

**Informal roles within eSport teams: a content
analysis of the game 'Counter-Strike: Global
Offensive**

Rolf Drenthe

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Department of Sport Sciences
University of Jyväskylä, Finland

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ABSTRACT

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Informal roles are roles that are not formally prescribed by a group or organization and are being established through group interaction that takes place among group members. Previous literature has identified twelve roles within traditional sport, however to date limited research has been done within the field of role development within competitive computer gaming (eSports). The purpose of the present study was to explore the informal roles within the eSport setting and if it is possible to use audio analysis to identify informal roles.

The present study is a qualitative, multiple case study of two professional eSport teams in the game 'Counter-Strike: Global Offensive'. The data that was used was open source voice recordings of two professional eSport teams in the game 'Counter-Strike: Global Offensive'. Abductive reasoning was used during the thematic analysis. The research used the twelve informal roles as initial codes, but during the study more codes derived from the data. A total of 19 codes were used in the end of the study.

The findings of the present study suggest that roles such as the informal leader verbal and the distracter are commonly found. The enforcer was not found in the way as defined by previous literature, but as a person who enforces rules of the team, event and makes sure leaders tactics are followed. The cancer and comedian were found less common but were present. Roles such as the malingerer, social convener, star player and mentor were not found during the present study and it is suggested that these roles might be more likely to be found outside of matches.

Communication characteristics such as interrupting, talking over each other, uncomprehending speech and high amount of words per minute are influencing the clear development of informal roles. It is possible that interrupting might be considered a new role (The interrupter) within sports that require, to the point clear communication.

Key words: informal roles, group dynamics, eSport, communication, descriptive analysis.

SAMENVATTING

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Informele rollen zijn rollen die niet formeel door een groep of organisatie zijn voorgeschreven maar worden ontwikkeld door groepsinteractie. Voorgaande literatuur heeft twaalf rollen geïdentificeerd binnen de traditionele sport, echter tot op heden is er weinig onderzoek gedaan in rolontwikkeling binnen competitief computer gaming (eSports). Het doel van de huidige studie was om de informele rollen binnen de eSport setting te ontdekken en te kijken of informele rollen geïdentificeerd kunnen worden aan de hand van audio analyse.

De huidige studie is een kwalitatieve, multiple case studie van twee professionele eSport teams in het spel 'Counter-Strike: Global Offensive'. De data die is gebruikt was openbare audio opnames van twee professionele eSport teams in het spel 'Counter-Strike: Global Offensive'. Abductief redenering was gebruikt tijdens de thematische analyse. Het onderzoek gebruikt de twaalf informele rollen als eerste codes, maar tijdens de studie meer codes werden afgeleid vanuit de data. In totaal werden er 19 codes gebruik aan het einde van de studie.

De bevindingen van dit onderzoek suggereren dat rollen, zoals de informele leider verbaal en de afleider gewoonlijk worden aangetroffen. De handhaver is niet gevonden op vergelijkbare wijze als in de voorgaande literatuur, maar als een persoon die de regels van het team en event worden opgevolgd, maar ook zorgt dat de leiders tactieken worden uitgevoerd. De kanker en komiek bleken minder vaak voor te komen, maar waren present. Rollen zoals de simulant, sociale coördinator maar ook de sterspeler en mentor werden niet gevonden tijdens de huidige studie en het wordt gesuggereerd dat deze rollen mogelijk vaker voorkomen buiten de competitieve sfeer.

Communicatie karakteristieken zoals, elkaar onderbreken, door elkaar heen praten, onduidelijke communicatie en praten met veel woorden per minuut heeft mogelijk invloed op het ontwikkelen van informele rollen. De onderbrekingen kunnen ook opgevat worden als een nieuwe rol (i.e., de onderbreker) binnen sporten die gebaseerd zijn op duidelijke communicatie.

Key words: informal roles, group dynamic, eSport, communication, descriptive analysis.

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1 INTRODUCTION

Roles within groups are often divided into formal and informal roles. The formal roles are directly established by the group or organization, for example, the team captain and coach. Individuals are often recruited and trained to perform a specific task that directly relates to the team success (Carron, Hausenblas, & Eys, 2005). However, informal roles are not formally prescribed by a group or organization and are being established through group interaction that takes place among group members (Mabry & Barnes, 1980). Researchers within the field of sport have mainly been focussing on formal roles within teams (see Eys, Beachamp, & Bray, 2006, for a summary). Cope, Eys, Beachamp, Schinke & Bosselut (2011) identified 12 informal roles that might occur within athletic sport teams, for example, the comedian, spark plug and cancer. Knowing these roles within the team can provide a better understanding of the athletes and thus create better role clarity and a better understanding of their responsibilities (Carron, Bray & Eys, 2002). Carron, Bray & Eys showed in their 2002 study that having well established and clear roles and responsibilities within the team can support team cohesion and develop group dynamics.

These informal roles, which have been identified within traditional sport teams, might also appear within electronic sport (eSport) teams because a similar group dynamic is present within these teams. However, within eSports there might be certain factors present, which can influence the development of informal roles. Due to the lack of research within eSport this study will take one of the first steps to try to increase the understanding of this new sport and investigate the informal roles that can be found in eSport teams.

The purpose of this study was to explore which informal roles are present within the professional eSport setting. Because of the differences between traditional and eSports it might be interesting to see which informal roles occur within eSports. The present study demonstrates which roles were able to be identified through the analysis of audio recordings. The aim of the study is to create a better picture of the informal roles within the eSport setting and see how it compares to the traditional sport.

To provide some guidance for the reader in this report, there will first be an introduction to my background as the starting point for this study. A literature review will further build the foundation for this research and introduce the concepts of roles and electronic sports. This is then followed by a chapter about the study methodology. After this the actual analysis and results will be presented. The final chapter will discuss and reflect on

the findings of the present study, state its strengths and weaknesses and other implications that occurred during the study, and will provide suggestions for future research.

2 ROLES

Roles refer to the expectations about patterns of behaviours for an individual in a social structure (McGrath, 1984; Shaw, & Costanzo, 1982; Sherif & Sherif, 1953) and can be defined as features of groups and teams (Salas, Dickinson, Converse, & Tannenbaum, 1992; Sherif & Sherif, 1969). Roles can arise from the person's position, status and/or assumed responsibilities within a current situation (Carron, Hausenblas, & Eys, 2005). However, more specific explanations on the occurrence of roles are communicated through literature in industrial and organizational psychology. Bales (1966) explain role development through behaviours of the role necessity. For example Bales (1966) observed three types of behaviour that could be associated with different roles within a task-orientated team. These include (1) Activity (i.e., the degree to which an individual performs behaviours directed toward standing out from others), (2) Task ability (i.e., the degree to which an individual demonstrates expertise toward group goal attainment), and (3) Likeability (i.e., the degree to which an individual performs behaviours directed toward the development and maintenance of socially satisfying relationships). Bales state that the degree to which an individual inherits these three behaviours has an influence on which potential roles they occupy within a group. For example a person who has all three types of behaviour is more likely to fulfil a leadership role this in contrast to someone who exhibits none of these behaviours which Bales would refer to an 'underactive deviant' role.

