

전문가 집단 양성을 위한 프로게이머 발달 및 학습 모형 연구

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Research on Professional Groups through Learning of Professional Game Players

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요 약

‘e-스포츠’에 대한 국가적인 관심증가는 경제적 효과와 동시에 사회적인 변화를 가져왔다. 또한 전문적으로 게임을 하는 집단인 ‘프로게이머’를 보유한 한국은 게임종주국으로서의 위상을 가지며 세계적인 관심 속에서 양적, 질적 성장을 거듭하고 있다. 이에 프로게이머를 사회적인 인적자원으로서 분류하고 체계적이고 이론적으로 정립할 필요성이 요구된다. 본 연구는 프로게이머들의 발달과 학습에 관한 이론적 모형을 제시하기 위하여 수행되었다. 모형은 수렴은 근거이론 방법에 의한 자료분석에 의거하였다. 총 9명의 프로게이머 자료가 분석되었으며 3명의 전문가(감독, 컨설턴트)에 의해 모형 검증 및 수정의 단계를 거쳤다. 분석된 자료의 결과는 다음과 같다. 첫째, 프로게이머의 발달은 선형적 모형이 아닌 ‘단계(stage)’로 구분되는 형태를 나타낸다. 둘째, ‘Enjoying’, ‘Struggling’, ‘Achieving’, ‘Slumping’, ‘Recovering’로 명명되어지는 각각의 단계는 학습방법과 동기적 측면, 교육과정, 동료와 상호작용 유형에 있어 고유한 속성을 가진다. 셋째, 기 명명된 5 단계는 유사한 속성에 따라 ‘Communicative Stage’와 ‘Practicing Stage’로 분류된다. Communicative Stage의 속성으로서 비구조화된 교육과정, 내재적 동기에 의한 학습형태, 수평적 관계에 의한 상호작용 형태가 나타났으며, Practicing Stage의 속성으로는 구조화된 교육과정, 외재적 동기에 의한 학습, 경쟁적, 수직적인 상호작용 유형이 나타났다. 이러한 결과는 Pedagogy와 Andragogy를 비교한 Knowles(1980)의 이론적 분류를 통하여 선수관리의 방향점을 제안한다. 즉, 게임 전문가 집단으로서 프로게이머의 관리는 첫째, 제시된 모형에 의거 선수들의 상황을 적절하게 분석하는 과정을 필요로 한다. 둘째, 분석된 발달단계에 따른 적합하고 구체적인 관리방법이 적용되어야 한다. 셋째, 선수들의 단계이동을 도모하기 위해서는 지엽적 훈련과정보다는 모형에 입각한 총체적이고 체계적인 접근이 필요하다.

핵심어: 이스포츠, 프로게이머, 스타크래프트, 전문가학습모형, 인적자원개발

ABSTRACT

The current interests in e-sports is being extended to the fields of education these days. Professional game players, so called as ‘Pro-Gamers’, therefore, should be recognized as human resource for education, and the theoretical foundation for them needs to be established. This study examines informal learning styles, motivation, and interactions among professional game players in South Korea. The aim of this grounded theory study is to discover the trajectory of professional game players’ experiences and explain what properties and interactions they are facing depending on the stage of the trajectory. This study conceptualizes educational meaning within and across the society of StarCraft Pro-Gamers, providing suggestions for the management of human resource using models constructed. Data was analyzed by interviewing 1 consultant, 2 directors and 9 Pro-Gamers. By analyzing the data, this study explored what learning strategies Pro-Gamers construct and apply in their trajectory as Pro-Gamers. It includes how they organize learning, how they formulate their motivation and goals, how they cooperate and compete, what curricula they adapt, how they become one of the ace players overcoming their slump, and how informal education works in practice in the interaction among members of a StarCraft Pro-Gamer team. Finally, in this paper the stage theory was presented. It is argued that when the stage of the players shifts (Stage Shifting). It also brings changes to proficiency properties, emotional properties, interactional properties and educational properties related to each stage. Stages are categorized by five levels: Enjoying, Struggling, Achieving, Slumping, and Recovering. Although each stage has its own properties, the stages are grouped by two main properties, one of which is a Communicative Stage and the other is a Practicing Stage.

