Designing Dynamic Scaffolding Strategy for Improving Video-based Learning in a Gesture & Speech-based Learning Configuration

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Abstract—With the advancement of information and communication technologies, a great deal of learning resources can be easily accessed over the Internet, especially video-based materials. Most of them are recordings of speeches and instructions. Learners can also provide their feedback on a specific website or a learning management system. Besides, natural user interface (NUI) has become affordable which sheds a light on the new form of human-computer interaction. A new research issue regarding how to effectively use the large amount of existing video-based learning resources and related feedback by leveraging the NUI interface is worth of exploration. This study aims to explore and propose a new effective scaffolding strategy to facilitate video-based learning by applying NUI-based technologies with an integration of existing constructive feedback generated by the crowd. In this paper, a preliminary design and corresponding examples of this idea will be delineated.

Keywords—dynamic scaffolding; natural user interface; video-based learning; simulated perception; learning performance