Next to the development through the behaviours of group members, roles and their associated responsibilities are often communicated between members, typically from a person with authority (i.e., role sender) to a subordinate (i.e., focal person). A framework developed by Eys, Carron, Beauchamp, and Bray (2005) (See figure 1) adapted from Kahn et al. (1964) illustrate in what way role responsibilities are communicated and what factors might influence the quality of this communication within the sport context. The process of role responsibility communication is proposed to consist of five consecutive events. First is that the role sender (e.g., the coach or teammate) develops expectations for the focal person (i.e., the athlete). After that the role sender communicates these expectations to the focal person. The third event occurs at the point the focal person experiences or perceives the expectations that have been placed upon him or her. At this moment the focal person assesses if the communication or expectations are clear and ambiguous. The fourth event is where the focal person response to these expectations, these responses can include many forms which include behaviours such

as compliance or rejection of the demands, cognitions such as raised or lowered efficacy beliefs (Eys & Carron, 2001), and affects like anxiety or dissatisfaction (Beauchamp et al., 2003b; Eys, Carron, Bray, et al., 2003). The last event is where the role sender interprets the response by the focal person, who would then have to reflect and evaluate and either maintain or change their role expectations and thus starting the sequence all over again from event one.

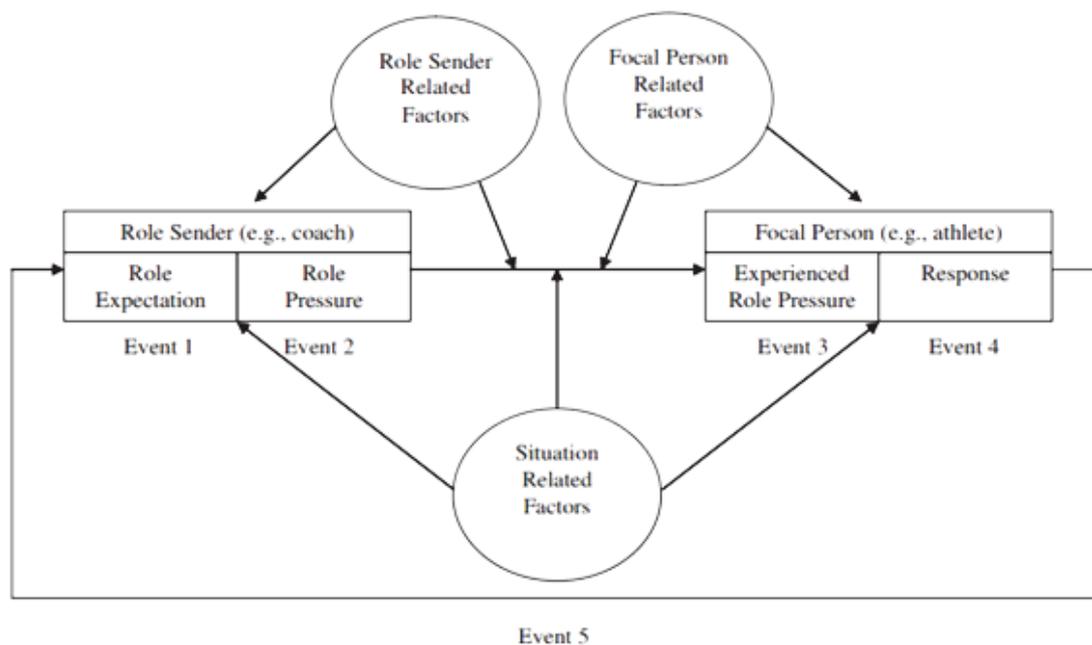


Figure 1: A Theoretical Framework of Factors Influencing the Transmission and Reception of Role Responsibilities (Eys, Carron, Beauchamp, and Bray, 2005)

Figure 1 illustrates three categories that can influence the focal persons understanding of their role. The lack of clear information regarding their role is called role ambiguity (Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964). Role ambiguity has been associated with a decrease in the perception of task cohesion and task self-efficacy (Eys & Carron, 2001), but also in role satisfaction (Beauchamp, Bray, Eys, & Carron, 2003a), the athlete overall satisfaction (Eys, Carron, Bray, & Beauchamp, 2003), and role performance (Beauchamp, Bray, Eys & Carron, 2002; Bray & Brawley, 2002). Positive relationships have been found between role ambiguity and perceptions of intensity of competitive state anxiety (Beauchamp et al., 2003b). The first category is *role sender related factors* this can serve as the sources of the athlete's role ambiguity that might be attributed to, or are in direct control of, the role sender (e.g., a coach). For example the quantity and quality of the verbal communication by the coach towards the athlete might be poor, which can lead to ambiguity. The second category is named *focal person related factors*, this can serve as the source of role ambiguity that might be attributed

to, or are in direct control of the focal person (i.e., the athlete). For example, an athlete who is new in a certain sport might be confused by the terminology used, because of the lack of experience within that sport. The last category *situation related factors*, serve as a source of role ambiguity that are not controlled by the focal person or the role sender. An example could be the time the athlete has been in the team. Role ambiguity has been showed to be higher at the beginning of a competitive season than at the end (Eys, Carron, Beauchamp, & Bray, 2003).

Next to role ambiguity there is role conflict, Weinberg and Gould (2011) state that a typical conflict is that a person is “wearing too many hats” and different people expect different things (i.e., roles) from the person. The following quote is from a 36 year old non-traditional college athlete who was a mother of two children to illustrate this type of conflict. *“The whole week my son was sick. I hardly trained at all. I would have to wait until my husband came home from work, but sometimes he would work a double shift so I would get no running in. So not only was my training hurt but I missed several classes because I had to stay home with my son”*. (Jambor & Weeks, 1996, p. 150)

Multiple research that are mostly based on Kahn et al.’s (1964) role episode model show consistently that these negatives are linked to a higher job-related tension, reduction in organizational commitment, job dissatisfaction and impaired performance (Fisher & Gitelson, 1983; Jackson & Schuler, 1985; Van Sell, Brief, & Schuler, 1981), and burnouts (e.g., Barling & MacIntyre, 1993). These researches have mostly been carried out within work roles (e.g., Supervisors, managers) within organizations (cf. King & King, 1990). However, Beauchamp & Bray (2001) found that role ambiguity had a negative association with role-related efficacy beliefs within interdependent sport teams.

