Authoring in Synthetic Prototyping

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Abstract: The U.S. Army, in order to improve the acquisitions process, is developing a method to test new assets in a virtual environment. This method is being referred to as Early Synthetic Prototyping (ESP). Improving ESP will allow for feedback from soldiers to be considered earlier, which will reduce waste and increase acquisitions efficiency. The Army Game Studio is interested in improving the game America’s Army. America’s Army is the primary ESP platform of the US Army, and contains similar components of other popular video games yet lacks abilities in its user-authoring components. User-authoring is the ability for an average user to customize the game without the need of a programmer. Feedback from users helps identify the most important elements of authoring, which in turn helps to create a better ESP platform. This paper presents a suggestion to the Army Game Studio of the best user-authoring features to implement in future ESP platforms.

Keywords: Early Synthetic Prototyping (ESP), User-Authoring, America’s Army

1. Introduction

Early Synthetic Prototyping is a method used by the US Army to increase the efficiency of the acquisitions process. Essentially, ESP is the use of virtual models of weapons, vehicles, and other items to test them before resources must be used to build a physical prototype. This allows fewer items to be constructed in reality, greatly reducing cost, and those which are eventually created have an increased chance of showing a return on the Army's investment. The Army is interested in fielding ESP to large populations through the gaming client Steam and collecting data from users’ experiences to find the most useful items, tactics, techniques, and procedures to develop. In fact, in order for the US Army to collect data and for ESP to be a success, it is essential that this model is able to engage and entertain a large population of the targeted users (Provost, 2016). This study focuses on one aspect of ESP, user-authoring, in order to identify ways to develop and improve the user experience. User-authoring is defined by the extent to which a user can customize the game without changing actual game code or requiring a programmer (Träskbäck, 2003). It involves selection of features ranging from facial appearance to weapon capabilities. Data was collected from different users and several components of user-authoring were identified, including: the most important aspects of authoring, the game with the best of each aspect, the game that was best overall (in terms of authoring), and what a game with ideal authoring capabilities would look like. The analysis of this data is intended to allow the Army Game Studio to focus resources on the most vital aspects of authoring in developing America’s Army, once a recruiting and informational tool, into an ESP platform.

2. Overview

The Army’s current prototyping method involves creating physical prototypes that soldiers can test, evaluate, and critique. However, that method is expensive and often very ineffective because the input from soldiers is received too late in the acquisitions process. The future of ESP aims to reduce the cost of making changes to the prototype and improve the acquisitions process through giving soldiers a voice in the design process. In doing so, ESP will create an “integrated ecosystem” where users and developers can work together to develop, discuss, and refine new assets in a prototyping environment (McGroarty). The current platform for ESP is the game America’s Army, and although widely played, the platform could be improved given other current game titles. The integral point of study is user-authoring. This capability affords the acquisition process countless combinations and scenarios as well as testing and feedback. The methods ESP enables allows soldiers to assess new technologies in virtual, realistic scenarios in order to provide feedback that will aid in acquisitions decisions (Murray, 2014).