

# The Universality of Leadership Behaviors in Virtual Environments: A Case of eSports Players in Thailand

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仮想環境におけるリーダーシップ行動の普遍性  
—タイのeスポーツプレイヤーのケース—

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## Abstract

Leadership is a concept that has been highly evaluated and examined in Western literature. However, the applicability and effectiveness of implementing these leadership behaviors into the Southeast Asian regional context remains a question to be answered. An examination of this question can naturally be extended into the virtual realm given globalization in the Internet age. Advancement of modern communication technology has enabled interaction and cooperation among individuals worldwide. The interactivity is observable as virtual teaming which also exists in professional gameplay known as eSports. In contrast to face-to-face teaming, eSports has overcome the limitations of geographical location and national boundaries by placing all players under the same set of rules and goals over the Internet. Accordingly, the virtual environment can be used as a platform to study the universality of leadership. Using an exploratory research design, this study explored the applicability of real-world leadership traits and virtual leadership behaviors through eSports. The leadership traits defined by Lewin and gameplay behaviors, both derived from Western frameworks, were empirically examined using samples retrieved from Thailand. The results of a principle components analysis led to the conclusion that both real- and virtual-world leadership concepts are applicable to Thailand.

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## 1. Introduction

Asians and Westerners differ in their cultures, beliefs, languages, and, most importantly, personalities (Diener, Oishi, & Lucas, 2003). These differences have increasingly become a point of contention in the globalizing world. With this trend (Mrak, 2000), Southeast Asian countries seeking growth have begun to demand human resources possessing high leadership skills (Landis, Predolin, Lewis, & Kuang, 2012). This demand influences more people to live and work in foreign countries (Dumont & Hovy, 2013). As a result, human resources also have become globalized, and the advancement of the Internet and communication technology has significantly aided the connection of human resources across the globe. Internet tools, such as video calling and cloud services, links people worldwide to work together virtually. In a virtual team, people with different cultural backgrounds cooperate from distant locations (Powell, Piccoli, & Ives, 2004). However, working as a team, both face-to-face and virtually, requires strong leadership. The utilization of information technology may have overcome geographical limitations, but the difficulties arising from cultural, traditional, and personality differences remain. Therefore, the use of leadership skills can be challenged when the team is comprised of members with distinct backgrounds (L. R. Anderson, 1983). Accordingly, the efficiency and effectiveness of leadership in cross-cultural teaming should be examined, especially in the context of the modern virtual environment (Burke & Aytes, 1998; Eveland & Bikson, 1988; Kayworth & Leidner, 2002).

Online gameplay is one of the many types of virtual cross-cultural collaboration; game players work virtually as a team to accomplish common goals. Although video games are created mainly for entertainment, online gameplay has developed into a sophisticated platform, evolving into professional competition known as electronic sports (eSports). In modern society, it can be said that eSports is perhaps one of the very places in which younger individuals experience virtual group collaboration. The ability to collaborate virtually becomes increasingly significant, particularly for Thai people. As the Asia-Pacific region dominated the Internet usage by having the highest and fastest growing number of online users (Internet World Stats, 2014; The World Bank, 2014), Thailand is reportedly spearheading the Southeast Asian video game market (Gaudiosi, 2015a; Geller, 2014; Hause, 2013). The growth of the country's video games industry presents a valuable opportunity for Thai people to utilize eSports to become familiar with virtual teams and practice leadership skills.

However, where collaboration occurs, leadership must exist as well. In the cross-cultural virtual environment, the question remains whether the concepts of leadership and leadership behaviors are parallel between individuals from different cultures. The distinction between beliefs, values, implicit theories, leadership traits, decision-making processes, paternalism, historical and legal backgrounds that vary between nations may have diversified the perception of leadership behaviors between individuals (Bass, 1996).

The question of whether leadership traits are universal is therefore crucial since leadership skills derived from one country may become null when applied elsewhere. If a leader in any field is required to work with a cross-cultural team, then it is important to understand whether his or her leadership skills will be effective in achieving the desired outcomes. There is still a very minute amount of literature examining leadership theories within the context of Asian cultures—and even less literature exploring this topic within the virtual environment. This research primarily aims to examine the universality of leadership traits and behaviors in the real world in parallel with the virtual environment of eSports. This research is exploratory and designed to examine leadership behaviors and derive implications for virtually globalizing Thailand, with further hopes of identifying the beneficial functions of videogames through this process.

## **2. Literature Review**

### **2.1 Real-world Leadership**

Lewin and his co-researcher observed the behavioral pattern of American children (1938), and this landmark study's definition of leadership traits became classic behavioral leadership theory. Lewin categorized the behaviors into three leadership styles—autocratic, democratic, and laissez-faire (Lewin, Lippitt, & White, 1939). Later, Bass notably defined transformational and transactional leadership styles. In 1996, Bass used his Multifactor Leadership Questionnaire (MLQ) that measures individuals' leadership orientation to examine the universality of leadership and concluded that "...although the model leadership may require adjustments and fine-tuning as we move across cultures, particularly into non-Western cultures, overall, it holds up as having considerable universal potential" (p. 731). While Bass's studies concentrated heavily on Europe, Den Hartog and her co-researcher tested transformational leadership's universality across 62 cultures (including Thailand) and discovered that attributes such as foresight, encouragement, communicativeness, trustworthiness, dynamism, and positivity are universally endorsed. Nevertheless, the study also found that several aspects, such as ambition, uniqueness, and sensitivity, are culturally contingent (Den Hartog, House, Hanges, Ruiz-Quintanilla, & Dorfman, 1999). Sinha conducted a study in India and proposed a model of effective leadership style in the Indian environment (1984). Yokochi discovered that the leadership concepts of inspiration and contingent reward are applicable to Japanese organizations (1989). In Thailand, Yukongdi used a leadership measurement derived from Western studies to identify Thailand's preferred leadership style (2010) and discovered that Thai scholars' interpretation and definition of leadership differs from Western literature. Despite this difference, the study concluded that Thai people prefer a democratic leadership style and noted that leadership behaviors may be transferable across cultures (Yukongdi, 2010).

