

A Stage Theory Model of Professional Video Game Players in South Korea: The Socio-Cultural Dimensions of the Development of Expertise

Sahoon H. Kim and Michael K. Thomas
College of Education, Hankuk University of Foreign Studies, Seoul, Korea

Abstract: This study focuses on illuminating the trajectory of professional game players and constructs a practical model that may explain the interactions of professional gamers via activity theory. Further, it may help to explain the relationship between professional gamers and the emerging global phenomenon of esports. Using activity theory, we analyzed interviews with professional gamers, team directors and psychological counselors of professional game players. Regarding the progress of the professional gamers, the activity system differs from stage to stage and we illuminated five stages. Although, each stage has its own activity system components, the stages are categorized by two main characteristics according to the similarities of the conditions. Based on these findings, this study offers an initial explanation of professional gamers' learning, motivation, interaction as well as their development trajectory.

Key words: Professional game player, esports, interactions in game playing, activity theory, learning in game

INTRODUCTION

Context of the study: Game studies currently do not merely seek to understand what is happening “within a game itself” but also attempt to understand the “game culture” that arises from it (Ang *et al.*, 2010). The academic study of videogames, gaming and games in society has stimulated a number of social issues. One of the most intriguing social phenomena is a game culture which has developed alongside broadcast media. People are no longer satisfied with just playing games but are also creating new ways to enjoy them. These new means for enjoyment include “watching” and “supporting” professional game players and teams.

The emergence of the game broadcasting industry and the active participation of commercial companies have resulted in a cultural transition from playing games to watching games, thus, transforming games into esports which include professional game players, teams, companies, the media, broadcasters, an audience and fandom (Coppa, 2006; Fiske, 1992). The term sports (electronic sports) does not only refer to competitive videogame play. It also indicates a complex relationship between stakeholders including professional gamers, sponsors, fans and esports society. As the professional game society has developed into an esports industry, various parties have become stakeholders. In some countries including South Korea and China, the government supports esports as a new cultural trend

(Jeong, 2009). In 2009, the Korean olympic committee approved the e-Sports association as a formal organization in South Korea. Esports have had a tremendous effect on job creation and expansion of employment. It is reported that the expected market for e-Sports in South Korea is now over US \$0.26 billion, accounting for 56% of the entire Asia pacific market share (Jin and Chee, 2008). In China in 2003, esports were approved by the government and accepted as “official sports”. Throughout the world, there are dozens of esports competitions such as the annual World Cyber Games competition (Jeong, 2009).

Relevant scholarship: Considering this context, we are entering a new era of esports which requires us to study this as a new cultural phenomenon. As the field of games studies matures and becomes a unique academic field, it requires tools for conducting theory-driven analyses of such phenomena. Regarding esports, some research has attempted to illuminate the phenomena-related gaming. For example, Ito asserted that a young person might be able to link personal interest to academic achievement, career success or civic engagement with the support of peer. Rambusch have also applied activity theory to gaming as well as to esports. Kow also explained connected learning in the game community and Witkowski (2012) explored the definition of computer games while comparing it with esports. It is time for us to construct an initial model in terms of cultural

phenomena with a conceptual lens. There is a need for a comprehensive framework which supports a conceptual lens to analyze professional game players and how they develop their professional expertise.

Research design: In this study, we report on a study of the trajectory of professional gamers, drawing from activity theory (Engestrom, 1993, 1999) that provides a model for an analysis of professional esports players' changing goals, motivations and learning style as well as the relationship between professional gamers and esports society.

Specifically, the goals of this study were: to construct a theoretical model for explaining the trajectory of professional gamers based on activity theory and to understand, through activity theory, how their goals, motivation, learning style and interactions change over time.

Theoretical background

Esports and professional game players: The South Korean esports association defines esports as “every leisure activity using both mental and physical abilities in a virtual electronic environment set up as the real world” (www.e-sports.or.kr). It includes participation in competitions and watching broadcast games on television and on the internet. The term may also be used as a means for collectively naming cyber cultural phenomena such as online community activities and affinity groups (Gee, 2003). According to this definition, esports are now regarded not just as games but as worldwide sociocultural phenomena (Fig. 1).

To explain the socio-cultural phenomena of gaming, Kline suggested a relatively large theoretical framework which incorporates cultural perspectives into the designer/player dichotomy. They asserted that the gaming experience is the result of three circuits of interactivity which include marketing, technology and culture (Fig. 2). Of these three circuits, the culture circuit explain show players have influenced game culture.

