THE LITERACIES OF A COMPETITIVE ESPORTS TEAM

Livestreaming, VODS, and Mods

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Abstract

This article explores a variety of literacy practices that exist with competitive esports, namely livestreaming, moderating/Mods, and VODs/VODcasting. Nearly two decades of research have indicated that videogaming provides rich experiences for developing multifarious and diverse literacy practices, but, to-date, little research examines the literacies born out of the rapidly growing and evolving videogaming market of esports. This study provides insight into the way a team functions to provide meaning-making experiences surrounding livestreaming, moderating, and VODcasting within the burgeoning esports culture. Drawing from a two-year snapshot of a larger five-year ethnographic examination of a competitive collegiate esports team, this study is guided by the theoretical perspective of distributed cognition. Data that inform this study stem from interviews, observations, and artifacts in both face-to-face and digital spaces. Findings indicate that the esports-related literacies of livestreaming, moderating, and VODs/VODcasting, transcend and overlap meaning-making experiences—*in-the-moment* and *in reflectivity*—suggesting that the role of the team is vital to the literacies found within the esports ecosystem.

Keywords: esports, video on demand, livestreaming, moderators, digital literacies, teamwork, ethnography, literacies

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1. INTRODUCTION

> The blustery fall wind whips my hair across my face as I walk across the courtyard to the student union to attend the monthly esports LAN. In the fading dusk, I witness dozens of gamers carting wagons and armfuls of gaming paraphernalia—monitors, processors, keyboards, consoles, old cathode ray televisions, and gaming controllers. Before I can open the door to enter the building, Paul, a student volunteer yanks opens the door and greets me warmly, "Hello, Dr. Gerber! Great to see you!", before launching into a series of instructions to the other student volunteers to help the arriving gamers cart their gear up to the third floor. Watching the student volunteer team direct gamers to various rooms, and establishing which volunteer is carting what gear where, is like watching a well-oiled machine operate (Fieldnotes, October 15, 2016).

Esports is a global phenomenon that has attracted the attention of multiple interested parties—from investors to K-12 schools and universities. Esports is one of the fastest growing segments of the videogame industry, with trends indicating that it will surpass $1.5 billion dollars in annual revenue by 2023 (Reyes, 2019). The financial boom of the esports industry has led to increased interest in the development of esports teams across multiple levels, including the rise of middle school and high school esports teams (Rietman, Cho, & Steinkuehler, 2018), universities creating varsity teams and offering talented players scholarship dollars (Kozachuk, 2017), and countries, like the United States, offering P1visas to promising international esports players to represent a United States-based esports team (Lewis, 2019). One only needs to flip on the television to be reminded of just how large this segment of the videogame industry has become. For example, entire television channels are dedicated to esports, such as ESL Channel; existing cable broadcasting channels, such as TBS and ESPN offer their own esports shows and series; and even television commercials now focus on esports, such as T-Mobile's commercial about their enhanced 5G network, featuring young adults engaged in esports activities.[1]

In fact, esports has become so pervasive that it has broken into traditional sports arena allowing for the emergence of an entire new market of esports. For example, cycling, a traditional sport with over 150 years history of competitive racing, has emerged as a new esports market; in September 2019, cycling's international governing body, the Union Cycliste Internationale (UCI) signed a Memorandum of Understanding (MoU) with online gaming and training company Zwift, to host the first Esports World Championships for cycling. Traditional sports, like cycling, often have established international governing bodies (e.g., UCI), whereas most videogaming esports competitions are still quite fractured and do not have established

[1] *ESL Channel is the first cable channel dedicated 100% to esports and began broadcasting on cable networks in 2016. TBS offers their own esports league a television broadcast called E-League and ESPN regularly broadcasts esports competitions, both since 2016. T-mobile launched their 5G commercial featuring esports in 2020.*

international governing bodies[2], therefore, this cross-over is important to watch and consider for what it tells us about the future of esports and the esports market.

However, despite the rapid and diverse growth of esports, more research is needed to understand the potential of esports for the value it offers meaning-making practices and literacies-driven endeavors. A well-developed field of scholarly research has indicated that videogaming involves rich, nuanced, and diverse literacies experiences for players (Abrams, 2009; Gerber, 2008; Gerber & Abrams, 2014; Gee, 2003; Gee & Hayes, 2010; Selfe & Hawisher, 2007; Steinkuehler, 2007). Therefore, esports, as a rapidly evolving gaming market, should be examined for the same value. Because esports is touted as the next videogaming market for businesses and industry to invest in, and because industry reports drive not only research and development inside that venue but also outside of the venue—such as industry reports being used to govern school-wide adoptions of technological programs and innovations—studying the literacies of the esports ecosystem is necessary. Although current research has examined the literacies developed around esports streaming (Gerber, 2017), esports environments as a pathway to STEM career readiness (Anderson, Tsaanan, Reitman, Lee, Wu, …& Steinkuehler, 2018), the development of teamwork strategies from analog to digital within esports environments with high school students (Gerber, Sweeney, & Pasquini, 2019) and deep learning strategies attained through esports participation (Canning & Betrus, 2017), more research is needed on the development of literacy practices that emerge within a team-based esports ecosystem, particularly a competition-oriented team unit ecosystem.

An ecosystem is defined by the very nature of the interrelated aspects of discrete functions that operate as a whole, namely living organisms interacting with nonliving components in order to function as a system (Ecosystem, 2020). The esports ecosystem is defined as the individuals involved with the production and co-production of esports events (e.g., the players, the managers, the coaches, the streamers, the developers) with the gaming system itself (e.g. the hardware, the software, code, algorithms, etc.) (Gerber, 2020; Esports Observer, n.d.). It is important to understand how various literacies are developed within and around the esports ecosystem, both in and around the actual game and beyond the game into other arenas (e.g., digital social spaces, such as Twitch and Discord, that are widely used by players) with players who hail from within a competitive team environment. Because esports is inherently a team-based ecosystem, the dynamic of the team function is important to study.

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[2] In the esports market, most championship games are hosted by the videogame company that has created the title, such as Riot's League of Legends Championship Series whereas Valve's Dota 2, The International, is hosted by a third-party organizer, Electronic Sports League (ESL). It should be noted that ESL is a third-party for-profit company, versus an international non-profit governing body, like UCI or the International Olympics Committee (IOC).