## **2.2 eSports**

Video game popularity has increased over the last few decades. With the Internet, video games are now networked and accessible globally. Online games attract people worldwide to enjoy competition over a common platform. This virtual competition in online games has quickly evolved into a competitive sport which involves both professional and amateur video games players and is widely recognized as eSports (Wagner, 2006).

Since its first introduction in the 1970s (C. A. Anderson & Bushman, 2001; C. A. Anderson & Dill, 2000), video gameplay only gained acceptance as a sport in 2012 (Tassi, 2012). The US government recognized eSports players as professional athletes (Tassi, 2013). A year later, eSports was broadcasted live for the first time on the Entertainment and Sports Programming Network (ESPN), a television channel exclusively dedicated to (physical) sports (Conditt, 2015b; Schwartz, 2014). Currently, eSports video content viewing time already exceeds that of the National Football League (NFL). Moreover, eSports-related revenue is estimated to outgrow that of the NFL by the year 2017 (Gaudiosi, 2015b). eSports' success has drawn sponsorship from multinational corporations such as Coca-Cola, American Express, Duracell, HTC, NVidia, and BenQ.

Video games and eSports are often viewed as a young industry lacking awareness of social responsibility or social value (Conditt, 2015a). However, the trend is changing, as evidenced by universities in China (Lawrence, 2014), Korea (Ashcraft, 2014), and Thailand (Rangsit University, 2013a, 2013b), which are all starting to offer academic courses dedicated to the study of eSports. The advancement of the video game industry can have significant implications to drive social change and influence how people integrate into the thriving virtual world.

## **2.3 Leadership in Virtual World and in eSports**

The development of information technology has offered the globalizing world a solution to the limitations of national boundaries. Modern communication technology enables individuals to function in virtual teams even when geographically dispersed. A virtual team is formed when a group of individuals work together from distant locations using communication technology (Lipnack & Stamps, 2008). While involvement in a team activity, either in reality or virtually, requires leadership skills, virtual teaming is often criticized as less effective and more time consuming than traditional face-to-face teamwork (Archer, 1990; Galegher & Kraut, 1994; McDonough, Kahn, & Barczak, 2001; Warkentin, Sayeed, & Hightower, 1997). This may imply that virtual leadership functionality is limited, especially when compared to the traditional sort.

Virtual-world leadership differs from real-world leadership in the absence of physical interaction when crossing spatial boundaries (Bell & Kozlowski, 2002; Cascio & Shurygailo, 2003). Leadership in virtual teams is exercised through asynchronous communication and

rarely, if ever, face-to-face interaction (Cascio & Shurygailo, 2003). Trust among members is critical for leaders involved with a virtual team, since this trust substitutes for the lack of face-to-face communication (Bergiel, Bergiel, & Balsmeier, 2008). Another critical factor for the success of virtual teams is that tasks must be simple and well defined with clear and engaging goals. The more dispersed the members are, the clearer the tasks and goals must be (Forester, Thoms, & Pinto, 2007). These requirements are primarily due to the absence of real-world leadership's synchronous real-time interactive characteristics (Bell & Kozlowski, 2002; Cascio & Shurygailo, 2003). Hence, the requirement for a high level of trust, the presence of simpler tasks and clearer goals are some key factors distinguishing virtual from real-world leadership.

The virtual team concept generally revolves around work or business. However, it also applies to eSports, which involves competitive, asynchronous online gameplay as a team. The evolution of eSports, together with the concept of virtual teaming, began to attract academic attention because of the ambiguity of group and group leader effectiveness. In 2001, Manninen interviewed and observed the interactions between players of the world-renowned game Counter-Strike. His study concluded that the existing game features allowed players to work together as a virtual team but not without technical limitations. Interestingly, the players tended to overcome these limitations by developing unique communication methods. The findings also indicated that participants were highly satisfied with the virtual interactions (Manninen, 2001). Ellis et al. (2008) developed a 3D game based on social psychological theory to observe players' interaction in the virtual environment and concluded that gameplay could activate role formation, cooperation, and communication among players. Most importantly, it also stimulated social behaviors. Similar to Manninen's findings, players expressed high satisfaction with their virtual interactions (Ellis et al., 2008). Previous literature hints that virtual teaming in video gameplay may result in higher effectiveness in group collaborations.

Regarding leadership effectiveness, Fiedler's contingency leadership model argued that the effectiveness of a group can be achieved by appropriately matching the leader's personality—known as leadership style—and the degree of his or her control over a situation, also known as the situational control scenario (Fiedler, 1968, 2006). Just as leadership styles and situational control scenarios exist in the real world, they may also exist in the virtual environment. Accordingly, Jang, Ryu, and Yee found the relationship between leadership behaviors and players' interactions in online games (Jang & Ryu, 2011; Yee, 2006). Thus, real and virtual worlds are potentially connected through the commonality of the leadership environment and the universality of leadership behaviors.

While most academic studies concern leadership at the macro and meta levels, few discuss the applicability of leadership models in Thailand. Fewer works contribute to the gap between leadership behaviors in the virtual environment. As Bass noted, the systematic

differences in beliefs, values, implicit theories, and traits associated with leadership cannot be overlooked (1996, p. 754). The present study, therefore, aims to explore the universality of leadership behaviors derived from the West in Thailand. The findings will contribute to the overlooked field of micro-level leadership, particularly in the virtual world.