Lauri Mains (Coach of the New Zealand All Black international rugby team) commented on his efforts to reduce role ambiguity: *“Everyone knows what he has to do in each given situation, this is brought about. By building on a basic philosophy so that he can make decisions at the time when he needs to”* (Quotes in Mconnel, 1999, P. 146). With the regards to reducing role conflict, successful teams ensure that individuals recognize that their contribution has importance as well as the value of each other team member. Mark Messier (Quoted in Swift, 1996), a former team member of Wayne Gretzky, said *“I never felt I was playing in [Gretzky’s] shadow. I had a responsibility on the team that was different from Wayne’s. Everyone had his role, and I felt great about mine. So did many other about theirs. If we won, and won often, we knew everyone would get respect.”* (p. 60).

However, roles can be either formal or informal (Mabry & Barnes, 1980), formal roles are those roles that are established by the organization or group and are typically connected to the instrumental objectives of the group. Examples of these formal roles in sports might include the manager, owner, coach or the captain. Also roles as pitcher in baseball, quarterback in American Football or the point guard in basketball could be stated as formal roles. Most of the people that inhabit certain formal roles are trained or recruited to perform the specific responsibilities that connect to these roles to achieve the team's objectives (Carron et al., 2005). Informal roles on the other hand are being developed through the interaction between group members and are not formally assigned by the group or organization (Mabry & Barnes, 1980).

Most research in sports regarding roles have focused on formal roles (Eys, Beauchamp, & Bray, 2006 for summary), Cope et al., (2011) have looked into the informal roles within traditional sports (e.g. football, & basketball), and they have identified and defined 12 informal roles (See table 1). In Figure 1 the informal roles they found are placed in a continuum that ranges from most detrimental role (i.e., the cancer, $M = -3.0 \pm 1.3$) to the most beneficial informal role (i.e., the mentor, $M = 3.5 \pm 0.8$).

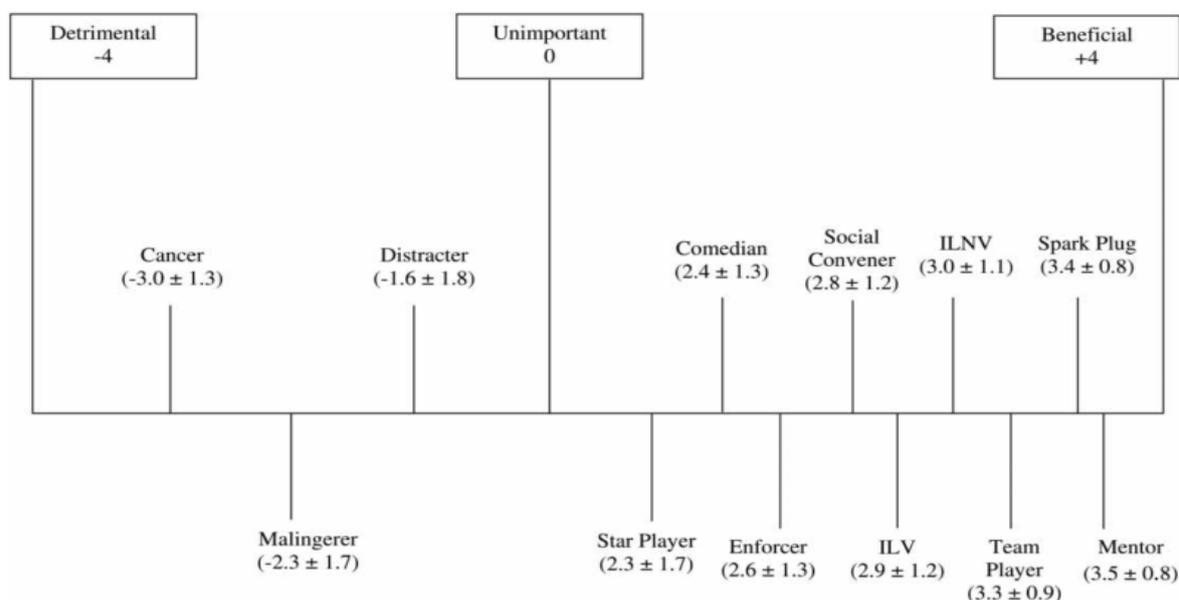


Figure 2: Perceived effect of informal roles on sport teams (mean \pm standard deviation) (Cope et al. 2011).

Informal role	Definition
Comedian	An athlete who entertains others through the use of comical situations, humorous dialogue, and practical jokes. This individual can also be referred to as a jokester, clown, or prankster.
Spark plug	An athlete who ignites, inspires, or animates a group toward a common goal. May be referred to as the task booster
Cancer	An athlete who expresses negative emotions that spread destructively throughout a team.
Distracter	An athlete who draws away or diverts the attention of other teammates decreasing their focus.
Enforcer	An athlete who is physically intimidating or willingly belligerent and who is counted on to retaliate when rough tactics are used by the opposing team.
Mentor	An athlete who acts as a trusted counselor or teacher for another athlete on the team. This athlete has usually been with the team for a few years and has experience and wisdom to teach the less experienced athlete(s).
Informal leader – non Verbal	An athlete who leads the team by example, hard work, and dedication.
Informal leader – verbal	An athlete who leads the team both on and off the playing surface through commands. This individual is not selected by the team as a leader but assumes the role through social interactions.
Team player	An athlete who gives exceptional effort and can be seen as a workhorse that is willing to sacrifice and put the team before his/her own well-being.
Star player	An athlete who is distinguished or celebrated because of their personality, performance, and/or showmanship.
Malingerer	An athlete who prolongs psychological or physical symptoms of injury for some type of external gain (e.g., sympathy, attention, access to athletic therapy).
Social convener	An athlete who is involved in the planning and organization of social gatherings for a team to increase group harmony and integration.

Table 1: Informal roles and definitions (Cope et al., 2011)

3 Competitive computer gaming or eSport

eSport used to be called Competitive computer gaming, and dates back to the 1970 to 1989 with the release of games like Pong, Spacewar and Space Invaders (Wikipedia, n.d. a; Wikipedia, n.d. b), the first tournament was held by Atari with the game Space Invaders in 1980. And more than 10 000 participants were attracted to this event (Edwards, 2013). However, competitive compute gaming only starting blooming around 1989 when the World Wide Web (WWW) became more accessible, and in the early 90's further improvements were possible due to the soft- and hardware developments (Jonassan & Thiburg, 2010). The term electronic sports also known as eSports dates back to around 1999, when the name was first used in a press release on the launch of the Online Gamers Association (as stated in Wagner, 2006) During this same period the UK professional Computer Gaming Championship had a failed attempt to get competitive gaming being recognized as an official sport by the English Sports Council (Knox, 1999).