2. RELATED LITERATURE AND THEORETICAL PERSPECTIVES

2.1 Gaming literacies

Scholars have been studying the literacies inherent in videogaming practices for the better part of almost two decades (Abrams, 2009; 2011; Curwood, Magnifico, & Lammers, 2013; Gee, 2004, Gee & Hayes, 2010; Gerber, 2008, 2009, 2017; Gerber & Abrams, 2014; & Duncan, 2012; Lammers, 2012; 2016; Magnifico, 2012; Selfe & Hawisher, 2007; Steinkuehler, 2007). Gaming literacies are performative, nuanced, and complex, grounded in social and cultural forms of communication not limited to reading, writing, listening, speaking, viewing, and representation, which are key modes of communication for contemporary literacies and methods of meaning making in videogaming (Gerber, 2008).

Of particular interest to scholars concerned with literacies development and meaning-making practices in and around videogames and videogame spaces, is the way that gamers come to understand and make meaning of the complex worlds and environments that they inhabit. Scholars have traced these literacies practices as they occur both within and surrounding (i.e., *outside of*) the videogame itself. Previous scholarship has examined the videogame paratexts that gamers have created such as that found within the fanfiction and machinima communities (Apperley & Beavis, 2012; Black, 2007; Gerber & Price, 2011; Lammers, 2012; 2016; Magnifico, 2012) while other scholars have looked to the texts that gamers create within and during the game, namely through performative and projective means (Abrams, 2011; Gee, 2003). The general consensus among scholars is that the development of these literacies practices in and across videogaming spaces is dynamic, iterative, evolutionary, and often collaborative. It is vital to understand the influence of the aforementioned aspects of the meaning-making practices (e.g., dynamic, iterative, evolutionary, and collaborative), particularly the aspects involving the collaborative and collective meaning-making experiences that occur within team-based videogame play found within esports. Team-based videogame play often provides different nuances within that specific community's gaming culture than say single-player games (Gerber, 2015), therefore it's important to also examine how specific cultural aspects within a specific team shape meaning making and subsequently the development of esports-related literacies.

2.2 Gaming culture

Culture, defined by Merriam-Webster as "the set of shared attitudes, values, goals, and practices that characterizes an institution or organization" (n.p.) is a central component of ethnographic research, which is defined as the "discovery and comprehensive description of the culture of a group of people" (Johnson & Christensen, 2014, p. 450). To understand culture means to understand both the material (e.g., gaming guides, computer hardware and software) and non-material (e.g., specific

language, mannerisms, norms) processes and practices of a specific culture, or, community and/or team of people.

Games scholars have used ethnographic research for the better part of the last decade to better understand different facets of gaming culture. A variety of studies centering on different aspects of gaming culture have provided the field a deeper awareness into how players use resources to aid in communication (Chen, 2012), how players develop identities related to professional gamers (Taylor, 2012), how players discover methods for re-developing community after platform loss and collapse (Pearce, 2009), and how players navigate the development of identity within open virtual worlds (Boellstorff, 2015). By studying the values, attitudes, norms, and practices of specific gaming cultures, researchers have begun to develop insight into communities of play that center on specific games (e.g., *League of Legends*, *World of Warcraft*), platforms (e.g., PC, console, mobile), or practices (i.e., competitive teams versus recreational groups) (Boellstorff, Nardi, Pearce, & Taylor, 2012). By examining the different cultural aspects of diverse communities of play, researchers can look to nuances of teamwork and community to understand meaning-making processes within a specific competitive team.

2.3 Teamwork: Community and communication in gaming

Teamwork in gaming involves cooperative interaction among various individuals operating as whole (i.e, a collective) (Gerber, 2015). In order to engage in teamwork, particularly in esports, individuals must cooperate together to achieve a level of cohesion (Gerber, Sweeney, & Pasquini, 2019). A team cannot exist without cohesion and in order to be a team, the individuals who comprise the team must acquire a sense of togetherness (i.e., belonging), create distinction from other teams, determine common goals and objectives, and develop cooperation with each other (Prapaveis & Carron, 1997). Over the past decade, scholars have studied the impact and effect of teamwork within gaming communities in order to understand the ways that expertise is developed within a guild (i.e., team) of players (see also Chen, 2012) and with high school esports players in order to understand how explicit instruction in communication techniques among teammates can lead to enhanced teamwork-related competition strategies techniques (see also Gerber, Sweeney, & Pasquini, 2019).

Understanding the functions of teamwork provides insight into how cooperation and cohesion intersect, which is an important aspect in esports (Tang, 2020). Prapavies and Caron's (1997) aforementioned facets of cohesion within teams (e.g., belonging, distinction, common goals, cooperation), suggest that interactions amongst individuals of the team unit should be guided by parameters determined by the unit itself. This means the team collectively determines their team's guiding principles, whether that is through the guidance of a coach, other teammates, governing bodies, or different entities that govern their structure.

In particular, if an esports team lacks the aforementioned crucial components of cohesion, then team dynamics will break down and overall team performance will decline (Himmelstein, Liu, & Shapiro, 2017). This is where understanding the communication techniques and strategies of teammates becomes central to understanding meaning-making practices among esports players. Research by Gerber, Sweeney, & Pasquini (2019) indicated that the very facets of cohesive units within developmental esports teams is earmarked by the ability to use multiple communication strategies in order to communicate among teammates within the game, in this case, within *League of Legends*. Communication between and among players, particularly within team-based games, like the multiplayer online battle arenas (MOBAs) found in esports, is central to successful game play. As earlier scholarship has indicated, the modes of communication in and around gaming are diverse and are made up of intersections of reading, writing, listening, speaking, viewing, and representation (Gerber, 2008), whereby each mode of communication builds upon and informs the other modes. Therefore, in esports, modes of communication could be comprised of voice of internet protocol (VoIP) via headsets, in-game chat, *extragame* chat, such as through messaging and communication systems like Discord, Twitch, or Twitter. These various modes of communication are central to meaning making within esports and directly influence how teams work together.

In particular, reflection is a core component of understanding communication and cohesion within a team structure. Reflection can be noted, in simplistic terms, as the instances where recognition of one's own past actions are noted to shape their future actions, or where quick moments and instances of thinking provide immediate points of action. In essence, reflection can be seen as an iterative loop of meaning making, wherein, personal beliefs and social interactions together inform one's reflections and future actions. Research notes that reflection is often aided by feedback loops, which serve as core components in meaning-making experiences within gaming (Abrams & Gerber, 2021). In competitive team structures, such as those found within esports teams, reflection is central to the development of both the individual and the team.