### **3. Thailand**

Compared to East Asian countries (e.g. China, Japan, Korea), few studies on leadership and eSports are conducted in Southeast Asia. This paper seeks to contribute to the leadership development and video game studies dialogue by taking and analyzing a sample from a country which has rarely been discussed in relevance to eSports. Thailand was chosen foremost because of its outstanding economic performance (Kakwani & Pernia, 2000). In order to maintain its growth pace, it is foreseeable that Thailand will have a demand for personnel equipped with high leadership capabilities. The future workforce will be required to work together, not only with the local people, but also with people of the Association of Southeast Asian (ASEAN), of which Thailand is a founding member. Accordingly, the effectiveness of cross-cultural cooperation relies upon the implementation of appropriate leadership strategies (Fiedler, 1964, 1968, 2006). It is therefore crucial for multinational members to perceive the same understanding of leadership concepts. The previous literature provides evidence indicating that behaviors associated with leadership styles derived from Western concepts, such as decision-making process, task-relationship orientation, trust, and responsibility, are applicable to Thai working environments despite cultural differences (Yukongdi, 2010). This research, therefore, examines these behaviors using Lewin's leadership theory as a representation of leadership styles derived from the West. The core behaviors of autocratic, democratic, and laissez-faire leadership styles are examined for applicability in Thailand.

Second, Thailand is suitable for research on virtual-world leadership as it has become the regional center for information and communications technology (ICT) business and development of the ASEAN (PR Newswire, 2014). Thailand has achieved rapid development in telecommunications, high-speed Internet, and broadband (Gray & Sanzogni, 2004), subsequently facilitated the tremendous number of video games consumers and gaming industry revenue (Hause, 2013). Within the Southeast Asian region, Indonesia, Thailand and Vietnam are the largest and most significant video game markets (Gaudiosi, 2015a; Hause, 2013). However, although Indonesia is showing fast revenue growth, the country still falls behind in terms of Internet penetration and speed (Cosseboom, 2015). Therefore, Indonesia is not as suitable as Thailand for global eSports studies. Vietnam is achieving faster growth in the number of online game players (Warman, 2015), but it is a communist regime with many restrictions on Internet usage and gameplay; thus, distorts the samples this study may choose from (Hause, 2013; Reporters Without Borders, 2011). Moreover,

Vietnamese game players also have difficulties in understanding English, which is the main language used in games (Gaudiosi, 2015a). On the other hand, Thailand has consistently outperformed Indonesia and Vietnam in terms of revenue despite its much smaller population (The World Bank, 2011). It is estimated that the value of Thailand's entertainment and media market will reach approximately 14.8 billion US dollars by the year 2017, the biggest share in Southeast Asia (Bangkok Post, 2013; PricewaterhouseCoopers, 2013; Warman, 2015). Thailand's increasing revenue suggests that it has a much more comprehensive and diverse population of potential samples for this study.

#### **4. Universality of Leadership Behaviors**

“Universality implies that the attributes of a person and this person's performance as a leader are at a constant across situations. It also implies that the same concepts can be used to describe leadership regardless of country or culture” (Bass, 1996, p. 737). Corresponding to Bass's definition, this study refers to leadership behaviors' universality by the applicability of traits, characteristics, personalities, or skills associated with leadership worldwide. Universality of leadership behaviors implies that the behaviors characterizing leadership styles, derived from Western practices can be used to categorize and define the leadership style of an individual in the cross-culture settings of Thailand.

This definition also applies to virtual-world leadership. The universality of virtual-world leadership implies that game players under a similar gameplay environment (e.g., playing the same video games or playing the same genre of games) can perceive the same conception of gameplay, in-game behaviors, gaming strategies, and goals. Despite these game players' geographical locations or cultural backgrounds, the same gameplay behaviors can be used to describe their in-game actions, and the same strategies can be implemented into gameplay.

It must be noted that the term “universality” does not imply that the virtual world is an exact mirror image of the real world. The manifestation of leadership in these two worlds may have a commonality due to shared foundational behaviors, but this does not imply that every other aspect is the same.

##### **4.1 Micro-level Leadership**

Previous studies have found transformational and transactional leadership to be universal, but the leadership model may require adjustment when implemented across cultures, especially in non-Western regions (Bass, 1996; Den Hartog et al., 1999). Nonetheless, these studies give inadequate attention to the Southeast Asian region and were primarily concerned with organizational leadership (macro) or social leadership (meta). Moreover, these studies were highly business and military oriented and, therefore, not generalizable for the present study. The theoretical framework of this study does not assume that everyone can or ever will be a leader. Therefore, it is essential to explore leadership from the

micro level, because it is the foundational level of traits and behaviors which build up individuals' leadership competencies (Rowland & Parry, 2009). Micro leadership triggers leadership ability even without the leading power or the leader position. It is the behavioral state that shapes the decision-making process (Rowland & Parry, 2009), determine the task-relationship orientation, forms the sense of responsibility (Evans, 1970; House, 1971) and generates trust (Keele, 2007; Luhmann, 2000). Accordingly, the present study recognizes Lewin's classic leadership behaviors as fundamental characterizations. Lewin's definitions of the three leadership styles concern individual or micro-level leadership behaviors (1939; 1938). They are highly applicable to the present study because they were not meant for application in work-related or military-oriented environments. The generality of Lewin's leadership theory provides greater suitability for implementation in a less complex leadership scenario like eSports. Theoretically, the leadership styles are applicable within online gameplay in the form of game roles. It must be noted that this study's theoretical framework does not attempt to explore macro and meta levels of leadership or the probability on an individual becoming the leader in an organization or society.