Among game players, professional players have a significant role in esports (Kim and Park, 2010). The term “professional game player” or “progamer” appeared in the late 1990s right after the birth of “StarCraft” game competitions in South Korea. This was a new and “legitimate” kind of job by which one could gain fame and material wealth by winning videogame competitions or belonging to videogame leagues. Indeed, many professional game players are not just individual players but are associated with professional teams, television contracts, sponsorships and tournament prizes. Gaming competitions which are broadcast live and rebroadcast



Fig. 1: People gathered for watching a StarCraft professional game league in South Korea. In 2005, 120,000 fans watched finals of a StarCraft professional competition live

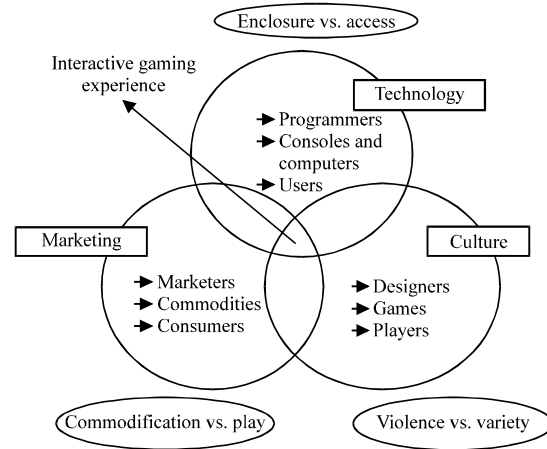


Fig. 2: Three circuits of interactivity

over three television channels in South Korea are dedicated to professional gaming, attracting audiences of >1 million viewers every night.

Beginning in approximately 2002, professional game players started to be organized into teams sponsored by large companies in South Korea. Professional game playing is becoming one of the most desired jobs among students and the number of professional players is growing rapidly. A number of large commercial companies such as Samsung and Korea Telecommunication (KT) operate professional game teams of their own, increasing their investment in esports.

The social position of game players has considerably improved. Frequent game players, once regarded as problematic game addicts have even become cultural leaders in society. Enjoying fame comparable to that of star athletes, the progamer is thought of as a member of a professional group with lucrative corporate sponsorships.

It is fair to say that professional game players have become professionals doing what they really like. What is not so obvious are the processes through which their hobbies morph into professional careers over time and how this development is implicated in the context of professional game society. Hsieh and Sun mention that professional gamers frequently practice 10 h/day to develop and hone high-level tactics and tricks both of which merit careful study.

Prior research has variously broadened our understanding of game players. Taylor laid out a trajectory of professionalization which draws on social processes by interviewing professional gamers. Using qualitative research methods, Witkowski (2012) described how players are engaged physically in practice and how play is thought of and described by the players themselves. Reeves *et al.* (2009) also attempted to illuminate cultural aspects of professional gamers by focusing on the game Counter-Strike. However, just as professional gaming is a new phenomenon, research on professional gamers is even more nascent. For instance, we still do not know what microphenomena professional gamers experience during the trajectory of their professional development or do we know about peer relations that may exist between team sports such as baseball and individual games such as chess. More detailed study is required to develop a robust understanding of what processes are taking place within and across professional game players' culture and learning. It is important to understand not only their culture but also how this relates to learning and the development of expertise in the broad field of professional video game play.

In South Korea particularly, many students dream of becoming professional gamers and devote a tremendous amount of their time to playing videogames in PC cafes. They enjoy gaming together with other amateur guild or clan members in the same physical place, sharing information and feeling involved in their society. Some of them choose to be professional gamers and take their lives in a new direction. Although, there is no age limit for becoming a pro-gamer, many start their careers when they are high school students between the ages of 16 and 20. They choose to give up concentrating on public education and instead learn from the informal curriculum of professional gaming and from their interactions with teammates, coaches and directors of professional esports teams. By engaging in such curricular activities, they are able to achieve expertise in the society of professional gamers. It is important that we

better understand how their path from novice to professional unfolds over time and that we explore the trajectories of development of esports professionals so that we can better understand the nature of expertise development more comprehensively. This may also help us to develop 21 century skill curricula and to understand what characteristics and complex skill sets these players possess and how they came to nurture their development over time. We also need to construct a comprehension of what stages they may go through and how they adapt themselves in the new cultural context of a professional gaming society.

Based on activity theory, this study focused on illuminating the trajectory of development of professional game players so as to construct a practical model that could explicate their motivations, interests and learning style as well as the relationship between professional gamers and the phenomenon of esports culture and society. This study explored how players motivate themselves for the types of learning they must achieve in order to be competitive. The study also explored how players form learning organizations and structure curricula and how informal education works in the practice and interactions of members of StarCraft pro-gamer teams.

Activity theory and professional game players: This study sought to describe a trajectory or to explain how these remarkable professionals developed over time. Therefore, we used a stage theory that could illuminate a trajectory of development. Further, we made use of the notions of communities of practice (Lave and Wenger, 1991; Wenger, 1998). Such ecological perspectives may help us to understand the role of context of learning and how people are initiated into cultures of learning. In this case, the learning was focused on how one becomes a professional videogame player. This accords with activity theory developed by Leont'ev (1989) and further elaborated by Engestrom (1993, 1999).

In our analysis, we employed activity theory (Engestrom, 1993, 1999; Leont'ev, 1989; Vygotsky, 1978) to provide a theoretical framework to illuminate various components of professional game players' activities. Engestrom insisted that various socio-cultural variables affecting human activities can be investigated and understood by analyzing their interactions and relationships. Activity theory presents a triangular model of an activity system that consists of seven elements: subject, object, outcomes, tools, community, division of labor and rules (Engestrom, 1993). The subject is the individual analyzed in the theory while the object is the

raw material or the space which is transformed into outcomes. Tools mediate the subject's interactions with an object. The division of labor is the classification of tasks and the rules are the regulations, norms and conventions. The community is composed of the people who share the same general object with the subject. In an activity system, contradictory relationships between components are fundamental for development (Engestrom, 1999). When the elements of an activity system conflict with other activity systems, it creates a contradiction with the old activity system. The collision of the old activity system with the new activity system acts as a catalyst for development through the widening horizon of possibilities (Engestrom, 1999).