Key words: E-sports, game player, professional game player, StarCraft, Pro-gamer

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I. INTRODUCTION

The influence of e-sports nowadays is increasing more and more in economical, social, and cultural fields. E-sports, which used to be regarded as not more than passive watching of games, have got to include all the fundamental activities for cultural and industrial development, such as game leagues, community activities, pro-games, development and distribution of games, and game broadcasting[1,13]. Especially, South Korea is keeping its position as a country from which e-sports originated with systematic management of Pro-Gamers, who gets the international attention as a symbol of Korean e-sports. E-sports industry in South Korea started to grow with the popularity of StarCraft in 1998, continuing to move up with the growth of professional game leagues in 2000. Nearly 100 game competitions are held these days, resulting in the transition of 'playing the games' to 'watching the games' with the introduction of game broadcasting industry and active participation of large companies. This change has brought an inflow of various people related into e-sports, including athletes, teams, companies, the media, audience, and viewers. The international trend also reveals that the interest in e-sports is increasing. In China, e-sports was accepted as an official sport entries in 2003, and an e-sports league approved by the government was launched in 2004. There are dozens of competitions about e-sports in Europe[1,20]. The governments of Taiwan and Russia are investigating waiving army service for players who win a prize in

the World Cyber Games(WCG). Enterprises including Intel and Microsoft also regard e-sports as an important marketing tool, supporting marketings for e-sports[20].

The increase of interest in e-sports resulted in quantitative growth in terms of economy. The market scale of e-sports industry is expected to expand from 26 billion and 700 million won in 2004 to 120 billion won in 2010[1]. Bae(2006) mentioned that the effect of job creation and expansion of employment out of a great ripple effect of e-sports industry in South Korea is as tremendous as construction industry and tourism and that the production generation cost is assumed to be 103 trillion and 310 billion won, which accounts for 2 % of the total national production generation cost of 5,197 trillion and 620 billion won. E-sports is also structuring academic fields and expanding them. The early research on the economic effect of e-sports is now expanded, establishing an academic field as a cultural industry. Research on company marketing[6, 18,19] and research on strategic development of e-sports[7,22,27] could be good examples.

One thing remarkable is that the interest in e-sports is extended to the fields of sociology and education, more than just an industry. Gee(2003) put an emphasis on the research on effect of games from social and cultural aspects. Additionally, there are a lot of research establishing theoretical foundation games can have [2,3,8,24]. University of California at Berkeley actually opened a course to study strategies and educational significance of StarCraft[4]. An academic field called 'Gamiology' was introduced [5], extending the scale of research on e-sports to examining

macro and in-depth socio-cultural phenomenon.

Among lots of research, the need for the one on the social significance of professional gamers(Pro-Gamers) is getting attention in particular[16,23]. Pro-gamers have been playing an essential role in the development of e-sports industry, having enormous impact on society with their fandom[16]. For those reasons, Pro-Gamers need to be recognized as human resource and theoretical suggestions should be made for them. A job Pro-Gamer is a phenomenon that a hobby grows into a career. Han(2007) argues that every human being originally has the instinct for learning, through the concept of 'Homo Eruditio'. A case that human can be developed to human resource by playing games, having fun, learning, and growing provides a new paradigm to us, who are living in the knowledge age. Research on Pro-Gamers, however, still needs lots of improvement. There is some research on daily life and general trend of Pro-Gamers[17] and on relations among Pro-Gamers and fandom[16], but there is not enough research from a viewpoint of education.

The purpose of this study is as follows. First, the trajectory of Pro-Gamers is investigated. Second, the each stage is interpreted through a theoretical framework. Third, an educational model for Pro-Gamers is suggested. As the beginning of research from an educational viewpoint, this study will provide theoretical foundation, not only for the Pro-Gamers but also for other professionals.

II. CONTEXT OF THE STUDY

E-sports, appearing as a new cultural phenomenon, are defined by e-sports association in South Korea as follows: 'E-sports' include every leisure activity intending to win using both mental and physical abilities in virtual electronic environment set up as the real world. Participation in competitions and league matches and watching broadcast games are also included, cyber cultural aspects such as online community activities being in the same category, too. As the definition means, e-sports are now regarded not just as a game, but as a socio-cultural phenomenon.

