Evaluating the Virtual Products for Online Games via the Grey Relational Analysis

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ABSTRACT

Over the past years, researchers and practitioners in marketing fields have seen a dramatic growth of online games. This growth and development also influence players' behavior and market change of hardware and software companies. This study proposes a model for selecting the optimal virtual products for online games by referring to the views of online players. The proposed model adopts the "modified Delphi method" to find suitable evaluative criteria for virtual products, and then applies the "grey relational analysis (GRA)" to rank the alternatives and select the best virtual products. In addition, the example of a renowned online game, MapleStory, is used to demonstrate the process of virtual products selection using this model. This model provides the online gamer an objective and effective way to select virtual products, and provides suggestions for the manufacturers of online games in regard to developing and improving the virtual products.

Keywords: *Grey Relational Analysis (GRA), Modified Delphi Method, Online Game, Online Marketing, Virtual Products*

1. INTRODUCTION

The video gaming ecosystem is experiencing major technology and business model transitions and it is expected to grow constantly and rapidly for several years. In addition, Gartner, Inc. estimates that worldwide spending in the video game industry will exceed $74 billion in 2011, up 10.4% from 2010 spending of $67 billion, and that spending will reach $112 billion by 2015 (McCall, 2011). It is mentioned in Essential Facts about the Computer and Video Game Industry that 72% of American households play computer and video games nowadays. The average age of gamers is 37, and they have been playing for an average of 12 years. Moreover, 28% of gamers are 18 years or older (Entertainment Software Association, 2011). This indicates that playing games is no longer the exclusive right of children and young players may maintain the habit of playing games when they become adults (Harambam, Aupers, & Houtman, 2011).

The gaming ecosystem is undergoing technology and business model transitions that will last beyond 2015. In 2015, the gaming software spending will be followed at a distance by

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gaming hardware and online gaming, reaching $24.4 billion and $28.3 billion, respectively (McCall, 2011).

Virtual currencies are a kind of private currency for use in online games. Though some general purpose virtual currencies have been tried, most of them are specific to provinces (Morris, 2000; Wang & Mainwaring, 2008). The pricing model of many online games is to charge nothing for games and to set no time limits. However, this does not mean these games are completely free. On official game websites and in those games, there are virtual stores selling treasures and items. In order to buy these items, a player must first buy a value-stored card online issued by the game company. Then, points corresponding to the items the player wants to buy will be deducted from his value-stored card.

For game companies around the world, virtual currencies are a trend with promising expected growth. They are the sources of profits for most game companies, especially companies which release free online games live by selling virtual products. In numerous free-to-play online games, players buy virtual currencies legally from the game companies (Debeauvais, Nardi, Lopes, Yee, & Ducheneaut, 2012). It is found that subscription fees are giving way to 'freemium' models, in which the game is provided for free to game players but is monetized through advertising and in-game microtransactions, such as the sale of value-added services or virtual-good purchases (McCall, 2011). Thus, when a game company develops virtual products, it has to first understand what types of virtual items in which players may be interested. Currently, there are all kinds of virtual products in the market. In order to save development costs and increase profit margin, game companies must know how players evaluate and choose their most ideal virtual products, so that they can improve their virtual products properly based on players' preferences.

Virtual products selection is a multi-criteria, decision-making (MCDM) problem; selecting the optimal virtual products requires appropriate criteria and strict screening. An online game is a virtual community. Players who would buy virtual products must be satisfied with this online game to a certain degree.

This study proposes a model for selecting the optimal virtual products for online game by referring to the views of online players. The proposed model adopts the "modified Delphi method" to find suitable evaluative criteria for virtual products, and then applies the "grey relational analysis (GRA)" to rank the alternatives and select the optimal virtual products.

To develop the best virtual product selection procedure, related documentation (DeLone & McLean, 1992; Ives & Olson, 1984) from other research, past game experiences, and suggestions from several players were combined to summarize the constructs and factors which may influence players to purchase virtual products. After the initial criteria were designed, players were asked several times to express their opinions to exclude improper criteria. Finally, nine senior players were officially interviewed. These nine senior players had played many games and purchased five types of virtual products several times.

In addition, the example of a renowned online game, *MapleStory*, is used to demonstrate the process of virtual products selection using this model. This model provides online players an objective and effective way to select virtual products, and provides suggestions for online game firms in regard to developing and improving the virtual products.

2. METHODOLOGY

Methodology involves two parts, the modified Deliphi method and GRA, as stated.

2.1. Modified Delphi Method

The Delphi method is a conventional forecasting approach that does not require large samples. The Delphi technique can be applied to generate a professional consensus for ambiguous, complex and contentious topics (Linstone & Turoff, 1975). Delphi technique requires continuous written and oral discussion and feed-

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