Activity theory may provide an insightful conceptual lens for analyzing game players in the socio-cultural context (Ang *et al.*, 2010). However, it has not been used to study professional game player. In this study, we introduce how activity theory may be used to scrutinize non-professional game players. Many studies have shown that even though, the play activity is mediated by the computer game software (the tool), the motivation for the game play is to have fun, resulting in the enjoyment of the player (Fig. 3). In game play, the object is to have fun and this object triggers the motive which is to win the match in the game. The outcome of the game play is enjoyment (Ang *et al.*, 2010).

In this study, we intended to build upon the research by Ang *et al.* (2010) by exploring how the application of activity theory might yield similar or contrasting results when applied to professional game players. The main aim of this study was to develop a model which explains professional players' development trajectory from a socio-cultural perspective. There are different goals, motivations, rules and divisions of roles between usual game players and professional game players. While, the object of game playing for the non-professional player is to have fun to feel individual satisfaction or to play with a small group of friends, after players transition into the professional realm their

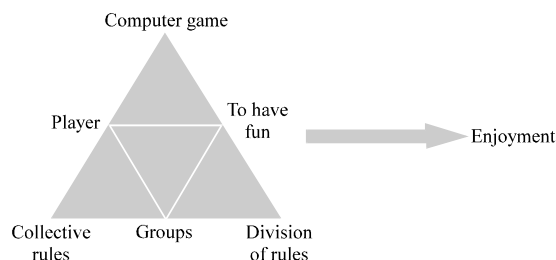


Fig. 3: The game play activity in general (Ang *et al.*, 2010)

motivation is no longer simply having fun. In the context of professional team play, they meet game players who have similar or much more advanced skills. They need to compete with their teammates in order to be chosen as delegates representing their own team. These dynamic circumstances surrounding professional gamers change their goals and playing and learning styles compared to those of non-professional gamers whose playing occurs within the predefined boundaries of the game structure. Thus, elements of the new activity system manifest themselves in a manner contradictory to those of the old activity system. Professional game players adapt to the new circumstances around them within the new socio-cultural environments to which they belong. Through analyzing these activity system components, we may enrich our understanding of how professional game players organize their learning, motivation and careers and how this informs the emergence of a new cultural phenomenon in our society.

MATERIALS AND METHODS

To identify what factors influence professional game players, we analyzed interviews with professional gamers, team directors and a psychological counselor of professional game players in South Korea. The analysis procedures included two phases of interview analysis. The first phase was to analyze interviews with nine professional gamers. The second was to modify the interview protocol for the collection of data from two professional StarCraft team coaches and one psychological counselor of professional StarCraft players (Table 1).

Table 1 includes selected demographic information about the players. We decided to use aliases for the interviewees. Experiences of year, ranking and stage were recorded at the time of interview. For the stage categorized above, we tagged the players after analyzing data. Thus, when we first analyzed the data, the stage concepts were not applied.

To induce emergent conceptual categories from the raw data, we used techniques from grounded theory methodology (Glaser and Strauss, 1967). These techniques included open coding, selective coding, memoing and constant comparison. Then the concepts, patterns and core categories which influence professional gamers' activities were integrated into themes. When we finished analyzing the raw data, we were able to identify the core influences that act upon professional gamers' activities (Table 2).

We then rearranged the elements we identified drawing on the structures and theoretical assumptions of

Table 1: Data information

Name	Gender	Years of experience	Ranking	Role	Stage
Byungjun	Male	2	-	Professional game player	Struggling
Taesoo	Male	3	1	Professional game player	Achieving
Chanho	Male	4	4	Professional game player	Achieving
Jaeyong	Male	4	3	Professional game player	Achieving
Yoonjae	Male	5	16	Professional game player	Slumping
Jihoon	Male	7	23	Professional game player	Slumping
Yoonsung	Male	6	-	Professional game player	Recovering
Yongjun	Male	8	-	Professional game player	Recovering
Byunghoon	Male	7	14	Professional game player	Recovering
Gwanwoo	Male	7	-	Director	-
Kyungsoon	Male	3	-	Coach	-
Minjoon	Male	3	-	Coach	-
Yosik	Male	1	-	Psychological counselor	-

Table 2: Core categories from raw data

Themes	Elements
Level of gamers	The first string (being a delegate) Winning rate
Motivation	Self-motivation Extrinsic motivation
Interaction	Competition Collaboration
Learning	Common professional skill Creative strategy

activity theory. Using this lens enabled us to construct a model of professional gamers. Subsequently, we analyzed how the model explicates related phenomena based on the theoretical framework. The analysis of the first and second rounds of data was used to again verify the established model.

RESULTS AND DISCUSSION

Stage theory model of professional game player: In comparing elements of professional game players, we found that there are contradictions in the activity system that accord with the player’s activity stage. We found that their “progress” has stages during which the activity system varies from previous stages. In the progress of professional gamers, we found there are five stages. Each stage has its own activity components. According to the properties of each stage, the stages are categorized as follows: enjoying, struggling, achieving, slumping and recovering (Fig. 4).