E-sports have developed having a close relationship with the game 'StarCraft'. According to Jeong(2007), e-sports were first started with a StarCraft match, and they had remarkable growth reaching to 278 competitions and a total prize of 5 billion won in 2005, going through the quickening period in 1990, the formative period in early 2000, and the period of prosperity in the middle of 2000. Companies that sponsored Pro-Gamers grew from small IT firms to large companies, and a number of companies operated professional game teams on their own, increasing the investment in e-sports. IT companies such as SK and KTF opened game leagues first, the major large companies including companies not related with IT industry, joined the trend[16]. [Table 1] below shows the sponsors and the year of establishment of each professional game team.

[Table 1] Sponsors and the Year of Establishment [16]

Sponsors / Team Names	KTF Magicns	SAMSUNG KHAN	Woongin Stars	SK Telecom T1	MBC Game HERO	Lecaf OZ
Year of Establishment	1999	2000	2001	2004	2006	2006
Sponsors / Team Names	CJ Entus	Ongamenet Spakyz	STX SOUL	IEG eSTRO	airforce military ACE	Wemade FOX
Year of Establishment	2006	2006	2006	2006	2007	2007

It is Pro-Gamers that play a significant role in professional game teams. The term Pro-Gamer newly appeared in the late 1990s right after the StarCraft game competitions were given a birth, which means a new kind of job getting paid by winning games or belonging to game leagues[16]. Many Pro-Gamers have gained television contracts, sponsorships, and tournament prizes. The most famous player, Lim Yo-Hwan, has a fan club of over half a million people. Lee Yun-Yeol reported earnings in 2005 of US\$200,000. In addition, starting in about 2002, Pro-Gamers started to be organized into teams, sponsored by large companies in Korea. The Pro-Gamer system was approved by the Ministry of Culture and Tourism on August 12, 2000. The registration for Pro-Gamer is deliberated and decided by Pro-Gamer ‘Registration Committee’. The change of Pro-Gamer by year is provided by [Table 2] below.

Pro-Gamers are rapidly expanding, and they are considered social human resource with popularity[16]. Individuals who have been concentrating only on playing games used to be regarded that they had problems before,

but they are now human resource to be sponsored by companies. A survey result also reveals that 60.7% of the Pro-Gamers are satisfied with their job[18]. The social position of Pro-Gamers improved a lot, letting them recognized through a similar way to sports marketing[22]. However, research on Pro-Gamers as human resource is rare. The in-depth analysis of Pro-Gamers and development of a model to manage them linking to learning theories should be conducted.

III. THEORETICAL FRAMEWORK

The two viewpoints in terms of education are pedagogy and andragogy. The term pedagogy was originally used to mean education or education methodology, and the recipients of education were limited to children or juveniles. With the definition of an activity(‘agogus’) to lead children(‘paid’), this term set the goal of education as transferring knowledge and skills[21]. In contrast, andragogy was widely used to mean skills

and science to help adults' learning [21].

[Table 2] Change of Pro-Gamer by Year (www.e-sports.or.kr)

Year	Professional			Semi-professional			
	Registration	Cancellation	Total	Registration	Cancellation	Recipient	Total
2001	131	-	131	49	-	-	49
2002	63	-	194	66	-	-	115
2003	36	58	172	94	101	-	108
2004	73	26	219	95	-	87	116
2005 The First Half	32	11	240	13	-	-	129
2005 The Second Half	21	24	237	1	-	-	130
2006 The First Half	61	18	280	118	-	7	248
2006 TheSecondHalf	53	22	311	52	2	21	300
2007 TheFirstHalf	70	10	371	113	21	-	392

'andragogy' is an English expression of German 'andragogik', which 'aner', meaning an adult man in Greek, and a leading activity ('agogus') are combined. In other words, it means to lead adults in terms of the origin, but it is defined as skills and technology to help adults' learning in terms of education[21]. The concept of andragogy was applied by educators to understand research on in-field experiences, being contrasted with pedagogy, since it was introduced to educational academic societies in America. The book 'The modern practice of adult education' by Knowles dealt with the fundamental comparison of pedagogy and andragogy from a viewpoint of educational philosophy. From the perspective of pedagogy, learners are dependent and finish the regular

course by external pressure. Curriculum for acquiring knowledge useful for their life rather than previous experiences is thought to be established and completed. On the other hand, education is expected to occur when self-directed learners have desire to know and try to find out what they want to know from the perspective of andragogy. The role of education is regarded to help the learners demonstrate their potentials to the utmost, which means education for adult learners should be different from the existing education, pedagogy[21].

