cup or plate). Then, they were told that the object is actually a living agent in one of the following three conditions: (1) Introduction condition - the object was presented through a photograph with a cartoon face overlaid; (2) AR condition- the object was viewed through a tablet with a static cartoon character displayed via AR　(3) AR Interaction condition - the object was viewed through a tablet with an AR character that responded to children's touch. After a brief introduction lasting approximately two minutes, children were asked to throw the object into a trash bin. The researchers recorded two key measures: the time children hesitated before discarding the object and the number of prompts they needed. Following this task, children answered questions about the object's capacities, such as whether it could see, be smart, or feel emotions.

Contrary to expectations, the presence of AR—whether static or interactive—did not significantly influence children's hesitation to discard the object. Children generally followed the experimenter's instructions promptly, regardless of whether the object was introduced using AR technology or not. Furthermore, although children in AR and AR interaction conditions attributed more human-like qualities to objects compared to a neutral score, these perceptions did not differ significantly across the three groups and did not translate into more caring behavior.

Several possible explanations may account for these findings. Children might have perceived the AR character on the tablet as separate from the physical, disposable object, preventing the virtual enhancements from influencing their actions. Additionally, the simple exposure period and adult instructions may have diminished any potential effects of AR. More immersive AR experiences or extended interaction periods might be necessary to elicit meaningful changes in behavior.

In conclusion, while AR based introduction of virtual human-like features of the objects can make children attribute human-like properties to the objects, this study found no evidence that it alters young children's willingness to treat those objects with greater care. Future research should explore longer interactions, and a broader range of object types to better understand whether and how AR might influence children's everyday behaviors.（比較発達心理学）