2.4 Theoretical framework

To date, videogame scholars have used multiple frameworks to understand the collective, collaborative, and cooperative meaning making that occurs within and across spaces (Abrams, 2009; Gerber, 2008; Gee & Hayes, 2010; Hayes & Duncan, 2012; Steinkuehler, 2007). Videogame scholars have turned to the theories of affinity space (see also Gee, 2003), communities of practice (see also Lave & Wenger, 1991), distributed cognition (see also Hutchins, 1995), and connected learning (see also Ito, Guiteirrez, Livingstone, Penuel, Rhodes, & Salen, 2013) to better understand how work between, among, and across individuals influences both production and coproduction of artifacts and experiences. As previously explained, past studies have examined gaming literacies that involve participants who engage in videogaming as

a recreational past time, with the creation of game-related artifacts as a hobby that stems from videogame play (see also Abrams, 2009; Gerber, 2008, 2009, 2011; Gee, 2003; Magnifico, 2012; Stienkuehler, 2007). In contrast, in the case of competitive collegiate esports players, many of these players see themselves as professional or semi-professional players as part of a cohesive team unit, involved in the development of artifacts and experiences as more than just a recreational experience, but one that might lead to a potential lucrative career in some format within the industry. As Jim (a member of the Varsity esports team that I studied) noted in an interview, "well, I play Varsity for a university team, so when I go into these communities [Twitch] there is a lot of respect." He went on to explain, "on Twitch people ask for advice [on their game play] and I am like, 'if you want, I can help you get better because I am a professional on a collegiate team.'" The idea and concept of professionalization around game play through esports, and the understanding that this involves hours of dedication in working as a member of a cohesive unit and team, opens up a different window to study the literacies and meaning-making practices involved in this genre of competitive gaming. In her seminal research on the professionalization of videogaming, T. L. Taylor (2012) noted that the transition to the professionalization of videogaming into sport is not without its struggles and we cannot divorce the game or the gameplay from the community in which it occurs.

> They [computer games] do not exist in some rarefied state but are part of a complex process by which a bit of software traverses a field of interest, being transformed along the way…computer games are always situated as complex cultural artifacts for different sets of communities and stakeholders. In esports in nuanced ways in the service of professionalization and the transformation of leisure. (pp. 239)

Because the idea of professionalization and teamwork is central to the study, examining the data through a distributed cognition lens (Hutchins, 1995) allows for a better understanding of how these practices coalesce within a team specifically geared toward the professionalization of videogaming. Distributed cognition harnesses socio-cultural and socio-cognitive frames of learning within educational experiences and provides an exploration of the cognitive ecosystem that is distributed across individuals and artifacts, who specifically function as a team or a unit, allowing a deeper understanding of how literacies are developed and meaning-making experiences occur. Recognizing that both the individual and the artifact are central to understanding how meaning comes to be, distributed cognition provides a robust framework for understanding how media, technology, and digital ways of being, inform meaning-making practices in and across individuals within a team, and particularly, within this case, esports players on a competitive team. The focus of distributed cognition is on the collective unit, and the cohesion of the unit as they move toward unified goals, with each member having distinct but valuable and equal contributions to the whole as distributed across person and machine. Given the intersection of digital and human (e.g. person and machine), this means that distributed cognition is the ideal framework for understanding how esports teams develop ideas, make meaning, and negotiate communication strategies, versus other

theories, such as affinity space (Gee, 2003) or communities of practice (Lave & Wenger, 1991). For example, although affinity space is guided by passion for a particular game or topic, it also undergirded by the Pareto principle, which indicates an 80-20 breakdown of work, where 20% of the members of the space are responsible for 80% of the work (see also Gee & Hayes, 2010). In a cohesive esports unit, effort needs to be equally distributed among and across all members.

3. METHODOLOGY

Understanding the need to more deeply examine the diversity of meaning-making practices that occur within and throughout an esports team, the purpose of this research was to explore the literacies and meaning-making practices within a competitive collegiate esports community, in particular within smaller competitive teams and sub-team structures (e.g., Varsity and Junior Varsity levels) of a larger team-like collective (e.g., a university club, high school club, etc.).

3.1 Research design

This article showcases a two-year snapshot of a larger five-year ethnographic examination of competitive collegiate esports team located in the mid-central southern United States. From 2016 to 2018, I conducted over 100 hours of observations of monthly local area network parties (LANs), such as highlighted in the aforementioned fieldnote vignette, as well as observed over 100 hours of other esports-related functions such as attending and observing officer meetings, traveling with select team members abroad, attending and observing scrimmages and competitions, as well as participating in and observing multiple community outreach events in and for local schools. Additionally, I conducted over 20 formal and informal interviews with key informants, as well as delved into the team's digital presence found within the digital social platforms of Twitch, Twitter, and Discord.

The use of remixed and multimethod approaches to ethnographic research within and around digital spaces (Gerber, Abrams, Curwood, & Magnifico, 2017) allowed a robust and nuanced understanding of how esports literacies and meaning-making practices move in, among, across, between, and through individuals, spaces, and artifacts.

3.2 Research questions

The guiding questions to this research centered on the use of literacies and meaning-making practices, both within game play and outside of game play, within a collegiate esports team.

- What forms, functions, and purposes are inherent in esports-related literacies used within and across a competitive team?

- How do these esports-related literacies inform teamwork and community within a competitive esports team?

3.3 Key informants and site context

This article is informed by interviews, observations, and interactions with seven key informants from a collegiate esports team at a mid-sized university in the mid-southern United States (see Table 1) over a two-season competitive cycle. Although the majority of the observations and data came from events and episodes occurring in the site located in the mid-southern United States, other observational data came from multiple contexts when traveling with the team (such as to international locations and/or local schools). All observational data, however, were limited only to the members of the team, not to individuals who were not on the team. Additionally, team-based digital social spaces and sites (Twitch, Twitter, and Discord) were also used to further understand the esports-related literacies and meaning making practices with which the players were involved. Table 2 details the data types and sources discussed within this article.