However, Han(2007) didn't agree to that andragogy is only for adult learners. According to him, the term 'Aner' was first used by ancient Greeks to explain the education for adults, but it was for general

'Man', not only for adults in the sense of age or biology. Therefore, andragogy is for lifelong education rather than education only for adults(Han, 2007). This study is also based on the premise that andragogy is applicable to lifelong education since the social age is more important than the biological age in the vocational education for Pro-Gamers. Both of the two perspectives of pedagogy and andragogy are also dealt with in a neutral way in this study. The educational stage of Pro-Gamer is used as a theoretical framework by comparing pedagogy and andragogy[26].

IV. METHODOLOGY

4.1 Grounded Theory Methodology

The research method applied in this study is Grounded Theory. Grounded theory is a methodology developed by Glaser and Strauss in the mid-1960s while the two worked together on an extended qualitative research project on palliative care in hospitals[9,10,11, 12]. Grounded Theory is to examine the daily life of groups of people by investigating executive abilities, behaviors, conviction, and attitude of individuals or groups of individuals[25]. The methodology of Grounded theory involves building theory from data by way of a specific set of methods. In other words, it aims to theoretically explain phenomenon by providing models rather than describe in a specific way. The starting point of the Grounded Theory is not the starting point of research. It explains the models, linking them to theories[26].

The research based on Grounded Theory

can face criticism if the research result can be generalized to other majority of groups. Glaser & Strauss(1967) mentions that the validity of qualitative research should be evaluated by analytic validity, not statistical validity. In other words, the result of analysis can be generalized in logically available extent rather than randomly being generalized.

This study was conducted based on a procedural method of Grounded Theory. The concept of data was named by open coding in the analysis stage, and the classified data was transformed to tree code by axial coding. The causation among the concept was classified by casual coding, drawing out basic social process. The result from this study has logical validity in the specific group of Pro-Gamers, but hasty generalization should be avoided. It is important to get logic validity through theoretical sampling.

4.2 Subject and Data Collecting

The first subjects for this study were 9 current Pro-Gamers at the time of August in 2009, who belonged to different teams each. Out of 4 teams, 2 players were selected from 3 teams each, and 3 players from 1 team. 4 players among them were in the first string, and the other 5 were trainees. After the data from the first subject was analyzed and the concept was theorized, there was a verification procedure for the second subject to verify the model. The second subjects were 1 current coach, 1 former coach, and 1 Pro-Gamer consultant, who are not related to the first subject at all.

The first data for research was in-depth interviews, and the structured interviews and

casual interviews were both used. The questions were made in advance using articles about Pro-Gamers and previous interviews for structured interviews. The conversation with Pro-Gamers during the break or lunch time was also used. After gathering the data, the concepts, patterns, and core categories were analyzed. The analysis result of the first and second data was used to verify the established model.

V. THE RESEARCH FINDINGS

5.1 Stage Shifting

The concepts acquired from data coding were ‘ranking’, ‘reputation’, ‘motivation’, ‘confidence’, ‘competition’, ‘cooperation’, ‘common skill’, and ‘specific strategy’. This coding result was stratified and rearranged, and ‘proficiency’, ‘emotion’, ‘interaction’, ‘curriculum’ were occupying the upper stage. These conditions, though, are different depending on the stage that players are in. [Table 3] below illustrates the stages and conditions.