After further data analysis, we realized that there exists a “professional ladder” and gamers, coaches and team directors recognized this ladder implicitly or explicitly. An explicitly visible ladder exists in the form of players being registered with the Korea e-Sports Association (KeSPA). Commercial professional teams draft players based on their performance in these competitions, thereby making them professional game players. This marks an explicit beginning of a professional video game player’s career. Other ladders are less explicit

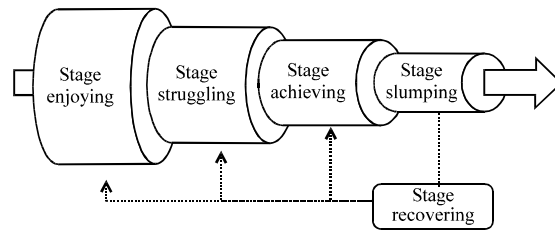


Fig. 4: Stage theory model of professional game players

but exist based on contextually discernible criteria in the community of game player practice. While constantly comparing data related to the professional ladder with our proceeding analysis using the lens of activity theory, we found that the stages of development are clearly related to the professional ladder of player development. For example, being a delegation member on a professional team means that the player must reliably display competitive tactics and advanced skills to the team coach and teammates. Additionally, winning a championship competition in an individual match also could cause the player to become an “achieving” player on the team. The dialogue below shows how a team director recognizes players’ stages of development and how the educational curriculum differs for the different stages of professional game player development:

I think that training the basic skills is the most important factor they can improve upon at their stage. I can figure out whether or not the player has concrete basic skills by analyzing the gameplay within the same (StarCraft) tribe... Some improve very quickly. In Taesoo’s case, although, he only recently joined our team, he has improved his tactics so quickly and has almost reached Chanho a level (a first string member of the team). Taesoo has begun to make an enemy-specific strategy with coaches. If I give him the chance to have an official match, I am pretty sure he will bring a winning rate to our team (Participant #10, Interview data #5)

During the first stage of the model, the enjoying stage, game players are not official professional game players. However, most of them have more competency than game players who meet randomly in cyberspace through sites such as Battle.net. They are involved in amateur “guilds” or “clans” through which they share information on how to play the game. Although, being a member of an amateur guild means they need to display consistently high levels of competency in game playing, this does not mean guild members are in a competitive environment. Rather, through guild life, players enjoy game playing and obtain acknowledgement from fellow guild members which leads them to attempt to become professional gamers. Becoming a professional game player conjures a new life and career trajectory that harmonizes and provides additional status to their serious hobby. During the enjoying stage, the activity system of the player is the same as that of general game users.

Some players may become professional team members by passing an examination. Once they pass such an examination, they enter the struggling stage, transitioning from eminent players to members of a professional team. Players’ game skills no longer guarantee their success, requiring that they learn new game skills from senior mentors. At this stage, it is more important for the learner to acquire general basic skills than an individually specialized strategy. Moreover, they must compete with their teammates and receive acknowledgment from others in order to be afforded the opportunity to participate in an official match. In a professional team match, each team forms a delegation of only five players. Players must struggle to be chosen to be a member of the elite delegation, creating a highly competitive environment which detracts from their enjoyment of game playing. Players must win the intra-team competition and rebuild their basic skills according to coaches’ styles. In this new culture, the new activity system components of new professional game players contradict their old components. “Stage shifting” occurs and game players progress from the enjoying stage to the struggling stage. When they were amateurs, the gamers’ object was to have fun. However, they now need to outplay their teammates in order to be selected as members of an elite delegation within their team. They further need to learn more specific skills to apply to their game play and are supposed to be taught systemically by other professional senior members. Community members are no longer cooperative friends but competitors.

StarCraft competition is usually based on one-to-one matches. Even though these are team matches, this does not mean that several players play games together in a single game. Each player competes with other players who represent their team. For example, to defeat other teams in

professional league matches in one of the most famous StarCraft championships, four individual team delegates must defeat four individual delegates of another team in a seven-game series. Thus, even though there are StarCraft team leagues, individual skill is extremely important. Unlike StarCraft, Counter-Strike, one of the most popular First-Person Shooters (FPSs) in the world (Reeves *et al.*, 2009) has game league matches that are usually based on team matches. In Counter-Strike matches, there could be two to ten team representatives playing a single game. For Counter-Strike players, even though they reach the struggling stage in their professional development, they tend to cooperate with one another and adjust their tactics based on the play of teammates. In this way, the behavior of the team could act as a collective instructor for the individual player.