Because some of the data in the data corpus are in the public domain, I took extreme caution with maintaining levels of confidentiality. Data from Twitter, Twitch, and even some aspects of Discord are often public and can be found with simple Internet searches (e.g., Google, Bing). Therefore, to maintain the confidentiality of my participants, and when necessary to protect their identities, I engaged in medium levels of concealment of the digital data by obscuring names of participants, rewriting or paraphrasing Tweets or Twitch comments when necessary, and changing the names of specific venues or @mentions (see also Bruckman, 2002; Gerber, Abrams, Curwood, & Magnifico, 2017). Table 3 provides the definitions and key characteristics of each of the digital social spaces used.

3.4 Research positionality

Researcher positionality describes a researcher's worldview and any potential biases that might interfere with analyzing and interpreting the data. Bound in ontological, epistemological, axiological, and methodological considerations, a researcher's positionality allows for full development and exploration of philosophical assumptions and biases before, during, and after data are collected. As a scholar who has studied youth videogaming for fifteen years, and an individual who has studied esports communities and teams for the past five years, as well as serving as a faculty sponsor for an esports team, a summer counselor and director for middle and high school esports camps, and an external evaluator for National Science Foundation grant-funded esports program that targets at-risk populations, I have developed a unique understanding for operational aspects of esports teams. This understanding stems from the etic perspective—as I am not a competitive esports team member myself—yet is also an emic perspective, as I regularly engage in negotiations to help esports

teams successfully navigate uncharted territory, such as garnering university support for more funding. This blend of etic and emic perspective allows me to maintain balance in my researcher identity, particularly within ethnographic research where, "going native…[where] the researcher identifies so completely with the group that he or she can no longer step back and take an objective perspective" (Johnson & Christensen, 2014, p. 455) can have a negative impact on a study and the findings.

Table 1. List of 7 key informants

Name	Major	Year	Gender (self-identified)	Interviews & observations	Main games played
Jerry	Psychology	Sophomore	Male	2016-2018	*Overwatch*
Gary	Art	Sophomore	Male	2016-2018	*League of Legends*
Paul	Biology	Junior	Male	2016-2018	*League of Legends*
Emmanuel	Management Information Systems	Junior	Male	2016-2018	*League of Legends*
Sara	Criminal Justice & Computer Science	Junior	Female	2016-2018	*League of Legends*
Julie	Psychology	Junior	Female	2016-2018	*League of Legends*
Jim	Computer Science	Sophomore	Male	2016-2018	*Overwatch & League of Legends*

Note. The key informants listed here stem from a larger 5-year ethnographic examination. Because this is a multi-year longitudinal study, I have listed the years in which the main observations and interviews of these informants took place so that there is temporal context for discussions. Because gaming, technology, and trends in Esports shift so rapidly, it is important that time frame is documented in order to contextually situate the data. It should also be noted that each game represented in the chart also had several competitive teams that played at multiple ranks, including Junior Varsity and Varsity.

Table 2. Data corpus for analysis

Data Source	Details
Interview transcripts	7 formal semi-structured interviews with 7 focal participants 15 informal unstructured interviews with 7 focal participants
Participant Interactions	Participant observation of LANS, viewing parties, competitions, scrimmages, coaching/mentoring activities
Field notes and memos	Field notes and reflective memos from 200 hours of observation of various interactions across five years (2016-2020)
Artifacts	Team Level: Public Twitter posts, Discord channels, Twitch channels, VOD Casts, VOD Reviews

Table 3. Key digital social spaces used by participants

Space	Defining Features	Key Uses by Participants
Twitter	Microblogging platform	Space used by key members (e.g., managers and officers) to share happenings, LANS, and events with the greater Esports community.
Twitch	Livestreaming video service	Space used for livestreaming official matches, scrimmages, and events.
Discord	Messaging and communication service	Daily communication between and among members, teammates, and coaches. Team communication platform for use during practices and tryouts.

3.5 Data analysis

In order to understand the literacies of the esports ecosystem practiced by a specific team of competitive collegiate esports players, I engaged in thematic analysis (Boyatzis, 1998) of the data corpus. Thematic analysis involves (a) data familiarization (b) coding of the data corpus (c) generating initial themes (d) reviewing initial themes (e) defining and naming themes and (f) writing up the findings of each themes.

As an ethnographer, my data familiarization practices are conducted in concert with data collection. Therefore, in order to familiarize myself with the data, I read and reread transcripts and fieldnotes throughout the data collection process. This data familiarization allowed me to begin to glean insights and draw initial parallels between and among data sources while in the field. In order to formally code the data, I relied upon descriptive coding (Saldana, 2013) as related to elements of literacies practices (e.g., the modes of communication in literacies, such as reading, writing, listening, speaking, viewing, and representing) and nuances of teamwork (e.g., collaboration, cooperation, competition, and cohesion) in order to better understanding how literacies and meaning-making practices were distributed across person and machine (i.e., as noted within distributed cognition). As indicated by Saldana (2013), descriptive coding is appropriate for ethnographic studies and studies that have varied data forms (e.g., mix of interview transcripts, fieldnotes, reflective memos, artifacts, correspondences, video) versus singular data forms (e.g., solely interview transcripts or fieldnotes). Additionally, descriptive coding is an ideal method for longitudinally analyzing interactions of participants across time periods in order to understand material products and physical environments found within ethnographic fieldwork (Hammersly & Atkinson, 2007, pp. 121-39). Given that this article chronicles findings born out of five years of fieldwork, including a large and varied data corpus of participant interactions across multiple domains (face-to-face, as well as a diversity of digital social spaces such as Twitch, Twitter, and Discord) and examines the creation of digital artifacts, descriptive coding was most appropriate to use.

In the initial analysis, I examined the data corpus and relied upon descriptive coding to trace specific instances and language related to the meaning-making practices

surrounding the development of esports literacies within competitive team-based environments. Table 4 provides samples of the coded data and codes that emerged. In the second level of analysis I generated themes by comparing my codebook with the data corpus. I clustered the codes into the relevant themes and reviewed them before writing up the themes. Table 5 provides samples of codes and themes.