[Table 3] the stages and conditions of professional gamers

	Conditions	Properties
S T A G E	Proficiency	Official Ranking
		Unofficial Reputation
	Emotion	Motivation
		Confidence
	Interaction	Competition
		Cooperation
	Education	Common Skill
		Individualized Strategy

There also were sub-categories of each stage. The players’ Stage was categorized to five phases: Enjoying, Struggling, Achieving, Slumping, and Recovering. Each stage had four phases of conditions. These were conditions of proficiency, emotion, interaction, and education. The proficiency conditions represented the winning rate, playing skill and reputation of the gamers. The emotional conditions included motivation and self-confidence. The interaction conditions explained the relationship with team-mates, coaches, and a team director. The educational conditions referred to what Pro-Gamers learned (curriculum) and how they learned it (instruction). The analyzed result showed that when the stage of the players shifts, the changed stage also brings a chain reaction to the conditions of the players. Although each stage has its own conditions, the stages are categorized by two main characteristics according to the similarities of the conditions; one is a Communicative Stage and the other is a Practicing Stage.

5.2 The concept of Stage Shifting

The one variable that recurred constantly in this research was the different conditions related to the players’ stage. Not only do team directors always talk about the different expectations of the players according to their stage, but also the players recognize their roles and the rules based on the stages. The stages do not exist as a visible figure, but almost all members related to the Pro-Gamer society recognize it implicitly or explicitly.

On the other hand, directors are focusing on training new player groups to improve their

levels. The stages at which players are located are very important for the players, because those stages are a criterion for determining whether players have a chance to participate in an official match or not. For Pro-Gamers, having an official match is a gateway to success in life. Players and coaches and team directors all are concerned about at what stage players are located and how to improve their levels(Stage shifting). According to the properties of each stage, the stages are categorized as five: Stage of Enjoying, Struggling, Achieving, Slumping, and Recovering. In each stage, there are unique conditions of proficiency, emotion, interaction, and education. Within these conditions, there is a catalytic property for stage shifting or stage maintaining. Before we can understand stage shifting, we need to understand what conditions and properties each stage has.

Some properties were recurring continually as the stages shift. Each stage has four different properties. The four properties are proficiency conditions and emotional conditions, interactional conditions and educational conditions. As mentioned above, proficiency conditions refer to the condition of the ranking within the team of the players, the playing skills, and the reputation of the coach and the team director. Emotional conditions include the changed status of motivation and self-confidence. Interaction conditions include how the Pro-Gamer interacts with their team-mates, coaches, and director. Educational conditions refer to what the players are supposed to learn and in what way they learn to play.

These four conditions recurred constantly within whichever stage the player is located in, and influence the stage shifting of the players. These conditions are inter-related to each other intimately within each stage. For instance, changed proficiency conditions also bring stage shifting and cause shifting of interaction conditions and educational conditions. In other words, because a changed condition brings stage shifting, and stage shifting causes other conditions to change, a shift in one of the properties can bring about change in how the Pro-Gamer relates to their team-mates, coaches, and directors as well as regulating what the players are supposed to learn and in what way they learn to play.

The stage shifting is usually brought about from a changed proficiency condition including the ranking within the team of the players, the play style and the recognition of the coach and the team director. However, the proficiency condition is not enough for stage shifting. Even though the proficiency condition is the most important property of a stage, other conditions also could be catalysts and starting points for stage shifting. Each stage has different catalytic properties for stage shifting. For example, at the stage of Enjoying, motivation could be a leading element for stage shift, while at the stage of Struggling, the curriculum they learn could be a catalytic property for stage shifting. Interestingly, because each stage has different properties, it has a different start point of change of conditions for stage shift.

During the 'Enjoying' stage, players who are involved in an armature 'guild' decide to be a professional gamer. To do that, they

need the acknowledgement of a guild member and a dominant player and self-confidence as well as strong motivation to be a Pro-Gamer, which means a new life path for their career. The catalytic properties for stage shifting in this stage are motivation as well as proficiency.

After being a professional team-member, players enter into the stage of 'Struggling' in which they are no longer eminent players within a professional team. In a Pro-League team match, each team needs to win 3 matches with the other team's players one by one. Each team makes a delegation of players which includes only 5 players for a match, so being involved in the delegation is very competitive within the team. During stage shifting from the 'Enjoying' stage to the 'Struggling' stage, there is also the shifting of external, internal and learning conditions. They need to win the inner-team competition and to re-build their basic skill according to the style of the coaches. The catalytic properties for stage shifting in this stage are curriculum players are supposed to learn as well as have proficiency.