During the development of ESports a clear difference between two worlds occurred, the Western front and the Eastern front. In the western countries first person shooters (FPS) was taking the lead, with games as Counter-Strike. In the eastern world, real time strategy and massive multiplayer online role playing games were taking a bigger role. The last couple of years both western and eastern countries are now also taking in Multiplayer online battle arena (MOBA) games like League of Legends, Dota 1 & 2, Smite and heroes of the storm and many more. Like there is in sport it is clear to see that eSport has differences and that not one game is exactly like the other.

eSports is growing and developing at a rapid rate. In 2013 approximately 70 million people watched eSport matches (Warr, 2014) and according to Newzoo (2015) the spectator amount will approximately grow to 145 million people by 2017 and the net worth which is currently 194 million dollars per year will most likely be doubled by 2017.

ESport as a sport

Currently it is still being debated whether eSports can be considered a sport. This is mostly due to the physical criteria that have been linked to sport most of the times. Guttman (1978) developed a model to distinguish what kind of activities can be seen as a sport. The model represented in figure 3 shows that sports is defined as an

organized, competitive physical contest. The model of Guttmann is far from perfect, as there are enough sports these days that do not have a physical contest, chess for example would be an intellectual contest but not a sport, while chess has been recognized by the International Olympic committee as a sport (Fry, n.d.)

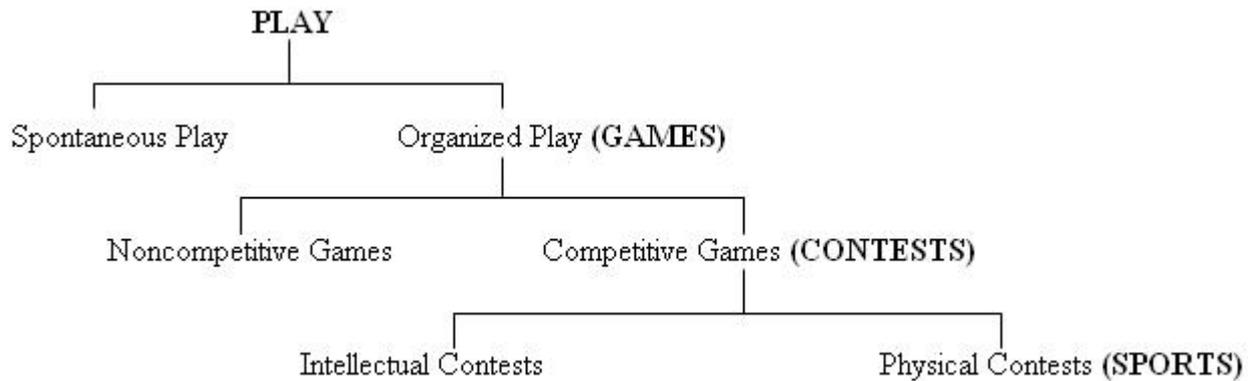


Figure 3: Play, games, contest, and sports (Guttmann, 1979)

Jonasson and Thiborg (2010) state that if athletes would be asked if they contest physically they will probably answer yes but that it is not all they do, because this competence would be useless without the exercise of the intellect. It is of course obvious that in one sport the physical element is more recognizable (e.g., Football & cycling) and in the other the intellectual (e.g., Chess & Bridge). However, the Guttmann model might need to be interpreted differently and seen as a continuum once reached the contest level. As eSport requires high amount of hand eye coordination and clicking speed there is a certain amount of physical exertion present. Jonasson and Thiborg (2010) does also not fully support eSport as a sport but state that if eSport keeps developing it would be able to be defined as a sport in the future. (Read Jonasson and Thiborg, 2010 for more information)

Recent development in eSports also shows that it grows closer and closer to traditional sports. According to the BBC (2015) the Electronic Sports League (ESL) decided to test athletes on the same drugs as within the Olympics.

In 2015 Hamari & Sjöblom state that eSport can be defined as a form of sports where the primary aspect of the sport is facilitated by electronic systems; the input of players and teams as well as the output of the eSport system are mediated by human-computer interfaces. Wagner (n.d.) states that there is no particular need to look at eSports as an area of disciplines that satisfy the traditional sport definition. It might

need to be looked at a completely separate field of study. This would in turn also mean that the definition of eSport does not directly have to be linked to that of sport.

Present studies

Baek (2013) state that research on gaming is divided into three main areas: these are motivators to gameplay (e.g. Murphy, 2011, Malone, 1981; Warren et al. (2008); Garris et al. 2003), positive effects of gaming (e.g. Green & Bavelier, 2003; De Lisi & Wolford, 2002; Griffiths, 2005a, 2005b) and the maybe most researched one negative effects of gaming (e.g. Barlett et al. 2009; Skoric, Teo, & Neo, 2009; Ferguson, 2007). If looked specifically to eSports the amount of research is reduced significantly. Within the field of sports biology a bachelors thesis by Ferm & Galle (2014) was found for the rest there are some studies in sports science and engineering (Rai & Yan, 2009), Social studies (Hutchins, 2008; Weiss, 2011; Lee & Schoenstedt, n.d.) and Media studies (Wagner, n.d.), no research has been found in the area of performance psychology. This study tries to provoke colleagues within the field of performance psychology to look into this fast developing “sports” field and see how it is similar or different compared to traditional sports. No previous studies related to eSport and roles were found.

4 AIMS

The aim of the study was to develop better understanding regarding the informal roles that occur within the eSport setting. The study explored if (1) it is possible to use audio analysis to identify informal roles within two professional Counter-Strike: Global Offensive eSport teams and (2) which communication factors might influence the development of clear informal role development.

5 METHOD

The present study represents the first investigation within informal roles in eSports. Due to the studies exploratory nature, no specific prior hypothesises were generated with regards to the ability of identifying informal roles through audio recordings and the number of informal roles that could be found within eSports. However, it was expected that it would be possible to find informal roles through audio recordings and that the identified informal roles would be discussed in relationship to communication or the lack of clear communication.

Before describing the methodology in details, the current chapter will start by explaining the researchers own background in the field, after that the initial design will shortly be described and the final part of the chapter will be dedicated to the methodological approach that was executed during the study.

5.1 Researchers background

Around 1996, I started playing video games, purely for entertainment, next to playing outside and sports. The interest in video games carried on throughout the years, during my youth I always liked to play video games next to doing sports. I at least spend every week a few hours behind the computer to play games together with friends and it was more used as a social event, because internet was not well established in those days. In 2006, I started looking into the competitive aspects of video games, but never really committed to it as I found traditional sports more interesting and challenging. In 2010 I started my studies related to sports and health, I started to play games that were now in the competitive setting, just for fun and slightly noticed that there are certain similarities between traditional sports and playing video games. However, it was not until end of 2014 during my Masters regarding Sport Psychology, at the University of Jyväskylä, that I was interested in the mental aspects of eSport (competitive video game) players. I was still playing video games, I liked normal sports, and I saw a similarity in mental aspects. This caused me to perform the present study to look more into the eSport setting.

