

## Natural Interaction Game-Based Learning of Elasticity with Kinect

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**Abstract :** Game-based Learning (GBL) is an alternative that provides learners with an opportunity to experience a volatile environment in a safe and secure place. A volatile environment requires a different technique to facilitate learning and prevent injury and other hazards. Subjects involving elasticity are always considered hazardous and can cause injuries, for instance a bouncing ball. Elasticity is a topic that necessitates hands-on practicality for learners to experience the effects of elastic objects. In this paper the scope is to investigate the natural interaction between learners and elastic objects in a safe environment using GBL. During interaction, the potentials of natural contact in the process of learning were explored and gestures exhibited during the learning process were identified. GBL was developed using Kinect technology to teach elasticity to primary school children aged 7 to 12. The system detects body gestures and defines the meanings of motions exhibited during the learning process. The qualitative approach was deployed to constantly monitor the interaction between the student and the system. Based on the results, it was found that Natural Interaction GBL (Ni-GBL) is engaging for students to learn, making their learning experience more active and joyful.

**Keywords :** elasticity, Game-Based Learning (GBL), kinect technology, natural interaction

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