Table 4. Samples of coded data using descriptive coding techniques

Data Source	Coded Data	Notes
Interview with Jim, Varsity *League of Legends* Player	"There's different ways to do it, umm like for example, she streams it, while on Twitch but I won't watch it while she streams, so that way I won't know what happens, and she'll send it to me and then I will watch it, and that's when I will say, 'here it is, here's what you need to do' and then I will take some notes to send to her to discuss and then that's it." *Descriptive codes*: viewing, coaching, VODCast, VOD Reviews, helping, discussing, writing, multiple ways/routes to participation	In an interview, Jim was describing the methods that he uses to coach other players via Twitch streams, including VOD casting and VOD Reviews.
Discord chat	SikeR: "Does anyone live in the Kastles Komplex and have a keyboard I can barrow (sic). I am trying to boot into my bios but my motherboard isn't recognizing my keyboard." Rider: "I don't have one @SikeR or I'd let you borrow. Try different USB ports." Angel12: "@SikeR I am at Oak Villas if you want to come borrow mine for a couple of hours." *Descriptive Codes*: problem solving, borrow, team communications, scrimmage, helping	This exchange took place on the team Discord channel prior to a team scrimmage. SikeR was looking for someone to loan him equipment so that he could take part in the scrimmage. @SikeR used the #general chat channel to ask others for help.
Fieldnotes, Oct 15th, 2016	In the fading dusk, I witness dozens of gamers carting wagons and armfuls of gaming paraphernalia—monitors, processors, keyboards, consoles, old cathode ray televisions, and gaming controllers. Before I can open the door to enter the building, Paul, a student volunteer yanks opens the door and greets me warmly, "Hello, Dr. Gerber. Great to see you!", before launching into a series of instructions to the other student volunteers to help the arriving gamers cart their gear up to the third floor. Watching the student volunteer team direct gamers to various rooms, and establishing which volunteer is carting what gear where, is like watching a well-oiled machine operate. *Descriptive codes*: equipment, volunteering, team, team communication, LAN preparation	The fieldnotes were written from my jottings and memos that I collected at a monthly LAN. The descriptive fieldnotes portrayed in the table were written the morning after the LAN when I reviewed the jottings and memos.

Table 5. Samples of codes and emergent themes

Emergent Themes	Sample Codes
Collaborative productions and relationships	Volunteering, helping, discussing, team communications, problem solving
Apprenticeship and coaching through principled practice	Multiple routes to participation, LAN Preparation, scrimmage

Note: These are emergent themes and codes to be used as examples of the code book. They do not represent the codebook in its entirety or at its final stage.

4. FINDINGS

The following themes emerged from the thematic analysis of the data corpus: (a) Livestreaming: Creating a "Community within a Community" (b)"Gimme mod. Gimme mod.": Strengthening literacies co-productions; and (c) "Send me a clip of your game play": How VODReviews and playbacks support in-game interactions and foster collaborative reflection.

4.1 Livestreaming: Creating a "Community within a Community"

Across my observations and interviews, I witnessed instances in which team member relationships were built on individuals collaborating outside of actual competition. What this means is that terminologies, phrases, and relationships were built outside of actual competitive game play within sub-communities (e.g., a player's Twitch streams) of the larger community (esports team). Although at the surface collaboration in a multiplayer competitive game might seem to strictly occur within game play, it became evident that the aspects of collaboration and working collectively often preceded competitive game play and led to meaning-making experiences (e.g., Twitch streams) that could be used by others outside of the immediate collective team (i.e., such as people who are not on the team at all who might view the Twitch stream of a Varsity esports player).

One of the main activities that I observed some of the members of the competitive esports team doing was creating esports livestreams on Twitch. A livestream is a production where a videogame player plays a videogame in real-time online for an audience of viewers who are also watching in real-time. Similar to a live broadcast, the creation of a livestream is a complex process that requires a streamer to navigate multiple modes of communication (reading, writing, listening, speaking, viewing, and representing) in order to create a stream that others will want to watch (Gerber, 2017). In many cases, many popular streams and streamers have multiple participants who are part of the community process of creating a livestreaming. As Sara, a Junior Varsity *League of Legends* player, noted in an interview about livestreaming practices, "it's [livestreaming on Twitch] really about creating a community within a community."

While a livestream is being broadcast to viewers, the streamer is often engaged in playing the game, adding commentary on the game, adding or removing background music, managing new subscribers, and reading and responding to the community chat (Gerber, 2017). Often, the community chat is the space where there is the evolution of a "community within a community" as Sara stressed. When streamers have large followings, or even medium sized followings, the chat can negatively influence the streamer's interactions. Jerry, a top-ranked Varsity player for the *Overwatch* team, as well as his university team's top streamer for monthly LANs and games, noted in an interview

> the chat can just get out of control. When I stream I try to eliminate everything else. I make sure doors are closed, my roommate shuts up, like everyone needs to be in their own zone. It never ends up happening though. But I try to keep an eye on the chat at all times. It can sometimes kinda take away from the game because I am reading the chat and then the next thing I realize is I am like, 'oh hey, you're running around in circles Jerry' and I'm like to my viewers, 'oh hey, my bad.'

As Jerry indicated, navigating the various modes of communication (e.g. reading, writing, listening, speaking, viewing, and presenting) means that a streamer must always be prepared to navigate different tasks simultaneously. In the aforementioned example, Jerry is navigating instances of reflection in-the-moment (i.e., reading chat and realizing things are going awry in his game play) as well as in reflectivity (i.e., noting that based on prior experiences he must have his roommate be quiet, doors closed, etc.). Because his teammates rely on Jerry to stream team matches as well as informal LANs and pick-up games, he has had to develop techniques that will provide opportunity for honing his skills and adding value to the needs of the team, be it a Friday night LAN livestream, or a scrimmage between his team and another rival team.

In fact, Jerry's teammates have noted the importance of Jerry's streaming in their own development of teamwork and communicative skills. Although Sara referred to, in general, that Twitch livestreaming was about building "communities within communities", she also noted that Jerry's streams often "bring us together", alluding to his stream in the larger Twitch ecosystem provided a platform and a forum for their team to congregate. In this way, teamwork is being built, communication strategies are being developed, and both the individual and the collective work toward negotiating their team's norms, values, and practices both in-the-moment and in reflectivity. The importance of these meaning-making practices cannot be understated for how they aid in the development of greater team cohesion.

