Comparative Study on the Educational Use of Home Robots for Children

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Abstract

Human-Robot Interaction (HRI), based on already well-researched Human-Computer Interaction (HCI), has been under vigorous scrutiny since recent developments in robot technology. Robots may be more successful in establishing common ground in project-based education or foreign language learning for children than in traditional media. Backed by its strong IT environment and advances in robot technology, Korea has developed the world's first available e-Learning home robot. This has demonstrated the potential for robots to be used as a new educational media - robot-learning, referred to as 'r-Learning'. Robot technology is expected to become more interactive and user-friendly than computers. Also, robots can exhibit various forms of communication such as gestures, motions and facial expressions. This study compared the effects of non-computer based (NCB) media (using a book with audiotape) and Web-Based Instruction (WBI), with the effects of Home Robot-Assisted Learning (HRL) for children. The robot gestured and spoke in English, and children could touch its monitor if it did not recognize their voice command. Compared to other learning programs, the HRL was superior in promoting and improving children's concentration, interest, and academic achievement. In addition, the children felt that a home robot was friendlier than other types of instructional media. The HRL group had longer concentration spans than the other groups, and the p-value demonstrated a significant difference in concentration among the groups. In regard to the children's interest in learning, the HRL group showed the highest level of interest, the NCB group and the WBI group came next in order. Also, academic achievement was the highest in the HRL group, followed by the WBI group and the NCB group respectively. However, a significant difference was also found in the children's academic achievement among the groups. These results suggest that home robots are more effective as regards children's learning concentration, learning interest and academic achievement than other types of instructional media (such as: books with audiotape and WBI) for English as a foreign language.

Keywords

Human-Computer Interaction; Human-Robot Interaction; e-Learning; Educational Media; r-Learning; Web-Based Instruction
References


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Children use internet to see adult content rather than search for educational websites. This practice leads to a negative impact on their character. They forget their moral values. They are the future of the country. They become mentally advanced beyond their age (Figure 2). Figure 2: The chart showing the frequency of using gadgets among children. Discussion. Set time for using screens: Restrict the amount of time children spend on gadgets and don't allow them to use after their time is finished. Also, limit the time of watching TV. Small children can use gadgets an hour a day and two hours a day for school-going children. Make them play outside: Encourage your children to play outside with their friends and siblings. So they learn to interact and communicate with other children.