## **4.2 Lewin's Leadership Styles**

Leadership is the practice of authority and decision-making (Dubin, 1951). Therefore, leadership style involves how authority is exercised and the decision-making. Leadership styles were differentiated by the acts of managing or directing a group, planning and its implementation, and stimulation of group members' motivation (Newstrom & Davis, 2002). The leadership styles adopted in this research were developed under Lewin's leadership model. The three major leadership styles described under Lewin's model are autocratic, democratic, and laissez-faire.

### **4.2.1 Autocratic Leadership Style**

Autocratic leaders have exclusive control over decision-making processes and rarely receive suggestions or input from others. They closely supervise each members' actions and usually dictate their work process to ensure productivity. Although often viewed as too harsh and absolute, autocratic leaders prove to be a positive force when a situation requires a speedy resolution. Moreover, in complicated matters, autocratic leaders are able to lead the team through hardships and accomplish tasks successfully (Goodnight, 2004; Lewin et al., 1939; Lewin & Lippitt, 1938).

### **4.2.2 Democratic Leadership Style**

The democratic leadership style highly emphasizes participation within groups during the decision-making process. Democratic leaders value discussion, debate, and ideas sharing. In contrast with autocratic leaders, democratic leaders put emphasis upon the overall



satisfaction of the group members. They are supportive and appreciative but remain objective in giving praise and criticism. Research has shown that democratic leaders are among the most effective leaders in terms of generating greater productivity and higher quality of contributions from group members as well as generally increased morale (Goodnight, 2004; Lewin et al., 1939; Lewin & Lippitt, 1938).

#### **4.2.3 Laissez-faire Leadership Style**

The laissez-faire leadership style is characterized by minimal supervision and a minimal sense of responsibility. These leaders reason that group members have their own ways of working efficiently; thus, should be left to perform their delegated tasks freely. Laissez-faire leaders avoid participation and being an important part of the group. They attempt to take the least amount of responsibility possible within the group. Members under the direction of laissez-faire leaders feel a sense of autonomy in their work process and decision-making (Goodnight, 2004; Lewin et al., 1939; Lewin & Lippitt, 1938).

### **5. Multiplayer Online Battle Arena (MOBA)**

The current study utilizes games under the MOBA genre, Defense of the Ancients (DotA) and Heroes of Newerth (HoN) to observe leadership behaviors in the virtual environment. The significance of MOBA games is evidenced by their rapid increase in popularity. As of 2015, MOBA games have dominated the video game industry and have become the most played personal computer (PC) games (Dimaranan, 2015). They are frequently included in eSports leagues, and Dota 2, the immediate successor of DotA, was the first video game competition broadcast live on ESPN (Schwartz, 2014). The popularity of MOBA games, together with the advancement of the Internet, has made MOBA a universal virtual infrastructure accessible by anyone across national borders despite distinct cultures and demographic backgrounds. Teamwork in video games is equivalent to virtual team participation, thereby enabling leadership scenarios.

Regarding the controversy over the in-game violence, unlike shooter games (e.g. Counter-Strike, Battlefield, Grand Theft Auto), which focus solely on killing in a realistic environment mimicking real-world behaviors (Gentile & Anderson, 2003; Lemmens, Bushman, & Konijn, 2006), MOBA games promote strategic thinking and team collaboration toward a mutual goal. They discourages solo playing and individual accomplishment, thereby having the characteristics of prosocial games (Gentile, 2011). Nevertheless, it must be acknowledged that there are certain pitfalls in the design of the MOBA games which may cause toxic behaviors and short-term aggression. Team cooperation in MOBA games can turn into competition for the limited resources between teammates (Makuch, 2014a). Game players tend to react negatively against teammates' unexpected actions (LeJacq, 2015). The frustration that developed when facing difficulties or failure to overcome the challenges in

games can provoke aggressive thoughts and behaviors of the players (Przybylski, Deci, Deci, Rigby, & Ryan, 2014). However, these issues can be resolved through future development of video games (Makuch, 2014b), where beneficial findings of games can turn video games into a valuable medium for social development.

### 5.1 MOBA Gameplay

MOBA games involve a maximum of five human players working as a team against the opponent team of, ideally, an equal number of human players—a maximum total of ten players per match. Each player selects and controls one game character from over one hundred distinct varieties (Heroes of Newerth, 2013; “Heroes,” 2015). These human-controlled characters are referred to as “heroes.” The game places all players under the same set of rules and provides them with well-defined tasks structured to direct them towards one common goal. The team’s ultimate collective goal is to advance into the opposing team’s base and destroy the heavily guarded key structures within the base (PlayDotA.com, 2009b; Rioult, Métivier, Helleu, Scelles, & Durand, 2014). Victory is achieved and the match ends when one team succeeds in this goal. The average game length ranges from 30 to 45 minutes.

The main strategy to MOBA games revolves around strengthening the game players’ selected heroes. They earn experience points by destroying computer-controlled creeps<sup>1</sup> and towers<sup>2</sup>. When enough experience points have been accumulated, the heroes gain one level, with the maximum level of 25. Leveling up improves strength, increasing the damage inflicted, and allows for ability upgrades. Players also manage a single resource: gold. Gold income is generated periodically in small amounts or by destroying enemy creeps, towers, and heroes (PlayDotA.com, 2009b). Players can use gold to buy items to strengthen their heroes. Buying items that suit the heroes’ particular abilities is an important tactical aspect of the game strategy (“Items,” 2015; PlayDotA.com, 2009a).

### 5.2 Roles in MOBA

Similar to real-world teaming, a strategically effective team formation in MOBA includes balancing roles and responsibility delegation, known as “game role.” As in football or rugby, in which players must fill specific positions, game roles in MOBA teams define how game players should use their heroes. Various sources, such as the games’ official websites or other web-based forums, categorize the game roles differently. However, there are three major game role categories that occur among all sources—carry, support, and ganker (“Defense of the Ancients,” 2015, “Role,” 2015; Drakthul, 2012; PlayDotA.com, 2009b;

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<sup>1</sup> “Creeps” are weak computer-automated units over which game players have no direct control. There are two types of creeps: “lane creeps” which act as an army for both teams, and “neutral creeps” that aligned with neither (“Creeps,” 2015; PlayDotA.com, 2009b).