4.2 "Gimme Mod. Gimme Mod": Strengthens literacies co-productions

In order to aid in the development of team cohesion and "community within a community" within a livestream, as stressed by Sara, streamers often have the help of one or more individuals known as moderators, or known colloquially among streamers and the streaming community as simply, mods. Mods help to manage the chat of

large streams with many viewers and primarily are concerned with reading the chat and interacting with individuals in the chat stream either through writing messages or providing commentary via emotes[3], which is done by either typing in a line of code, or using the emote icon in chat to select from a preconfigured bank of emotes. See Figure 1 for some of the popular stock emotes available in the Twitch stream (versus custom designed emotes that many streamers have specific to their stream). Although streamers can set up bots[4] to moderate the chat, Jerry noted that actually having a real person as moderator is preferred and that, "most people like to be mods. Most people want to help out other streamers. If you enter a new chat everyone will always say 'gimme mod. Gimme mod.', like Julie [a teammate] likes to do when I stream." As he later reflected, "well, being the mod is also an aesthetic thing. When you are the mod you have a little green sword by your name and everyone loves it because everybody wants the green sword." Jerry's recognition that being the moderator is part service to the community and part peer recognition (i.e., as noted by the green sword next to the moderator's name) is an important one to consider when we examine how a team member negotiates modes of communication and ways of being within the team and yet also in the larger esports community. This is a recognition that teammates must work together collaboratively to help out teammates so that they can be successful while also gaining a bit of their own notoriety is an important facet to consider.

Moderators are important to the stream because they help control unwanted behavior like trolling[5] and spamming[6], they help manage busy chats, and they let the streamer focus on game play and commentary. This requires in-the-moment meaning making in order to ensure that chat runs smoothly. The best moderators are "on top of the chat" and "helping to create community with the viewers by entertaining and adding value to the chat stream", as noted by Emmanuel, a top-ranked Varsity *League of Legends* player. Additionally, as Jerry proclaimed, one of the biggest issues is "making sure that the streamer is not distracted by the trolls and spammers". In a Twitch stream, trolls and spammers often will try to distract the streamer and derail the chat community by repeatedly entering in phrases, symbols, and emotes that are counter to what the streamer is often doing. A good moderator will engage and ban individuals who are causing destruction in a chat before the streamer notices and

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[3] Emotes are icons that are available to use within the Twitch chat. Some emotes are available only to subscribers and other emotes are built custom for specific streamers. Other emotes are globally available to all streamers on all channels.

[4] Bots are used by streamers within the Twitch chat stream to do things such as monitor the chat, manage music selections, and ensure that the chat is maintained to the streamer's preferences. This means that bots can filter out profanity and stop spamming.

[5] Trolling is noted by when an individual intentionally leaves off-putting or negative comments in hopes that the individual they are trolling will "bite" and attempt to fight back, allowing the person trolling to continue to attempt to derail the individual.

[6] A spammer in a livestream will post the same emotes or comments over and over in the chat in order to take over the chat so that others can no longer engage in chat.

gets distracted from game play. However, many of the players on the esports team noted that not all spamming is bad. A good moderator will help start "good" spamming in instances where it is warranted, "so there is good spam and then there is trolling…like [Julie] continually shooting up my personal emote in the chat for others to follow suit when I make a good move. It's just one of those whole creating the community things. Seeing something you created come to life." (Jerry, interview, March 29, 2017). The moderator must understand and make in-the-moment decisions on when to begin throwing good emotes into the stream to hype up the stream, or when they must work to counteract the bad emotes being thrown out by a spammer. As Sara noted at a LAN when watching Jerry stream, "It's interesting to watch the emotes conversation in Jerry's stream. It is almost its own language", thus signifying the importance of negotiating the language of emotes with the streamer's commentary, as well as in support of the emotes being used by the viewers in the chat.

The way that teammates collaboratively engage in negotiating moderating practices indicates a desire to work toward helping teams to be successful. Jerry mentioned how Julie, a Junior Varsity member of *League of Legends,* loved to engage and help out by moderating his Twitch stream. Even though Julie was not a member of the *Overwatch* team, she engaged in learning the language of game play within *Overwatch*, and learned what communication techniques (e.g., emotes, good spamming, punting trollers off of the chat, etc.) would be best used as a moderator of Jerry's *Overwatch*-related Twitch stream. This became a valuable contribution to the overall esports community, and to the Varsity *Overwatch* team community in particular. In this sense, the work between streamers, like Jerry, and moderators, like Julie, allowed for the co-production of a Twitch stream that was used by other players on the *Overwatch* team in a tutorial manner (e.g., watching Jerry's stream to learn new combos or moves). Additionally, Julie's in-the-moment moderator interactions allowed Jerry to capitalize on his own in-the-moment levels of reflection during game play and allowed his teammates—and others outside of his team who watched the Twitch stream—to gain tutorial aspects, in which they could learn from and apply to their own game play through reflecting on their own play. Jerry's teammates, if they so chose, could then record their own game play and attempt the moves and combos they learned by watching Jerry allowing them both in-the-moment and in reflectivity meaning making.

4.3 "Send me a clip of your game play": How VOD reviews and playbacks support in-game interactions and foster collaborative reflection

Another esports-related literacy practice is that of VODCasts and VODReviews. The process of producing VODs aids in the development and refinement of meaning-making practices within and beyond competitive game play. Essentially, a VODReview is when a more skilled player or coach will analyze a VOD Cast of lesser-skilled players who are looking to improve gameplay. VOD, quite simply, is an acronym for

'video on demand' and a VODReview is a review of a VODCast, where a VODCast is a prerecorded video of game play. This VOD might be a prior livestream from any of the streaming platforms (e.g. Twitch, Mixer, YouTube Gaming, Facebook Live, etc.) or a privately captured recording meant only for the VOD reviewer. In many ways, the process of doing VODs is a process of teaching and coaching—it is engaging in watching a player perform and then being invited to critique the performance of another player in order to allow the player to improve game play. It is both meaning making *in-the-moment* and *in reflectivity*.

Jim, a ranked Varsity *League of Legends* teammate noted that he feels providing community members his services with doing VODs is a way to "give back to the community and help others improve." As he stated

> I watch them play rank [a ranked game], but I only focus on what they are doing, I try not to focus too much on the team [at large] because I am looking at the individual versus the team play…I'm looking at their individual mistakes, big mistakes and small mistakes, and I'll catch it and point it out.