However, in the StarCraft league because it is based on individual skill, interactions among players are more closed. There is greater emphasis on individual skill development and cooperation in the struggling stage has more of a mentoring character. More advanced players tutor less advanced players in very small groups. The following dialogue shows how players in the struggling stage suffer as they try to gain recognition from teammates and coaches. More attention from coaches would provide them not only with opportunities to play in matches as team delegates but also give them highly valued expert advice on their play. These players in the struggling stage often must “sit on the bench” while other players join matches, receive accolades from fans and even have the opportunity to appear on television:

It is very hard to be chosen to be a delegate. I’ve been a member of my team quite a long time but still I have not had a chance to be selected as a team delegate... I am really struggling with my teammates... I am afraid of being forgotten by my coach. My friends (who we might guess are in the achieving stage) have a lot of opportunity to interact with the coaches. I am really jealous of them... No one acknowledges me as a good player on my team... There’s nothing I can do but practice. I need to show them how much I have improved (Participant #1, Interview data #1)

Over time, they have many learning experiences while participating in professional team activity. Some players manage to move from the shifting to achieving stage. The achieving stage begins with naming a delegate of their team, wherein they are featured on national Television (TV) programs and become celebrities. Because the players are already members of the five-player elite

delegation, their role is not just to be acknowledged by their teammates but to lead their less elite teammates.

Here, we see the importance of mentoring in the struggling stage as well as gratitude to team members who contribute to individual skill development:

Thanks to my director, coaches and teammates, I could finally start to win some games. Especially, I give my special thanks to Dongho. Even though, he had no matches during the championship, he has been my sparring partner. Because he really has a similar playing style with those of Jaehyun (an advanced opponent on another team), I could learn how to defeat him... My goal is not just being famous individually. I am dreaming of how to make my team the best. Thinking like this makes me feel I am doing something worthwhile... I feel like playing videogames is my calling in life (Participant #3, Interview data #2)

At this stage, because the goal is to routinely defeat the other teams, playing the game no longer feels like practice but becomes imbued with a sense of “reality” for the professional player. They have more conversations with team coaches to generate specific strategies for achieving victory over other teams’ players. Within the team, players are leading their group and recognize their teammates as cooperators. Because teammates trust the player whose is in the achieving stage, they play the game without experiencing much stress or anxiety. During this stage, players again enjoy playing the game for itself as they had before they become professionals. All these activity system components trigger their motivation to play the game in this stage:

I leave the first string players to their own devices. They don’t have to be under my control. By leaving them alone and letting them just enjoy the game, they can make more creative strategies. One thing I worry about in leaving them alone like this is that the second string players start to think that they can be left alone like the first string players. They (the second string players) need to practice with more direction until they can show that their abilities are really like first string players (Participant #11, Interview data #6)

However, players usually cannot maintain the achieving stage. Many of them fail to win the game continually. Because their skills and strategies were exposed to others through TV shows, their playing style cannot always keep them at the achieving stage. Other players are continually working to dethrone them. This

triggers the onset of another stage during which players lose self-confidence. This prohibits a player from playing with an integrated strategy and results in the player narrowing down strategies. Sooner or later, they come to the slumping stage. Because they no longer have opportunities to play in official games, they struggle to recapture the glory and satisfaction they experienced during the achieving stage. They not only need to learn new skills but also must compete with teammates to be named elite delegates again. The activity system components are now similar to those experiencing the struggling stage. As this process triggers their motivation to focus on winning the game itself, they again find that they are not enjoying their gameplay. One professional player said of a teammate experiencing the slumping stage mentioned:

Even though, Yongjun is a big star player on my team, we cannot guarantee that he might have a match in the coming championship. Everybody knows how he plays. His tactics for controlling units is still great but his playing style is getting to be out of style. He needs to practice more on general basic skills which is something that has become trendy so that he might have a match in the coming championship. Everybody knows how he plays. His tactics for controlling units is still great. He will overcome his slump and regain his honor (Participant #9, Interview data #3)

Through this process, some recover their competency as professional game players. However, many cannot avoid the slumping stage. When this happens, they may try to change their career from that of professional game player to professional game team coach, commentator of broadcasts or other game-related careers. Although, they are no longer professional game players, they start a new enjoyable career using their experience as professional game player.

Intrinsic and extrinsic stages of the activity model: In the previous study, we explained the stage theory model and the trajectory of professional game players according to the aforementioned stages. Through analyzing core components of each stage, we found that although each stage has its own activity system components, the stages are categorized by two main characteristics according to the similarities of the conditions: the “intrinsic” and “extrinsic” stages. The former includes the stages of enjoying and achieving and the latter includes the stages of struggling and slumping (Fig. 5).

In the Intrinsic Stage Activity Model (ISAM), the whole process is focused on the player achieving internal

enjoyment. The object is related to the internal motivation that is experienced by for example, non-professional game players. In this model, the learning strategy has individual characteristics and a less structured curricula. The relationship between players is more cooperative and communicative. Table 3 shows the exemplary components at the stage achieving and reveals similarities with those of gamers who play as a hobby. Accordingly, we constructed the model which shows the ISAM (Fig. 6).