<sup>2</sup> “Towers” are primary defensive structures for both teams (“Buildings,” 2015; PlayDotA.com, 2009b).

Rodriguez, 2011b). Most of the world-renowned eSports players frequently utilize these three game roles during global DotA and HoN competitions (Cabahug, 2007; Khor, 2013a, 2013b). With regard to this research, characteristics of the three game roles will henceforth be the research focus.

### 5.2.1 Carry Game Role

Carry heroes typically lack strength during the earlier stages of a game and usually require protection from other members at the beginning. Carry heroes are highly dependent on items to gain strength. Therefore, teams usually use the strategy of allowing carry heroes to earn a bigger share of the gold and experience by letting them administer the last hit<sup>3</sup> (DaemonLasher, 2009). Carry heroes cannot be killed too often throughout the game because they will lose the gold that is necessary to purchase items to boost their strength (Drakthul, 2012; FortyeniN, 2011; SRKVEN, 2012). Despite their weak abilities early in the game, carry heroes are often expected to be the strongest by the end because they have better attribute statuses, which are advantageous as they gain momentum later on (“Hero classifications,” 2010).

Players who take on a carry role are expected to inflict the highest amount of damage possible during the later stages of a game. The role’s name, “carry”, hints at its main responsibility of carrying the team towards victory (Rodriguez, 2011b). A well-balanced team should have at least one carry hero but never have more than two (Leech, 2011; “Role,” 2015).

### 5.2.2 Support Game Role

Support heroes make all actions for the collective benefit of the team rather than individual advancement. Unlike the carry role, support heroes are not dependent on items. Therefore, they focus less on gold earnings and use their abilities almost exclusively for the team’s success (Leech, 2011). Most of a support hero’s gold will be spent on items that yield collective benefits (tech-ladan, 2010). Supporters are usually paired with the team’s carry hero in the early stages of the game to ensure his or her safety. Support heroes make damage infliction easier for their teammates by disrupting opponents and providing better opportunities for teammates to farm<sup>4</sup>. This role is crucial in allowing carry heroes to achieve their full potential.

Support can be achieved through any actions that give the team an advantage over its opponents, such as providing protection and actions that allow teammates to earn extra gold

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<sup>3</sup> “Last hitting” is when a player attacks a hostile unit whose hit points are low enough for it to be killed with one blow. The player that has dealt the last hit receives the greatest portion of the gold (“Glossary,” 2015; MPasil, 2011).

<sup>4</sup> “Farming” is a resource acquisition strategy widely use in MOBA gameplay and refers to the act of hunting hostile creeps to earn gold and experience points (“Glossary,” 2015; PlayDotA.com, 2009c; Rodriguez, 2010a).

or experience points. Thus, support role players are responsible for keeping teammates alive (r3dDY, 2012), for instance, by using their heroes' healing ability on a teammate ("Hero classifications," 2010). In some instances, support heroes also sacrifice themselves to protect their teammates (PlayDotA.com, 2009b).

### 5.2.3 Ganker Game Role

Ganking is the act through which players attempt to eliminate as many opponents as possible. This action is named after the process of a group of players ganging up on opposing players with relatively low chances of defending themselves ("Ganking," 2015). A variety of ganking strategies is used in the game, such as invisibility, ambush, and trap-setting<sup>5</sup> (Rodriguez, 2010b; "Role," 2015). However, the ultimate purpose is to unpredictably initiate an offensive attack on the targeted opponent (Rodriguez, 2011a).

The ganker role is considered to have features between those of carry and support. Gankers can act in either role, although they may not be as effective as the real carry or support hero. Ganker heroes are the most responsible for giving the team an early advantage during gameplay by inflicting damage on as many enemies as possible ("Ganking," 2015). A successfully played ganker role can significantly decrease an enemy's farming and level attainment and can help teammates gain territory by assisting in tower destruction.

## 6. Theoretical Framework

### 6.1 Leadership in MOBA

The highly team-oriented scenario in MOBA games makes it extremely difficult for a solo player to lead the team to victory. The intricate human interactions throughout gameplay and the games' features trigger leadership circumstances that emphasize each player's decision-making process, task-relationship orientation, as well as a sense of trust and responsibility (Nuangjumnong & Mitomo, 2012; Nuangjumnong, 2014). One intensive MOBA match can expose players to a condensed leadership scenario similar to Fiedler's situational control scenario (Fiedler, 1978; Nuangjumnong & Mitomo, 2012; Nuangjumnong, 2014). MOBA gameplay incorporates the understating of each game role and applications of its abilities to forms strategies accordingly as a team. A fully functional team requires a balanced and diverse combination of roles, because all roles are equally important with respect to their different capabilities. Different role combinations yield different game strategies. Thus, role assignment is one of the most important aspects of team strategy. Game role delegation can be done through pre-discussion or through the observation of teammates' heroes. As previously mentioned, players choose from more than one hundred

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<sup>5</sup> "Trapping" is a ganking strategy that involves restricting the movement of hostile units and preventing them from escape ("Trap," 2015).

heroes with distinct skills and attributes (Heroes of Newerth, 2013; “Heroes,” 2015). Each must select one hero that is deemed appropriate for his or her role by considering the hero’s skills and attributes.