Doing a VOD is sometimes solicited by the novice player who watches a more expert player play or livestream (e.g., such as a new player watching Jerry livestream *Overwatch* and then asking for helping) and sometimes it is a service offered by the more expert player who watches the livestream of a lesser skilled or lower ranked player (e.g., such as a Varsity player watching a Junior Varsity player and offering to help them improve). For example, Jim noted in an interview, "She [another streamer who was not on the university esports team] found out that I played [Varsity] for a school team and she was saying 'wait, can you like help me get better at this game?'" The solicitation and/or offer can also sometimes happen in person, as I witnessed in several of my observations of players and teammates interacting in LANs, such as when I observed Jim state when he was watching Julie play a casual pick-up game of *League of Legends* at the monthly LAN. "Listen, I can help you play better ranked matches and you need to improve on finishing your combos. See how you're having a hard time finishing the combo? Let me do a one-on-one with you, or do a VODReview, of your play." (Fieldnotes, February 22, 2017). Additionally, at the larger team level, players willing to provide VOD services, or players looking for VOD services, could often find such advertisements and announcements in the team Discord chat, either under the university team's #self-promotion channel or #general channel. As Jerry noted,

> Discord is the new beat…it literally went from the West Coast to all the way over. Europe picked it up four or five months ago. Now it's reached Korea. It's basically the thing [to use]. Discord has become the media source. It's almost like Twitter for me. I will post my announcements when I go live, I will update them on what's going on with my stream. I will just join a chat channel and I can just talk with a lot of people at once. Advertise VOD services, you know? (Jerry, interview, 2017).

Figure 1. Examples of twitch emotes

Emote Code	Emote	Meaning
:Kappa:		Sarcasm or wry humor. Kappa is our signature emote.
:HeyGuys:		A casual greeting. Used when joining chat, or when welcoming someone to a stream.
:LUL:		Laughter. The emote version of Laugh Out Loud.
:CoolStoryBob:		Our version of "Cool story, bro." Used sarcastically when someone is saying something unimportant or babbling.
:4Head:		:Laughter, but in a slightly mocking way. Often used as pity laughter when someone tells a lame/dad joke.
:FrankerZ:		DOG! Used where there's discussion about a dog or when a dog is shown on stream. Generally, dog stuff.

Note. This figure represents some of the popular emotes used within a Twitch chat stream. Note that the line of code in the far-left column can be types into the chat and the relevant emote associated with the line of code will appear in the chat.

Beyond the help of VODs and one-on-one sessions for individual players, both those offered in-person and those offered on various social digital platforms (e.g., Twitch and Discord), teammates often shared various play-by-play commentaries and recorded VODs across the multiple team social digital spaces and provided a 'head's up' for teammates to watch in order to help improve team game play. "Check out this VOD of the play-by-play of @hellokitty on Team East State annihilating @franticfrog on Team West State. We need to try this combo." (Rephrased social media post,

2017). In one officer meeting I observed, I witnessed Gary and Paul get into a heated debate about offering VOD services to the larger esports community as a function of a themed LAN. Both teammates thought that offering VOD station at the LAN could become contentious if casual players who were attending just to socialize did not understand the purpose of VODs for continual improvement.

In short, overwhelmingly the players on the team noted that in order to improve, players must share expertise and experiences with each other, and players must watch more proficient players if they hope to improve their game play. As Emmanuel stressed,

> To get better, I started looking at all the pro players VODs and streams. I looked at the top pro players [in roles] I am trying to get better in. So, you know there's different roles, top lane, I'm a support man, there's no point in me watching jungle or top or mid or ADC [Attack Damage Carry]. I just want to watch support lane. So, [to get better] I watched the support streamers and I watch, I guess I should say, pick and choose to watch who will help get better in roles you play. I guess it's kind of like watching a teacher teach. It's like you know they say, 'hey be careful with this problem. Make sure you don't do the same mistake. It's kind of like them [teachers].

Recognizing the power and the benefit of watching and engaging with more proficient players through VODs is an important aspect of engaging with and bettering one's competitive videogame play. In this essence, the more skilled teammates worked to help newer players gain needed skills, while more expert players relied upon watching streams of others from outside the team in order to hone and refine their skills for the different roles that they played and to bring their newly gained skills into matches and scrimmages.

5. DISCUSSION

Across the observed literacies and meaning-making practices found within creating livestreams, moderating livestreams, and conducting and curating VODReviews, it is evident that these esports-related literacies are robust and the meaning-making practices within the literacies are rich and nuanced. Teammates worked together across these literacies to learn from one another both *in-the-moment* and *in reflectivity.* It is important to note that the esports-related literacies of livestreaming, moderating, and VODCasting were composed of meaning-making practices that required players to engage in multiple modes of communication (e.g. reading, writing, listening, speaking, viewing, and (re)presenting). Additionally, these esports-related literacies required members of the team to work together collaboratively and collectively, navigating the established norms, values, and behaviors of their distinct team culture (e.g., such as Jim knowing it was okay to offer unsolicited help to Julie) as well as the greater esports community (e.g. such as Julie understanding how to moderate the chat in Jerry's livestream even though she was not an *Overwatch* player, but doing so in a manner to benefit the greater esports community who watched his stream). Research has indicated that the near simultaneous use of multiple modes

of communication in gaming situations and scenarios can lead to an increase in the development of multiple related literacy practices (Gerber, 2008, 2009; Gerber & Price, 2011). Even the use of just a few overlapping modes of communication, for example speaking and writing in gaming-related chat streams of games such as *World of Warcraft*, is crucial to team function, without which the team can and will suffer catastrophic failure (Chen, 2012). This is evidenced in the close-knit nature of the competitive esports team culture that I observed as well, in the ways that teammates collaboratively negotiated language use together, such as when Jerry was streaming and Julie was responding to his in-game moves and/or his game commentary by engaging in emote selection and "good spam" in his chat stream.

The close-knit nature of the team, through working together in officer meetings to plan LANs for the greater university community, engaging in small team scrimmages, taking part in weekly team practices, among other team-related activities provided a unique forum to study how the meaning making experiences of livestreams, moderating, and VODs provide instances of *in-the-moment* and *in reflectivity* thinking. Esports-related literacies and meaning-making practices surrounding livestreaming, moderating, and VODs involved levels of team cooperation and collaboration that became central for meaning making—both *in-the-moment* and *in reflectivity*—for improvement in team-based competitive gaming. These central aspects of cooperation and collaboration are important factors to consider when we look at esports-related collaborative digital artifact creation—such as noted with the collaborative Twitch productions between Jerry and Julie or such as with Jim offering help to Julie to improve her game play. To date, much of the research that focuses on cooperative and competitive play has been conducted within scenarios where players are not part of a dedicated team that lives together, works together, and practices together around a central game title (e.g., see Abrams & Gerber, 2021; Chen, 2012; Gee & Hayes, 2010). Even much of the esports research to-date focuses on individuals who engage in game-play via the game's matchmaking system (Freeman & Wohn, 2019). However, some esports research is emerging that does look at the role of the team as a single functioning unit (Tang, 2020). The research from this ethnographic snapshot shows the potential of how team-based units function together to make meaning and to cooperate with one another for the benefit of the team. This adds to the conversation that suggests that instances and moments of sharing a common language helps creates stronger bonds among individuals in gaming communities (Abrams & Gerber, 2021; Carr-Chelmann, 2011; Engerman, 2016).