In contrast, through the trajectory of professional game playing, players engage the Extrinsic Stage Activity Model (ESAM). It is important for players to acquire new skills regularly which summons extrinsic motivation. Below are the exemplary goals at the

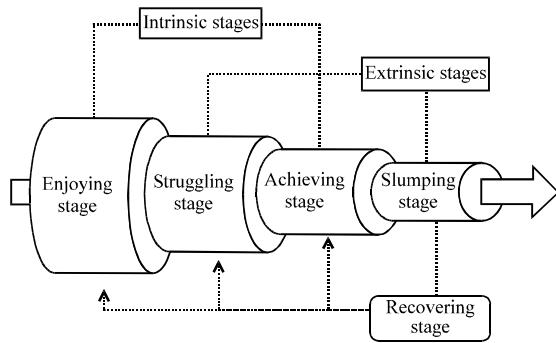


Fig. 5: Intrinsic stage and extrinsic stage of stage theory model

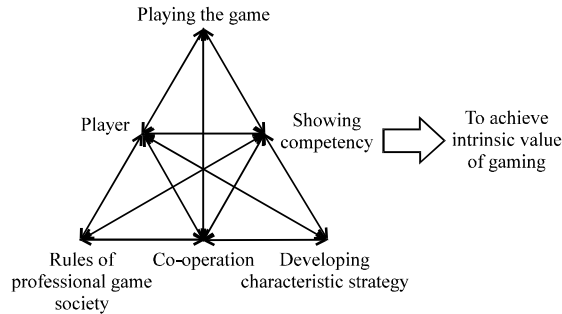


Fig. 6: The ISAM of a professional game player

Table 3: Components and data for ISAM Model

Components	Statement from data
Goal	The best part is that I take pleasure in playing the game I care more about making it a great game than achieving a high winning rate It's important to have my own style. I want to make a memorable play Winning itself is fun Winning the first prize isn't always important. To me, good luck means that I am able to show my talent and competency as much as I can
Interaction	I want to share my skills and strategies with my team My teammates are like family to me
Training	After the play is stabilized to some extent, you have to develop your own strategy

struggling and slumping stages. We found that the components of these stages have commonalities with slight differentiations with the enjoying and achieving stages (Table 4).

In the ESAM Model, there exists simultaneous intense competition and the constant seeking of training and guidance among teammates. These extrinsic values trigger the motivation of players to overcome their shortcomings and develop their competency to a very high level of expertise (Fig. 7).

Of course, we agree that it is difficult to make exact categorizations of all trajectories into these two theoretical

Table 4: Components and data for ESAM Model

Components	Stage	Statement from data		
Goal	Struggling	I had to train in basic skills I can be selected I have to win recognition Most of all, it's important to survive in this field Joining the pro team was of a great help. I wanted to become proficient and gain recognition I'm not sure if this is the career I should pursue. I often regret it but I want to do my best once I have started it If I do well, I could gain recognition and become a star		
		Slumping	I lost confidence and felt like it was back to square one. It has to be overcome. I have to retrain the basics. That's the only way The most difficult thing is the stress. I was once in the spotlight but have to practice the new trends in how players play My strategies are still useful but need changes in pattern. I have to master them I could be used in other positions. I could become a coach, a talent scout, etc. I am still useful	
		Interaction	Struggling	The fierce competition for survival was very different from playing games with my friends When I first joined the team, the competition was fierce. Strengthening basic skills is the way to survive
		Slumping	I didn't have the confidence to compete with the younger players and make it back to the first-string I felt that I disappointed the junior players who looked up to me It feels like I'm depriving the junior players of a career opportunity if I am lucky enough to be selected as a delegation team member When I lost in the elimination match, I was demoted to the second-string It's hard to recover and to stay ahead when there are constant challenges from outside	
Training	Struggling	In the training camp, playing was the only thing I did I received systematic training The training was run by organized groups		
	Slumping	Massive strategies don't work anymore. My colleagues now care about detailed control. I wanted to be newly trained with the basics and new skills for playing in the second-string Competition, coaches' interference... Many things weighed down on me It's like I'm back to when I first began playing pro games I chose a different path than overcoming the slump. It was a wise decision. Training junior players as a coach is a new path in my gaming career		

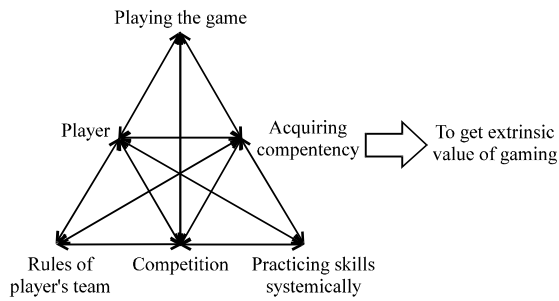


Fig. 7: The ESAM of a professional game player

stages. However, most interviewees experienced both ESAM and ISAM in their careers as professional gameplayers. When they entered into different stages, they experienced conflict brought from earlier stages. While negotiating the changing elements around them, they were able to develop their career. It was not important for them just to enjoy the game; it was essential for them to adapt to the changing circumstances with respect to their goals, motivation, rules and roles.

Interestingly, even though they had started playing for fun, they showed a positive reaction to the extrinsic values related to game playing. It is ironic that they felt more comfortable when they were in the extrinsic stage even though they encountered stressful circumstances. They thought getting acknowledgement from teammates and practicing general skill through competing with teammates was more “professional” than enjoying their game play.

The aim of this study was two fold. First, we attempted to construct a theory-driven model to illuminate the trajectory of professional game players. Second from a socio-cultural perspective, we attempted to elaborate their learning goals, motivation, learning style and interaction with others. Through this analysis, we explored how the general game player becomes involved in the professional game society and what trajectory they follow in its pursuit. While, they progress in their career, they are confronted with contradictions which require them to adjust to new circumstances. At the starting point, professional gamers need to solve tasks they never experienced before, causing them to lose their enjoyment for the game. As their competency becomes more developed, they begin to enjoy gaming again. This process requires them to organize their learning, interaction with others and roles according to their particular contextual parameters.