The three major roles in MOBA games—carry, support, and ganker—are theoretically equivalent to virtual-world leadership; each game role has defined responsibilities and personalities that parallel the traits and behaviors of real-world leadership styles, particularly those defined in Lewin’s model. MOBA game leadership environment is limited within micro level and does not have the complexities of real world. More sophisticated leadership aspects such as possession of power, command hierarchy, punishment, and reward are not featured in MOBA games. The games’ leadership features are limited within the interactions between team members, working together to overcome the game challenges. These limitations make Lewin’s primary leadership typology the most appropriate representative of MOBA game roles.

Despite how MOBA gameplay incorporates the characteristics of warfare, it is of a closer resemblance to team sports (Rioul et al., 2014). The MOBA game environment can be perceived as a football or rugby team with well-defined tasks and a clear mutual goal. The players are left to figure out one another’s skills and distribute roles accordingly. In this similar paradigm, MOBA gameplay revolves around balancing elements such as abilities and attributes of each game character.

## **6.2 Contingency Model of Leadership in MOBA**

The theoretical framework of this study revolves around Fiedler’s contingency model, which theorizes that different leadership styles are most effective in particular situations. In MOBA games, different game roles correspond to different leadership styles. For instance, the carry game role corresponds to the autocratic leadership style and should strategically hold the strongest abilities toward the later stages of the game, but these players will find it difficult to achieve strength without the assistance of support and ganker roles early in the game. By having one too many carry players (theoretically similar to having too many autocratic leaders in one group), the team will suffer consequences such as insufficient resources and lack of supportive features. Game players learn that simply utilizing one role or leadership cannot accomplish the goal. In this sense, one can see that Fiedler’s contingency model functions within the game environment that prevents one particular game role or leadership style from overpowering the others and ensures good role balance during gameplay.

## **7. Methodology**

### **7.1 Real-world Leadership and Gameplay Behaviors Questionnaire**

A close-ended survey questionnaire designed for this research examined the leadership and gameplay behaviors of eSports players in Thailand. This study was limited to Thai individuals who actively engaged in the selected eSports—DotA and/or HoN. The questionnaire was divided into three sections: demographic information, game roles, and leadership styles. The game roles and leadership styles sections were created through the combination of two models. The first model was Lewin's three major leadership styles that define and distinguish the characteristics and behaviors of each leadership orientation. The second model was a situational control scenario taken from Fiedler's contingency model, which was used to note both in-game and real-world leadership environments.

A total of 11 questions regarding autocratic, democratic, and laissez-faire leadership behaviors were based on the descriptions of leadership styles described in Western literature (Bass, 1997; Goodnight, 2004; Lewin et al., 1939; Lewin & Lippitt, 1938). A total of 16 questions in the game roles section were based on the descriptions of DotA and HoN game roles taken from non-Asian game manuals and instructions, game replay videos, game players' blogs, game forums, and other communities that widely discuss these two games (e.g. DaemonLasher, 2009; FortyniN, 2011; fR3dDY, 2012; Leech, 2011; Rodriguez, 2010b, 2011a; SRKVEN, 2012). These questions describe the Western conceptual behaviors of carry, support, and ganker roles in MOBA games.

The survey objective was to identify respondents' core leadership traits and key behaviors displayed during gameplay, including what types of items they purchase, what tasks they more frequently engage in, and how they react in certain game scenarios. Respondents were asked to self-report their frequencies of executing the behaviors described in each of the survey items using a bipolar scale ranging from one to six, with one meaning almost never and six meaning almost always.

#### **7.1.1 Bias Reduction**

The survey questionnaire was first drafted in English and then translated into Thai language. Both drafts were crosschecked and referenced to ensure that precise meanings were intact in both languages. In addition, value-laden terms were avoided in all questions. A pilot test was conducted before the actual survey. The survey questionnaires were distributed both online and in print. The online survey format was distributed to all cities in Thailand through Thai gaming forums, game-related websites, and advertisements on social media. The paper-based survey format was distributed through game centers and Internet cafes in Bangkok, the capital city of Thailand. Accordingly, the respondents may or may not have belonged to any specific gaming community, and their gameplay skills could vary from beginner to highly experienced levels.

Respondents were kept uninformed of the specific purpose of the survey, which was to test their gameplay and leadership behaviors. For both the online and printed surveys, the order of questions in the game roles and leadership style sections were randomized to prevent respondents from recognizing the purpose behind or a pattern in the survey questions. These attempts were made to avoid the reporting of fabricated personalities. After the survey collection was completed, all responses were filtered and checked, and inconsistent or ineligible answers were eliminated before compiling into a data set for empirical data analysis.

## **7.2 Empirical Data Analysis**

This study uses a quantitative approach to explore leadership behaviors' universality under exploratory research settings using the responses to 27 questions related to real-world and in-game leadership behaviors. The exploratory approach was chosen to investigate the common aspects of real-world leadership behaviors in virtual environment based on the theoretical universality of leadership that will establish the initial foundation for future studies. Principal Component Analysis (PCA) is the statistical technique executed on the collected survey samples to identify the real-world and in-game leadership behavioral patterns. The factor loadings derived from PCA were transformed using an oblique rotation (Promax,  $\kappa=4$ ) methodology to simplify the analysis results for interpretability.

The questions in the real-world leadership section were intended to examine the behaviors of the three different leadership orientations—autocratic, democratic, and laissez-faire. Accordingly, PCA first extracted the components associated with real-world leadership from self-reported behavior frequency. Then, the factor analysis reported factor loadings that revealed how well each behavior was represented in the extracted components. Likewise, items in the game roles section were explored for the three game roles—carry, support, and ganker. The utilization of the PCA extracted linear composites of the observed behaviors associated with gameplay, and its factor loadings were reported.

The PCA technique was used to affirm that the behaviors described in the survey questions were appropriately grouped into components that defined each leadership style and game role. The number of components extracted from both real- and virtual-world leadership behaviors, together with the appropriate groupings of factor loadings, were observed and referred to Western definitions. The outcomes of PCA determined how well the leadership concepts taken from the West explained the leadership characteristics of eSports players in Thailand.

