Isomorphic Game Interaction Technique Patterns for Single Button: Definition and Evaluation

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ABSTRACT
Awkward control schemes or nonsense button-mashing are common complaints from gamers worldwide. Assigning actions to buttons can be a complicated task for the game designer due to the limited quantity of buttons available on the joystick used in the current generation of video games. Along the years, the industry has increased the number of buttons in the controllers, but despite this a more permanent solution is still required as one cannot simply keep adding new buttons. Note that there are only ten fingers to operate them. Therefore, studying new ways for game designers to make intelligent use of the available buttons and analog sticks is required in order to create more enjoyable interactions for games. In this paper, we investigate third-person view games with a humanoid avatar and propose an isomorphic approach with the objective of increasing the connection between the player and his character. We established three categories of action and, by crossing these; we created eight isomorphic interaction technique patterns. In addition to these, we also developed two prototypes. The first one applies the identified usage patterns whereas the second one presents a hybrid version. Next, we perform preference tests jointly with users in order to investigate the impact of our approach on user perception of the two games. The results have shown a higher level of approval towards the prototype that applied the patterns.

Keywords
Action mapping, interaction technique, design patterns

INTRODUCTION
The role of the game designer is to create experiences for its audience through the games it conceives. Games are not relevant unless they are both played and enjoyed (Schell 2008). Murray (1997) claims that part of the pleasure of playing games lies in the possibility of immersing oneself in fantasy environments and assuming different