Using the suggested models, we explain the shifting stages of professional game player development in relation to environmental and cultural contexts. From the

ISAM and ESAM Models, professional game players’ activity can be changed by adjusting contextual elements. As the models incorporate learning style, interaction with others and the motivation of professional game players, we offer a tentative theory that elaborates the professional development of game players’ expertise.

We can adapt the models to other areas using theoretical sampling (Glaser and Strauss, 1967). Even though, the models were constructed from researching professional videogame-players, they may also provide insights into other cultural phenomena. For example, many social psychologists and educators claim that using games for education might be helpful for children because they may nurture intrinsic motivation for learning (Barab *et al.*, 2005; Steinkuehler and Williams, 2006; Thomas *et al.*, 2011; Zheng *et al.*, 2009). The stage theory model provides a more robust explanation for this. Because the components of the activity system adapt when they interact with other activity systems in using games as educational tools we need to know what processes occur and how they interact with other elements in a given context. We suggest that the stage theory model may provide an adaptable framework for other researchers in the field. The stages may be adapted by research methodologists as a coding scheme for research on stages of professional development in areas other than professional game play. This may also inform research on the development of expertise more generally and how learners transition from casual practice to intensive professional practice. More research is necessary to explore what specific genres or cultural elements may differ, nurture or impede the development of professional expertise given the stages theorized in this manuscript.

We believe that these models offer an interpretation of learning and interaction with professional players. However, because methodologically we constructed a tentative theoretical model using grounded theory, the models could not perfectly categorize every phenomena into the dichotomy. It is important for us to consider our findings in terms of how tools function in an activity system. If tools in a system change, so does the entire activity as all of the system components are interrelated and interactive. For example, StarCraft falls into the category of Real-Time Strategy (RTS) games which require very demanding and complex tactics for successful performance. Players need to gather resources, create units, construct buildings and control every unit in the large and small maps using their mouse and keyboard. Thus, audiences are more inclined to watch one-on-one matches than multiplayer matches because they become too complicated to watch. This means

that we should expect the gameplay and professional development trajectories to differ when the game genres or tools are changed.

Activity theory helps us to understand how entire systems change based on their system components. For example, the interpretation of “competitive interactions” might be differently interpreted in other contexts. Some of our colleagues actually mentioned that competitive relationships were different from what they knew via prior research or experience between Europe and North America. However, because we do not have data on European or North American professional players, we could not suggest that variations may be due to cultural or regional differences. Rather, we believe that this might be attributable to differentiations in the game playing types mentioned earlier. We analyzed a StarCraft player based on a one-on-one competition. In contrast to counter-strike, players of StarCraft should be selected as a delegation for the team and should play one-on-one matches with other delegation members of other teams. Based on this background, more specific and elaborate work is required.

Indeed, one implication of our model is that we need to carefully consider the contextual environments of systems (Barab and Squire, 2004). The environments of esports in South Korea including mass-media, association and commercial professional game teams have been in place for a long time and have become the most established gaming environments in the world. Professional game players in South Korea seek to win not only monetary rewards from championship play but also desire winning lucrative contracts with commercial companies. In South Korea, compared with the esports environments of other countries not only do commercial entities become involved with esports, the government is also involved. There is a South Korean Air Force team that plays StarCraft professionally for example and the government regulates organizations responsible for holding professional competitions. Thus, professional esports players in South Korea enjoy a status similar to that of traditional sports players in other countries. Also, in South Korea, clan or guild players are not considered to be professional players as they are in other countries. Such players in the South Korean context could be considered as continuing to be in the enjoying stage of professional development. As such, it is clear that the level of esports play in South Korea remains somewhat unique and it is better to understand this situation as a single complex intrinsic case study of professional esports game play in the world.

CONCLUSION

Although, game scholars have studied wide-ranging dimensions of game expertise, their focus has been on the

cognitive aspects of players (Sweller, 1988) or deliberate practice theory (Ericsson *et al.*, 1993) focusing on questions such as why experts demonstrate superior ability (Reeves *et al.*, 2009). However, for ascertaining interactional aspects of professional gamers as members of professional societal groups, a study requires the contextual elements offered by a socio-cultural perspective.

In this study, we presented a stage theory model of professional game players using activity theory as a lens for explaining players’ trajectories, goals, learning styles, interactions and motivation through the analysis of empirical data. From a socio-cultural perspective, we suggest that each stage be treated as an independent activity model through which professional game players experience and engage tasks and develop advanced skills. Additionally, by integrating those stages into two main categories according to activity system, we illuminate the relationship between the intrinsic activity system model and the extrinsic activity system model of professional game players. By analyzing these models, we also explain how players’ interactions, curricula, goals and motivation contextually develop and change over time.