## 8. Results

### 8.1 Survey Demographics

A total of 4,407 survey samples were obtained after the data screening process was completed. The vast majority of the eSports players were male ( $SD=0.14$ ,  $n=4,320$ ); only 2% were female ( $n=87$ ). Ages of the players ranged between 12 and 47 years ( $M=18.53$ ,  $SD=3.94$ ). Notably, the average age was 19 years. Accordingly, most of the respondents were students with no work experience ( $SD=0.36$ ,  $n=3,738$ ), while the rest were employed full time ( $n=669$ ). Regarding the education level, the majority had a high school education ( $SD=1.46$ ,  $n=1,629$ ) followed by a junior high school education ( $n=921$ ). Only a few respondents were uneducated ( $n=12$ ). These demographics justify the average income of no more than 5,000 Thai Baht ( $SD=1.19$ ,  $n=2,703$ ,  $1USD \approx 33THB$ ).

Regarding gameplay demographics, 76.4% of the respondents actively played DotA ( $SD=0.43$ ,  $n=3,368$ ) and 53.9% played HoN ( $0.50$ ,  $n=2,374$ ). The average starting age for MOBA exposure was approximately 15 years ( $SD=3.89$ ). The mean gaming experience was three years ( $SD=2.20$ ); however, the eSports players reported having played at least 30 MOBA matches per week ( $SD=2.09$ ) or roughly more than 120 minutes a day.

Table 1 Factor Loadings on Real-world Leadership Behaviors

Item #	Leadership Behaviors	Factor Loadings		
		Autocratic	Democratic	Laissez-faire
Autocratic	1.1 I am the person who makes decisions and give orders in the group, so that the resulting work come out the way I want it to be.	0.815		
	1.2 I am in charge of planning and giving out duties in the group by considering each member's skill sets.	0.667		
	1.3 I emphasize more on the group's productivity than the satisfaction of the group members.	0.604		0.360
	1.4 I do not ignore any detected mistakes. I will immediately warn the member and temporary pause the actions of the group member in charge to rectify the issue.	0.420	0.427	
Democratic	1.5 I believe in my teammates. I trust them in the responsibilities they are given.		0.699	
	1.6 I discuss or ask for opinions from other group members to accompany with my own decision-making.		0.674	
	1.7 I praise and admire others' great work, and comfort them when they face difficulties.		0.613	
	1.8 I am happy to provide support for my teammates and I am willing to takeover the duties of others if needed.		0.488	
Laissez-faire	1.9 I do not mind that other members make decisions for me, both on important matters or minor matters.		0.667	0.356
	1.10 I do not want other people to teach me or give me suggestions on how I work.			0.681
	1.11 I avoid being an important part of the group, or I try to take the least responsibilities possible in the group.	0.438		0.456

**Extraction Method:** Principal Component Analysis.

**Rotation Method:** Promax with Kaiser Normalization.

**Note:** Factor loadings below 0.30 are suppressed.



## 8.2 Principal Component Analysis

The PCA results in table 1 and 2 report the factor loadings on real-world leadership behaviors and gameplay behaviors, respectively. Referring to Kaiser’s suggestion for the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) cut-off value at 0.5 (H. F. Kaiser, 1970), this analysis achieved the desirable value of 0.849. The empirical analysis obtained three principal components from behaviors associated with real-world leadership styles, namely autocratic, democratic, and laissez-faire. Likewise, the three components were extracted from behaviors associated with roles in games, namely carry, support, and ganker.

According to the factor loadings on real-world leadership behaviors in table 1, the factor loading of each behavior loaded appropriately onto its corresponding leadership style components. Specifically, items 1.1–1.4 loaded to the autocratic leadership style, items 1.5–

Table 2 Factor Loadings on Gameplay Behaviors

Item #	Gameplay Behaviors	Factor Loadings		
		Carry	Support	Ganker
Carry Role	2.1 I stay in the lane I am in charged of, or I stay in the jungle for a long period of time. I do not change lanes.	0.588		
	2.2 I play heroes that are very weak at the beginning of the game, but become the most powerful later in the game.	0.729		
	2.3 I am not the person who would start an attack. I avoid being the person who initiates a fight.	0.401		
	2.4 The strength of my hero is more important than the strength of other people’s heroes.	0.422		
	2.5 I try to earn myself more gold at the beginning of the game, so I spend more time farming compared to other players.	0.614		
	2.6 I choose the hero I want to play before any other players.			
Support Role	2.7 I kill steal and last shot tower purely for gold and experience, although the actions may upset other players.		0.474	
	2.8 I let other players keep Aegis of the Immortal that are dropped from defeating Roshan.		0.617	
	2.9 I emphasize more on the safety and protection of my teammates, and I am less worried about my own safety or about killing the enemy.		0.699	
	2.10 I do not let my teammates fight alone; I will be protecting and supporting them.		0.593	
	2.11 I support my team by being the one who purchase team-supporting items. For instance: upgrading Courier, Wards, and Gem of True Sight.		0.558	
Ganker Role	2.12 I patiently wait for the best timing and chance to destroy the enemy.			0.526
	2.13 I make plans before initiation of an attack and try to trap the enemy in various ways.			0.583
	2.14 I choose hero that has powerful abilities that can cause high damage at the beginning of the game, although the hero tend to be weakened by the end of the game.	-0.410		0.506
	2.15 When I choose a hero, I first consider its disabling abilities. For instance: stun, silence, and slow abilities.		0.344	0.486
	2.16 I emphasize on initiating enemy attacks by ganking or backstabbing.			0.726

**Extraction Method:** Principal Component Analysis.

**Rotation Method:** Promax with Kaiser Normalization.

**Note:** Factor loadings below 0.30 are suppressed.

1.8 to the democratic leadership style, and items 1.9–1.11 to the laissez-faire leadership style. However, the factor loadings were imperfect. Although the majority reported values above 0.5, the behavioral items 1.4, 1.9, and 1.11 resulted in cross loads onto a mismatched leadership component.