5.2 Initial design

The present study was designed initially to be a mixed study with a thematic analysis that was supplemented with a quantitative questionnaire. Due to lack of participants the

quantitative part was not able to be completed. This chapter will shortly show the intended design.

The study would host a two phase research, the first phase related to the analysis of audio recordings to determine if it is possible to find informal roles via communication and investigate which roles are present. The second phase was related to query the players regarding the distribution of the informal roles within their team and assess in terms how beneficial (i.e. Helpful in meeting the needs or having other benefits to teams/athletes) or detrimental (i.e., causing damage or harm to teams/athletes) these roles are by using the Informal role questionnaire developed by Cope et al. (2011).

For phase one, 55 teams of multiple eSport disciplines (Different games) were contacted over the course of three recruitment phases, five teams replied, two teams stated they were willing to participate, one team withdrew from the study without notice and one team provided audio data. The audio data provided however was considered low quality and could not be analysed. All teams did not respond to any further inquiries.

For phase 2, participants were eligible to this study if they met two criteria. Participants needed to be (a) active members of eSport teams and (b) competing in the electronic sport leagues. Multiple recruitment phases occurred and a total of 37 teams were contacted individually before opening the questionnaire to the public using forms like Reddit. However, some Reddit forms removed the post as they did not allow research requests. The questionnaire that asked basic demographics (e.g., age, gender, current team, position) in combination with the informal roles questionnaire developed by Cope et al. (2011). Participants were first provided the label and definition of each informal role. Then for each role, it was asked by using a dichotomous yes/no response to indicate if the role was present in their team (e.g., 'is there an informal verbal leader within your team?'), if the participants indicate that the role was present, they were asked to identify how many individuals in their team inhibit this role. The fourth question was regarding the perceived effect of each role. Items were presented on a 9 point Likert-type scale going from 1 to 9, where 1 was most detrimental and 9 most beneficial.

In total thirteen individuals filled in the questionnaire, ranging from 12 to 27 years of age (Mean: 20,83 years SD=4,22). Twelve males and one female from a variety of teams and eSport games. They had been with their teams ranged from one to twelve

seasons (Meteorically), with a mean of 3,31 seasons ($SD=3,60$) and three participants did not reply to the question related to the time active for their current team. The amount of participants was considered too low, to include this phase in the present study. Consequently, plan to include quantitative questionnaire was abandoned.

5.3 Data collection

The present study uses open source data from two top 10 Counter-Strike: Global Offensive (CS:GO) teams. The teams that were analysed were both native English with one participant in each team that had a mixed nationality. Ten total participants (Five in each team), with an average age of 23,71 years ($SD: 3,04$). A total time of 3 hours and 50 minutes were analysed. Relevant time for research was not calculated. The recordings all dated from ESL Pro League 2015. Data of the present study only include speech of the participating players.

5.4 Data analysis and reporting

Data analysis began by transcribing the audio files multiple software products were used, in the start Express Scribe Pro transcription software was used, the biggest advantage of this is the amount of options in the program, however it didn't meet the sound quality required, in the end the program otranscribe.com was found and used for the rest of the study. The biggest advantage of otranscribe.com over other programs was that the audio quality was not compressed. During the period of time looking for otranscribe.com windows media player was used, however constantly rewinding, pausing and starting by using the mouse pointer was ineffective and time consuming and as Rapley (2007) stated that using transcribing software can save you a lot of time and frustration.

The research had an analytic aim for the informal roles, and thus the decision for a transcription leaving specific features of speech out such as the volume, the intonation and hearable emotions. Jenks (2011) and Kuckartz (2014) stated that most social research a basic transcription system is sufficient and including the features of interaction is not needed. However after transcribing it was found that having these speech features could have added an extra dimension in the present study Simons (2009) stated that qualitative case studies heavily rest on the researchers interpretative skills. In order to answer the research question, the usage a thematic analysis was used. This analysis is a process of analysing qualitative information in a systematic manner by encoding qualitative data (Boyatzis, 1998). The process started by

setting up codes in Atlas.TI version 7.4. Additionally during analysis an inductive approach was used to develop new codes. However, inductive coding is not fully data driven, as the codes are affected by the researcher's knowledge.

For the categorization process, the quotes that had similar meaning were grouped together. Twelve codes were initially used and a total of 12 codes were derived throughout the analysis procedure. Five codes were removed at the end of the study as no relevant data was collected for these codes. 19 codes remained, of these three shared similarities with other codes and were able to be grouped together. This directly caused that there would be a correction of code overlaps (Mason, 2002).

5.5 Trustworthiness

Due to the vast amount of data, the researcher and supervisor decided that coding should stop until saturation of data was reached. The researcher recognizes that by doing so, there is a possibility that data will be left out.

Trustworthiness has been enhanced by taking the three of Maxwell's (2002) criteria for qualitative inquiries: descriptive validity, interpretive validity, and generalizability into consideration. Descriptive validity is the factual accuracy of the account and degree in which the initial understanding of the quotes was maintained. This was supported as all data were transcribed from audio recordings. Interpretive validity is the comprehension of the phenomenon from a participant's perspective. This was largely achieved by having the categories that were derived by the author checked by the supervisor, and a peer with understanding of eSport. The generalizability is the extent to which a person can extend the account of a certain situation or population to other persons, times, or settings compared to those directly studied (Maxwell, 2002, p. 52). Generalizability was not fully achieved as data was only collected from two teams, competing in the same game. Issues regarding the generalizability are raised within the discussion section.

Biases

The researcher has negative thoughts through own experiences in the field of eSport in lower ranks regarding communication. However, the researcher expects that communication and by that role communication would have a higher quality with top ranking teams.

5.6 Ethics

As a researcher it is important to ensure the research is done within the ethical guidelines to protect both the researcher and the participants. The basic principles stated by Farrimond (2013) were followed. These principles are respect for people, justice, beneficence, nonmaleficence and fidelity.

Respect for people can be divided into multiple aspects, autonomy, privacy, anonymity and confidentiality (Farrimond, 2013). Autonomy was supported by providing information regarding the research and a part of this giving an informed consent. Participants should be aware of what is expected of them and what they can expect of the researcher, so the decision for participation is fully autonomously (Farrimond, 2013). Potential participants were contacted and information regarding the purpose and the procedures were explained, this way enough information was given for the participants to develop their own decision. All participants of the quantitative part of the study automatically accepted to participate in the study by filling in the questionnaire. Privacy was not of a big concern in the study as the study was performed digital and causes that the participants can provide data in their own safe environment. Anonymity is important as this gives the participant a sense of security and this might lead to being more willingly to provide information. Just as the privacy principle the anonymity was secured by having a digital data collection without requiring the participants to provide names. Team names were not released in the report either. Confidentiality is ensured by acting responsible as a researcher. The researcher should for example not use the data in other purposes or sharing the data with other people not involved in the research. Next to this confidentiality is ensured by not using team names.