As previously mentioned, game studies have expanded game players’ boundaries from game playing to cultural phenomena related to games. This study has meaning for explicating the process by which heavy gamers, once regarded as problematic persons are now developing serious careers in society. This research is important because currently (particularly in the US), the development of expertise among professional gamers has not been studied. In fact, in the US such a career is still considered frivolous, despite the fact that video gaming now dominates the entertainment industry and there are hundreds of millions of players worldwide. The field of education has unfortunately been slow to take up this important area of serious study and development. If we can predict the stages of development of professional esports players, we may be able to illuminate the stages themselves by identifying them and then working on what may help learners to advance to subsequent stages in their development. This is important if we are to understand how professionals learn, grow and progress and this is also useful if we seek to understand the nature of 21 century skills and how children learn to use technology in social contexts. Industry currently requires children to have problem-solving skills and to understand how to use technology in sophisticated ways. The game StarCraft itself is an exercise in creative problem solving in a social context. This study may also help instructional designers to understand how to scaffold the creation of learning environments for 21 century children.

We are entering a new era marked by the emergence of a new cultural phenomenon called esports. Thus, we need to develop more theory-driven approaches to

understand this new phenomenon. We hope this study focusing on professional game players will be a milestone for future studies focusing on cultures of professional development, the development of expertise and motivation for learning.

ACKNOWLEDGEMENT

This research was supported by the Hankuk University of Foreign Studies Research Fund of 2015.

REFERENCES

- Ang, C.S., P. Zaphiris and S. Wilson, 2010. Computer games and sociocultural play: An activity theoretical perspective. *Games and Culture*, 5: 354-380.
- Barab, S. and K. Squire, 2004. Design-based research: Putting a stake in the ground. *J. Learn. Sci.*, 13: 1-14.
- Barab, S., M. Thomas, T. Dodge, R. Carteaux and H. Tuzun, 2005. Making learning fun: Quest Atlantis, a game without guns. *Educ. Technol. Res. Dev.*, 53: 86-107.
- Coppa, F., 2006. A Brief History of Media Fandom. In: *Fan Fiction and Fan Communities in the Age of the Internet*. Hellekson, H. and K. Busse (Eds.). McFarland and Company, Jefferson, North Carolina, pp: 41-59.
- Engestrom, Y., 1993. Developmental Studies of Work as a Test Bench of Activity Theory: The Case of Primary Care Medical Practice. In: *Understanding Practice: Perspectives on Activity and Context*. Chaiklin, S. and J. Lave (Eds.). Cambridge University Press, Cambridge, England, pp: 64-103.
- Engestrom, Y., 1999. Activity Theory and Individual and Social Transformation. In: *Perspectives on Activity Theory*. Engestrom, Y., R. Miettinen and R. Punamaki (Eds.). Cambridge University Press, Cambridge, London, pp: 19-39.
- Ericsson, K.A., R.T. Krampe and C. Tesch-Romer, 1993. The role of deliberate practice in the acquisition of expert performance. *Psychol. Rev.*, 100: 363-406.
- Fiske, J., 1992. The Cultural Economy of Fandom. In: *The Adoring Audience: Fan Culture and Popular Media*. Lewis, L.A. (Ed.). Routledge, London, pp: 30-49.
- Gee, P.J., 2003. *What Video Games have to Teach us about Learning and Literacy*. Palgrave Macmillan, New York, USA., ISBN-13: 9781403961693, Pages: 225.
- Glaser, B.G. and A.L. Strauss, 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Transaction Publishers, Chicago, IL., USA., ISBN-13: 9780202302607, Pages: 271.
- Jeong, H.M., 2009. A study on the formation process of electronic sports and professional gamer fandom. *Cross-Cultural Res.*, 15: 51-95.
- Jim, D.Y. and F. Chee, 2008. Age of new media empires: A Critical Interpretation of the Korean Online Game Industry. *Games and Culture*, 3: 38-58.
- Kim, S.H.H. and S.W.W. Park, 2010. Research on professional groups through learning of professional game players. *J. Korea Game Soc.*, 10: 23-34.
- Lave, J. and C.E. Wenger, 1991. *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press, Cambridge.
- Leont'ev, A.N., 1989. The problem of activity in the history of soviet psychology. *Sov. Psychol.*, 27: 22-39.
- Reeves, S., B. Brown and E. Laurier, 2009. Experts at play: Understanding skilled expertise. *Games Culture*, 4: 205-227.
- Steinkuehler, C. and D. Williams, 2006. Where everybody knows your (screen) name: Online games as third places. *J. Comp. Mediated Commun.*, 11: 885-909.
- Sweller, J., 1988. Cognitive load during problem solving: Effects on learning. *Cognit. Sci.*, 12: 257-285.
- Thomas, M.K., X. Ge and B. Greene, 2011. Fostering 21st century skill development by engaging students in authentic game design projects in a high school computer programming class. *J. Educ. Comput. Res.*, 44: 383-400.
- Wenger, E., 1998. *Communities of Practice: Learning, Meaning and Identity*. Cambridge University Press, UK.
- Witkowski, E., 2012. On the digital playing field how we do sport with networked computer games. *Games Culture*, 7: 349-374.
- Zheng, D., M.F. Young, M. Wagner and R.A. Brewer, 2009. Negotiation for action: English language learning in game-based virtual worlds. *Mod. Lang. J.*, 93: 489-511.