In all instances the co-production of artifacts and experiences—livestreams, moderating, and VODs—involves the interplay of team member and technology, whereas meaning making is distributed across individuals and the technology that they are using, which is a core function of distributed cognition. For example, Jerry's livestream production would not be the same without Julie's interactions and her in-the-moment decisions, or reflections, on which "shooting up my personal emote [in the chat]". Julie had to learn navigate the Twitch chat space and determine which emotes were most appropriate for the interaction of the moment and she had to

recognize how and why to use a specific emote to signify either good spamming, or to cancel out the bad spamming by a troll. These particular moments and instances of Julie's in-the-moment decisions and reflections provided Jerry the needed mental bandwidth to continue his livestream production and focus on the task at hand--narrating his actions--in order to engage in his own in-the-moment reflections, so that other teammates and viewers of his livestream channel could benefit from his own learnings and tutorials.

Furthermore, the interplay of teammates relying upon assistance from each other through digital platforms and face-to-face methods of communication allowed for core moments of in reflectivity thinking to occur. This *in reflectivity* can be observed through the sharing of VODs via the team's Discord channels and team Twitter channel, as well as in Jim's instances of reflecting upon Julie's game play via her VODs. Distributed cognition (Hutchins, 1995) suggests that the cognitive ecosystem is informed not only by the individuals, but also by the artifacts that the individuals interact with, and how the collective, in fact, is what allows the meaning making to occur. What we saw with the examples provided in this ethnographic snapshot presented in this article is just that—peers who worked collaboratively in a high-risk environment[7] to not only be successful in that environment but to find ways to give back to the greater esports community. This did not occur in isolation or in a vacuum. Players collaboratively and collectively navigated multiple resources in order to make meaning to co-produce digital artifacts that extended their own understanding of personal gameplay, and in so doing helped other players grow.

6. IMPLICATIONS

What this research means for the study of competitive collegiate esports, and the co-production of digital artifacts that occurs within this community, can also be applied to the L1 classroom. To date, although there has been a plethora of research that examines the impact and influence of videogame-based learning within traditional classrooms and teaching (Arnseth, Hanghoj, Henricksen, Misfeldt, Ramberg, & Selander, 2019; Garcia, Witte, & Dail, 2020; Gerber, Abrams, Onwuegbuzie, & Benge, 2014: Squire, 2011) very little has research exists in examining the impact and influence of esports-based curriculum in a traditional school curriculum (Lee, et. al., 2020). In fact, Reitman, et al (2018) indicated that there needs to be much work done in order to bridge the gap between helping stakeholders in public schools see the full benefits and potential of bringing esports into high schools. The same holds true for bringing esports-based curricular material into the L1 classroom. Although some researchers are in the beginning stages of developing esports-based curricular materials (Engerman, et al, 2018; Lee, et al, 2020), these projects are often underwritten

[7] *Poor performance in game play, low grades below a specific GPA, and questionable sportsmanship could lead to removal from the Varsity team which could have ramifications for their participation in the greater university community and the seeking of their degree.*

by large grants with funds for both resources and staff to manage the development of such a curriculum. In contrast, if the power and benefit of esports literacies is to transcend traditional classroom walls, where large grants and corporate sponsorship and support are not necessary, or even available, for implementating esports-related curricular experiences, then it is important to look to methods that do not rely on financial support from vested interests. In fact, it is also important that development of esports-related curricular activities is able to foster esports-related literacies, both with and without technology (i.e, meaning both analog and digital teaching). This can be done by recognizing that esports literacies, such as VODCasting, promote both *in-the-moment* and *in reflectivity* thinking that can be taught in a traditional classroom with low or no technology.

Collectively, meaning making within esports literacies is situated in collaborative practices that bridge digital and analog spaces. Scholars, teachers, and practitioners can harness pedagogical methods that allow for collaborative meaning making to occur while providing space for students to engage in both *in-the-moment* and *in reflectivity* thinking. What this might look like is a classroom that embraces a workshop-style approach where students are allowed to engage in small group activities that encourage *in-the-moment* thinking and *in reflectivity* thinking. For example, if a teacher wanted to teach the valuable peer review skills that emerge from VODs around a unit of study centered on Shakespeare's Hamlet, the teacher could place students in teams of five students (similar to the size of an esports team) and have each student take a turn engaging in a think aloud as they read Hamlet, which is similar to what a livestreamer does when recording a VOD. As the students are thinking aloud, the other four students in the group are recording their own reflections of that individual's think aloud—whether via drawing, writing, or even selecting emojis—and then having a small group discussion on new insights and ideas that each of them brings to the understanding of that particular scene in Hamlet. This is similar to the skills that a reviewer brings in when doing a VODReview. This particular practice brings in similar *in-the-moment* and *in reflectivity* skills found within the literacy practice of VODs. These think aloud instances could be further captured via videos, recordings, and small productions created within groups that could be stored to a class repository for others to add to and view, which is similar to the repositories found on Twitch, which is where many players go to watch either live casts or recorded casts (VODs). By allowing students to work together closely to help each other refine their thoughts, opportunities are provided for both *in-the-moment* and *in reflectivity* thinking that is distributed across individuals and technology in a manner that allows for deeper thinking to occur.

7. CONCLUSION

It is important that we examine the collaborative meaning-making practices and literacies endeavors that happen within competitive collegiate esports to understand the role of the team in reflecting. Esports literacies are as valued and varied as the

videogames and players who play them and are wholly deserving of their place in the gaming and literacies learning conversation. As evidenced by this ethnographic examination, team-based competitive collegiate esports experiences often lead to the co-production of digital artifacts, such as livestreaming and VOD Reviews, as literacies that transcend and overlap meaning-making experiences—both *in-the-moment* and *in reflectivity*. By more deeply examining these experiences, we will open up a new arena to understand meaning making, collaboration, and the role of community in the literacies of the esports ecosystem.

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