Justice can be evaluated by considering who has the benefit from the research and who is at risk (Farrimond, 2013). The participants in the present study are not vulnerable, and would receive no significant team gain. Being excluded from the study would not have a harmful effect (Farrimond, 2013). Only a reasonable amount of time of 15 minutes to fill in a questionnaire was asked.

Beneficence is the idea of the usefulness of the study. The participants would only benefit indirectly from this study, by acquiring general knowledge. Next to that as participants only are directly involved in the questionnaire limited time is asked and thus no risks are foreseen. Nonmaleficence, means “do not harm” (Farrimond, 2013).

Since no intervention is done and participants are free to provide the required information, there is no risk towards the participants.

The last point fidelity, as the researcher it is required to be honest to both the participants and the scientific field (Farrimond, 2013). This would include being honest regarding the given information, usage of proper references, and reporting results without any falsification. In the present study the researcher tried its utmost to be honest, trustworthy and keeping the integrity of the research valid.

It could be concluded that even though through estimation of risk the present study has little to no risk for the participants and by considering the above stated points, the study should be ethically approvable.

6 RESULTS

Analysis of the transcripts show that multiple roles were able to be found by using audio recordings, certain roles were more dominantly present e.g. Team player and Informal leader verbal (ILV) compared to others e.g. cancer, comedian. Incomprehensible speech and multiple people talking were found more often compared to roles. The results thus will be divided into roles (6.1) and communication (6.2), in the discussion reflecting on the relationship between roles and communication will be explored. For a full table of themes see Appendix 1: Themes

6.1 Roles

6.1.1 Informal leader verbal

The Informal leader verbal (ILV) is described as *“an athlete who leads the team both on and off the playing surface through commands. This individual is not selected by the team as a leader but assumes the role through social interaction.”* (Cope et al. 2011. Expressions in the role of Informal leader verbal were found 96 times during tactical preparation or when orders were given. Examples of quotes related to tactic speech: *“Do default, default, to mid control”*, *“cap, four of us run up cap like we running up, jump off mid B just fucking it”* and *“Okay we gonna do it like we did it against [a different team]”*. All these quotes state some form of tactic, the first one would be interpret as doing a default set up first and after that switch to a mid-control set up. The second quote is describing a specific capture tactic and the third is referencing to a past tactic that was used against a different team. This last quote is also an direct example of where team members would ask for clarification by stating *“which was”* or other similar small replies to ask for more detailed information.

Sometimes the ILV used a democratic approach by giving the team the decision for example *“guys you want to start T or CT”* in order situation the ILV asked? for confirmation *“I want you to smoke mid B late, we gonna do three at long and two cat okay?”*

Examples of ILV order communication could be *“everyone else stay B with him [name]”*, *“together, wait, wait, wait for your team”* and *“just keep holding”*. These communications reflect orders to try and keep a tactic working or responses to teammates stating certain actions that are going on.

6.1.2 Informal leader non-verbal

The informal leader non-verbal (ILNV) is defined as “*An athlete who leads the team by example, hard work, and dedication.*” (Cope et al. 2011). The role as described could not be found through the usage of video nor audio recordings as it might be a mere perception of the other team members. Within eSport the ability to use non-verbal commands is possible in the form of quick commands or pings. However, in the present study it was unable to identify the non-verbal communication, as the recordings were taken from a spectator point of view rather than an individual player’s point of view.

6.1.3 Cancer

The cancer is defined by Cope et al. (2011) as “*an athlete who expresses negative emotions that spread destructively throughout a team*”. This definition does not directly relate to negative or possible destructive comments & emotions, but within eSports it was noted that during the analysis there were people that acted like a wiseacre (someone who thinks to know everything better). During one part of a match when a player threw a smoke grenade and recognized it himself that it was not the best move?, a team member commented on with the following quote “*That is <not understandable> shitty smoke you thrown actually*” This comment could be experienced negative or even destructive by the person that committed the action. Another example of a possible cancer comment was “*I knew that was gonna happen, I was trying to get us out of there*” this could be seen as stating that you know something was going to happen after it actually happened. Another example situation that occurred was there was a discussion going on between two team members, one of the team members ended the discussion with the following comment “*Whatever dude*”. This comment was verbally expressed as I don’t care what you think, I know I am right but let’s just move on. Even though this comment might have worked to stop the discussion and refocus on the game, it might also have a negative consequence on the team as a certain negative atmosphere has been developed.

6.1.4 Comedian

The comedian role as described by Cope et al. (2011) is “*An athlete who entertains others through the use of comical situations, humorous dialogue, and practical jokes. This individual can also be referred to as a jokester, clown, or prankster.*” This role was rather hard to find, within the current study only two possible situations have occurred that might reflect the presence of a comedian. The leader stated their tactic rather simple

during the warming up round *“Let’s get mid control first and all that bullshit”* a team member responded by stating *“good post plans man”*, both of these sentences could possibly be seen as comedian. The first sentence which is stated by the leader as it should be a tactical speech, but by stating *“all that bullshit”* it could be interpret as a joke related and the person might think that the team knows what to do. The response was also stated in a voice that could make you believe it was a joke. Another example is that a team member stated *“They gonna do some crazy shit man”* a different teammate responded to this *“Yeah like they gonna die, but it gonna look really crazy”*. This also could be relate to being a joke, by changing the wording of the team member and showing own confidence.

6.1.5 Team player

A team player is described as *“An athlete who gives exceptional effort and can be seen as a workhorse that is willing to sacrifice and put the team before his/her own well-being”* Cope et al. (2011). By the definition only a few quotes were find related to the team players role a couple of these were *“I am holding your long [name]”*, *“Go I will hold your flank”*, and *“I can get long, I am leaving bomb for you guys”*. These quotes all got some sort of self-sacrifice in common, as covering a team member makes you as a player be in a more dangerous position, going somewhere without the team also puts yourself in harm’s way. However, if calling out enemies and reporting your own actions is considered part of the team players role than within eSports, nearly all members can have this role. With 420 quotes divided over two codes were found, that were related to calling out, reporting in and sharing own thoughts. However, it might be that doing these three things is a normal procedure and thus not specific linked to the team players role. Examples of thought sharing are *“he is just lurking just wait”*, and *“could be pushing upper again”*. This clearly shows that team members share their thoughts about what the opposing team is doing. Next to that they call out the opposing team *last guy door, last guy door*, *“one is crossing now, two crossing”* and *“he is close left door I think”*. This can be beneficial for the other team members to know what is going on at certain places and times during the match, so the team is able to adjust their tactics accordingly. The last possible related theme to a team player is stating one’s own actions such as *“I am going to go car”*, *“Flashing mid right now”* and *“I am smoking A mid”*. Calling out what you are doing can most likely provide significant benefits,

throwing a flash grenade (Flashing), without calling it out, can cause you to blind your own team mate.