The factor loadings on gameplay behaviors reported in table 2 show cleaner loadings when compared to those of real-world leadership behaviors (table 1). The PCA reported appropriate factor loadings of each gameplay behavior onto its corresponding game role components. In particular, the gameplay behavior indicated in items 2.1–2.6 corresponds to the carry game role, 2.7–2.11 to the support game role, and 2.12–2.16 to the ganker game role. Except for the behavior item 2.15, no conspicuous cross loading was found, and the majority of the loading values were more than 0.5. The behavior item 2.6, however, was invalid due to its failure to load significantly on all gameplay components.

## **9. Discussion**

Three principal components for real-world leadership behaviors and three for gameplay behaviors were successfully extracted from Thai eSports players. Most of the behaviors appropriately represent the corresponding leadership styles or game roles as theorized. This implies that leadership behaviors defined in the Western literature can be applied across cultures within the Thai population as well. Hence, the three major leadership styles—autocratic, democratic, and laissez-faire—can describe the leadership orientations of Thai individuals. Likewise, Thai eSports players' gameplay behaviors can be characterized as carry, support, and ganker game roles using the Western typology. It can be concluded that these aspects of micro-level leadership exist within both real and virtual environments in Thailand. The conclusions support the propositions of previous literature, which asserted that leadership is universal (Bass, 1996; Den Hartog et al., 1999; Yukongdi, 2010). Nevertheless, some behaviors did show inadequate factor loadings. A few cross loadings were found in behaviors associated with task-people orientation (item 1.4) and sense of responsibility (items 1.9, 1.11, and 2.15). This may imply that Thai eSports players' perceptions of these specific behaviors were diverse; thus, require further investigation.

Regardless of the face-to-face or virtual application of leadership skills, leadership behavior's universality holds an immensely fundamental position. The degree of leadership universality can determine an individual's level of control under a particular situation. Therefore, one may expect greater leadership effectiveness and group efficiency as a result of better-defined leadership styles recognizable by all group members (Ayman, Chemers, & Fiedler, 1995) with a higher degree of universality. Analogous to the argument by Bass (1996, p. 754), this study's findings imply that some leadership behaviors need adjustment or localization to accommodate the culture and tradition of the target society.

eSports offer a shared platform for all individuals to explore and practice these leadership skills without risking the irreversible consequences of in-game failure (Kriz, 2003; Prensky, 2005). Previous studies have described a well-performing virtual team as a composition of training (P. R. Kaiser, Tullar, & McKowen, 2000; Tan, Wei, Huang, & Ng, 2000), strategy and goal setting, communication (Kayworth & Leidner, 2000; Suchan & Hayzak, 2001) a shared language (P. R. Kaiser et al., 2000; Majchrzak, Rice, King, Malhotra, & Ba, 2000; Malhotra, Majchrzak, Carman, & Lott, 2001), team cohesiveness, coordination and commitment (Maznevski & Chudoba, 2000), the appropriate task to technology fitting (Malhotra et al., 2001), and competitive and collaborative conflict behaviors (Montoya-Weiss, Massey, & Song, 2001). These are the beneficial functions that assimilate into each game role and can be experienced through gameplay. The universality of these skills in gameplay hints at eSports' great potential as a didactic tool for leadership development. Future video game development should incorporate and emphasize these positive aspects while avoiding the negative ones. The action of violence can be modified into a punishment instead of a reward, which will in turn magnify the prosocial values (Hartmann, Toz, & Brandon, 2010; Hartmann & Vorderer, 2010; Makuch, 2014a) in future game designs.

## **10. Limitations and Future Research**

Under an exploratory research design, this study explored micro-level leadership and does not extend its implications onto leadership in the context of an organization (macro) or a society (meta). Due to the limitation of the research samples, the implications of this research are limited to Thai individuals who are familiar with eSports. Participants were younger individuals experienced in globalization and familiar with modern technology. Therefore, this research may have different implications for individuals of a different age group or from another culture. It must also be noted that, due to the very limited number of female participants, the implications for women are not fully understood. Finally, it is highly encouraged that future studies extend its research scope into the other Southeast Asian countries such as Indonesia and Vietnam.

## **11. Conclusion**

This study's findings support the proposition that leadership is universal. The core behaviors associated with leadership remain parallel regardless of how countries vary by factors such as culture, language, lifestyle, and personality. Moreover, globalization through the Internet age has extended the implications of universality into the virtual world. Individuals are capable of implementing their leadership skills in online group activities such as virtual teams and eSports, despite their geographical location or national boundaries.

The findings allow for conflicts which arise due to the misuse of leadership strategies to be prevented through the appropriate adoption of leadership behaviors. If leadership skills are

applied between societies with contrasting cultures, one can consider adjusting some of the behaviors to better accommodate the cultural differences. A successful adjustment should facilitate leadership effectiveness and associated satisfaction levels.

Leadership behaviors' applicability has become compellingly influential with the emphasis on the utilization of information technology for global communication. It has transformed the ways in which people cooperate, especially in Thailand, where there is rapid growth and migration of an international, elite workforce. Without the need of physical presence, virtual teaming can potentially enable individuals globally to cooperate more effectively and efficiently if the universality of behaviors associated with leadership is present. Online gameplay or eSports is a universal platform that places all players under the same rules with well-defined tasks and goals. Regardless of nationality and cultural background, young generations can use the virtual platform to practice leadership skills and become familiar with the concepts of leadership before honing their leadership skills in the real world.

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