As time goes by and they many experiences from learning in the pro-team, some players can do stage shifting to 'Achieving'. At this stage, the player is usually involved in the 5 player delegation, but their role is different from what it was during the 'Struggling' stage. Because they are already acknowledged by their team members, their goal is not being acknowledged, but beating the other team's players and achieving their dreams again. Here stage shifting or maintaining depends on self-confidence.

However, players sometimes fail to win the game continually. At this stage, some players lose their self-confidence. In that case, the play is not same as in the stage of Achieving. Losing self-confidence prohibits a player from playing with an integrated strategy and results in them narrowing down their strategy. Sooner or later, they come to the stage of Slumping. The most catalytic property here is self-confidence. To overcome the stage of Slumping, the team directors and the coaches are eager to give gamers self-confidence. When the director has continuing trust in the players, they gradually overcome the stage of Slumping. Even though some cannot jump over the stage of Slumping, many recover their ability in the team. Not like in the stage of Achieving, but players win the game again, and gain self-confidence again. This stage is called Recovering.

VI. CONCLUSION

This study results in the stage theory of Pro-Gamers. It is argued that when the stage of the players shifts, it also brings changes in the proficiency properties, emotional properties, interactional properties and educational properties related to each stage. The stages are categorized as five levels: Enjoying, Struggling, Achieving, Slumping, and Recovering. Although each stage has its own properties, the stages are grouped according to two main properties, one is a Communicative Stage and the other is a Practicing Stage.

The stages named Communicative Stage and Practicing Stage separate the players'

recognition, methods for developing the potentials, interactions with their colleagues, learning motivation, and content education. Appropriate education methods are decided depending on the situation that players are in. Unstructured curriculum is helpful to Players at Communicative Stage, having them bring out their internal motivation. The relationships between players and directors are horizontal, not vertical. In Communicative Stage, the interactions among colleagues also are made by cooperation and sharing information rather than competition, and strategic skills appropriate for individuals' experiences and abilities are developed rather than regular curriculum. In contrast, it is important to acquire new skills of regular amount in Behavioral Stage, having them bring out their external motivation such as following the directors and coaches. There exist intense competition among colleagues and players take training courses to show their abilities. The management of Pro-Gamers as a professional group needs three things. First, the procedure for analysis of the players' situation is necessary. Second, the management should be differentiated depending on the analyzed stage. Third, each player needs their own curriculum because each stage has a catalyst for change.

The result suggests that in a Pro-Gamer society, there are phenomena that are worthwhile to study as a conceptual lens. Assuming that a professional gamer is an expert in their field, the stage shifting theory can broaden the area using theoretical sampling. Suggestions for management of professional groups as human resource are also revealed. The two theoretical concepts

mentioned above can be reinterpreted using Andragogy and Pedagogy. The procedures that Pro-Gamers follow according to their stages can be explained with the concept of learners, the role of learner's experiences, preparation for learning, and orientation to learning. In other words, Pro-Gamers develop themselves for their desire for learning and achievement at the stage of Enjoying, Achieving, and Recovering. They chase learning for their own satisfaction rather than being monitored by someone else, which is similar to the philosophy of Andragogy. On the other hand, at the stage of Struggling and Slumping, the management style for players is on the same track with the philosophy of Pedagogy.

The result from this study provides suggestions for vocational education and human resource management of professional groups. First, human resource of a society goes through social stages. Since each stage has different depending on each group's properties, managers for human resource need to construct the social stages for the group members. Second, the proper condition for each stage should be determined. Third, the best theory for the conditions of each stage can be applied. The appropriate philosophy and direction of education needs to be separately provided as the professional group members require differentiated educational theories. Fourth, proper catalytic elements need to be provided when the change of stages for group members are required. In short, the Stage Shifting Theory can be applied as a systematic model for human resource management only when the stages are classified, appropriate management styles are

understood, and detailed catalysts for change are provided.

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