6.1.6 Enforcer

The definition stated by cope et al. (2011) for the enforcer is “*someone who is physically intimidating or willingly belligerent and who is counted on to retaliate when rough tactics are used by the opposing team*”. This study shows that enforcers might also use verbal communication to enforce actions within their own team. As no direct physical aspects are present within eSports, verbal enforcing towards own team has been looked into as part of the enforcing role. Quotes like “*hey we can’t have drinks on the table, I am pretty sure.*”, “*Focus on this round, focus on this round*” and “*Just hold mid, [name] hold upper B*” all somehow trying to enforce something. The first quote tries to enforce the rules regarding the competition, the second one tries to stimulate but also enforce focus on the game and specifically that round and the last one focusses on the tactic that had been discussed and telling the team members to adhere to that tactic.

6.1.7 Spark plug

The spark plug is someone who inspires team members towards a common goal; as such this person might use motivational cues to get them ready to perform their task. A few quotes that were found that might have a motivational effect on the members were “*we are playing them perfect boys*”, “*this is our fucking map boys, this is what happens when they don’t anti shred*”, “*yeah let’s do it*”, “*here we go boys let’s do this*”, “*win this one and we are in the semi’s*” and “*go A, go A, only two A, you guys fucking got this*”

6.1.7 Distracter

The distracter role described as “*An athlete who draws away or diverts the attention of other teammates decreasing their focus*” (Cope et al. 2011) was not directly found, situations where teammates were shouting, interrupting and talking at the same time as someone else, might be able to be defined as a distracter.

6.1.9 Mentor

The mentor role described by Cope et al. (2011) as: “*An athlete who acts as a trusted counsellor or teacher for another athlete on the team. This athlete has usually been with the team for a few years and has experience and wisdom to teach the less experienced athlete(s)*” was not found through the audio analysis. The cause of this might lie within that this role might not be that effective during high pressure situations as a live match.

As it was impossible to analyse training sessions and feedback sessions it was not possible to sketch a picture if this role was present at these times.

6.1.10 Star player

During the recordings no player was found to inhibit the star player role, described as an athlete who is distinguished or celebrated because of their personality, performance, and/or showmanship (Cope et al. 2011).

6.1.11 Malingerer

The malingerer described as “*An athlete who is prolongs psychological or physical symptoms of injury for some type of external gain (E.g., sympathy, attention, access to athletic therapy)*” (Cope et al., 2011) was not able to be identified. One athlete stated that his knee still hurts. However, it is uncertain if the athlete was prolonging this injury or if the injury occurred recently.

6.1.12 Social convener

As expected a social convener could not be analysed through the audio recordings of matches. The role is inhibited by a person who is involved in the planning and organization of social gatherings for a team to increase group harmony and integration (Cope et al., 2011).

6.2 Communication

Analysing communication was not originally among the aims of this research. However, as the research progressed it was found that communication played a major part in the current study. During the research the following communication characteristics were found: 1. Incomprehensible speech; 2. Fast speech; 3. Repeating speech; 4. Shouting; 5. Inefficient communication; 6. Multiple people talking.

Incomprehensible speech is anything that the researcher was unable to transcribe from the audio recordings caused by the speed of speech and/or the pronunciation, and thus can vary from one word to full sentences. The Incomprehensible speech unit was found 349 times within 2 transcripts.

The speech rate within eSports varies it was calculated that the average was around 200 words per minute (WPM), and the highest rate was calculated at 365 WPM. Dugdale (N.d.) states that 130 to 20 words per minute is recommended for normal speech. The wpm was calculated as following, $60 \text{ seconds} \div x1 = x3$, $x3 \times x2 = \text{WPM}$. $x1$ is a speech section in seconds, $x2$ are the amount of words within this speech

section. Below an example is given:

A section of 9 seconds was selected, within these 9 seconds there were a total of 38 words present. ($60 \text{ seconds} \div 9 = 6,667$, $6,667 \times 38 \text{ words} = 253 \text{ WPM}$.)

Repeating, interrupting and talking at the same time were encountered often during analysis. During analysis of the data it was recognized that repeating words once is pretty common, as it is a shooter game and it is important that the team knows what is going on. Repeating actions and observations once will give the team members an extra notice that something important is going on. However, it was found that repeating of one action did not happen once but multiple times, some actions were repeated four to five times, these times were marked as repetitive speech. Another common problem that was found was that team members were talking often at the same time. A total of 150 markers were found for multiple people talking. In certain cases a person was talking and got interrupted, in other cases two people started talking at the same time and continued to talk. Sometimes it was found that athletes do not pay full attention to the communication as seen in the following dialogue.

P1: drop him an opt, drop him an opt

P1: scott AK charlie

P2: you want me to drop him an opt

P1: yeah drop him an opt

Within this short dialogue P1 gives an order to an unknown team member to drop an opt (An Opt is a sniper rifle, which is a weapon in the game). The team member responds with the question “*you want me to drop him an opt*”. This response can be interpreted in different ways, 1) the team member did not notice that someone was talking to him or 2) was not listening to the communication at all.

7 DISCUSSION

The purpose of the present study was to explore which informal roles are present within the professional eSport setting and more specific in the game Counter-Strike: Global Offensive. Audio recordings were used to explore the informal roles within these two eSport teams. While the recording of each team were unique cases, similarities between the two were found. The findings of the present study suggest that voice communication analysis does allow for finding informal roles within Counter-Strike: Global Offensive.

The findings of this study show that the informal leader verbal, spark plug, distracter and the cancer informal roles that Cope et al. (2011) suggest for traditional sport, are also found within the eSport setting. The 'informal leader verbal' role is dominantly present. Especially if listening for tactical speech or orders. It was not possible to determine if the current informal leader verbal was also the formal leader due to insufficient cooperation with the teams. The role of the 'spark plug' was also found during the study. But it is not known if the quotes that were found are recognized as motivational by the players. The 'distracter' role is present depending on the interpretation of draws away or diverts the attention. If a player is interrupting, talking at the same time or shouting, it could be interpret as a distracter for certain people, but people who are used to it might not perceive it in this way. The 'cancer' was shown to be present in the form of a wiseacre, but the data does not conclude that this role is dominantly present within the teams. The 'comedian' roles would be normally easy to be detected through the use of audio recordings. In this study limited data showed a possible comedian. It is possible that the jokes within eSport are perceived significantly different for the researcher than for the participants. The 'team player' was found, but only with a limited amount of quotes that fulfil the 'sacrifice and 'putting the team before his/her own well-being' of the definition. However, it was recognized that players try to do everything in their power to support the team. This was often done by calling out their own actions and spotting the enemies. But if these players would be defined as team players, it would mean that nearly everyone in an eSport team would be a team player. This because it might be common practice to do this calling out and spotting to warn your own team.

There are certain roles that do not match the definition that Cope et al. (2011) suggest for the specific roles 'enforcer' and 'informal leader non-verbal' and might

need adapting to fit the eSport sector. The current definition of the enforcer role states that *“it is an athlete who is physically intimidating or willingly belligerent and who is counted on to retaliate when rough tactics are used by the opposing team.”* However, in eSports there is no physical intimidation possible, this makes it so that this role does not appear in this specific way. It can be suggested that the enforcer role can have a second definition as *“A player who is verbally intimidating and who is counted on to enforce the rules or tactics to make sure the group stays on task and does as expected.”* This description of the role comes close to that of the spark plug, which is the role that *“ignites, inspires or animates a group towards a common goal.”* The difference is that the enforcer will enforce the rules to reach the goal, where the sparkplug inspires the group. This can mean that there is an existence of two enforcer type roles.

The ‘informal leader non-verbal’ role might need adaptation, the present definition by Cope et al. (2011) state that the informal leader non-verbal is *“an athlete who leads the team by example, hard work, and dedication”*, as non-verbal communication is possible within eSports in the form of pings or quick commands. Within Counter-Strike the form of quick commands is used, and are used in order to call out enemies, without using the voice of the actual player. Within multiplayer online battle arena (MOBA) games these commands are often referred to as pings, pings will result in showing your team members certain situations on the map such as if there is an enemy missing, if there is a need for assistance, if you are on your way, if there is danger or if there is a need to retreat. How often quick commands are used in Counter-Strike has not been researched and as MOBA games were not included in the study, there is no data regarding the usage of pings. However it might be that a player who actively uses the ping system to inform or guide team members can be identified as a non-verbal leader and the suggestion to adapt the informal leader non-verbal role to *“An athlete who leads the team by example, hard work, and dedication or by the usage of a significant amount of non-verbal communication”*.

Feedback from players might provide beneficial in order to locate and distinguish roles, it is also possible that the limited amount of analysed audio recordings caused for the lack of found roles.

The data consisted mostly of communication units, and negative characteristics are prone to be found during high intensity moments, for optimal team performance it might be better to train communication in order to avoid these characteristics.

Interruptions (i.e., People start talking while others are already talking, causing the first

person to stop talking), multiple people talking (i.e., Two or more people talking at the same time), uncomprehensive speech and fast speech were found by the researchers to distort most information and could cause distractions or the inability to comprehend possible necessary information that could lead the team to victory.

Certain issues were encountered that reduced the quality of the present study and it is recommended for future research to account for these issues. Data collection within the eSport setting was rather difficult, during this study teams were perceived closed off, non-responded or if they state they are were willing to participate they withdrew without a notice. Due to the lack of active participants in the current study, the usage of open source recordings were used from the 2015 ESL ESEA Pro League. The usage of open source audio recording per se is not a problem. However, there is no control for certain influences such as; (1) it was not possible to isolate each player, (2) remove background noise which caused for a longer and harder time to transcribe the data and for data to get lost, due to noise. Having the ability to have each player and the in game sound on separate audio channels would significantly increase the quality of the data and with that the ability to analyse it. Next to having each sound input on a separate channel it might be useful to have each screen recorded, this will create the possibility to analyse non-verbal screen behaviour for each individual.

Next to the usage of open source audio recordings, the lack of participants for the current study caused that the quantitative part of the study could not be performed, which would have identified the informal roles from the perspective of the participants and would provide data regarding beneficial and detrimental levels for each role which would make comparison to the Cope et al. (2011) study possible. The lack of participants also has an impact on how generalizable the study is within the eSport sector. It might be important that future research to increase sample size, but also to collect data from practice, use the informal roles questionnaire and/or interviews from players to further clarify the informal roles in eSports. Next to this it might be interesting to look into how communication quality and quantity influences the role development.

In summary, the results suggest that similar informal roles are able to be found in eSport through the usage of voice communication with the exception of a few. Certain roles might need an adaptation in definition. Communication characteristics might influence the development of informal roles and with that decrease the performance of the teams. Next to that communication has influence on the quality of

the research. Thus communication training within eSports might benefit both the teams as well as the researchers.

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APPENDIXES

Appendix 1: Themes

1 st order	2 nd order	3 rd order	Definition	Quote
Roles	Informal leader verbal	Orders n= 61	An authoritative directed or instruction command.	<i>Boost me on this box so I can pick on with my M4</i>
		Tactical speech n=35	A plan to promote a desired end result	<i>feeling counter mid, execute liquid fest like a default yes, if she can do it slower, run away throw two flashes cause you know</i>
	Comedian	n/a n=7	See Cope et al. (2011)	<i>They gonna do some crazy shit man</i> <i>Response: Yeah like they gonna die, but it gonna look really crazy</i>
	Cancer	n/a n=11	See Cope et al. (2011)	<i>I knew that was gonna happen, I was trying to get us out of there</i>
	Enforcer	n/a n=0	See Cope et al. (2011)	n/a
		Own team enforcer n=22	A person who makes sure rules of the team, event or leaders tactics are followed.	<i>hey we can't have drinks on the table, I am pretty sure.</i>

	Distracter	Interruption n=29 (Interruptions) n=115 (multiple people talking)	A person who starts talking while another person is still talking.	n/a
	Spark plug	n/a n=22	See Cope et al. (2011)	<i>we are playing them perfect boys</i>
	Team player	n/a n=4	See Cope et al. (2011)	<i>Go I will hold your flank</i>
		Thought sharing n=39	A team member who shares his thoughts out loud with his team in order to try to make the team aware of certain situations.	
		Calling out enemies n=173	A team member spotting an enemy team member and calling them out.	
		Own actions n=185	A team member who states its own actions so their team knows what their team mates are doing.	

1 st order	2 nd order	Definition
Communication	Talking at the same time n=115	Two or more people that talk at the same time.
	Interruptions n=29	A person that starts talking, at the moment someone else is already talking, causing the other person to stop.
	Fast speech	Every speech that is above the normal 120 to 200 wpm. (120 low end, 160-200 fast end)
	Repeating speech n=37	Every speech that has been repeated more than two times in a short period of time.
	Shouting n=13	The usage of a very loud voice.
	Incomprehensible speech n=327	Any speech that cannot be comprehended due to any disturbance or a bad pronunciation.