

LAYERING LITERACIES AND METAGAMING IN *COUNTER STRIKE: GLOBAL OFFENSIVE*

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Abstract

The primary purpose of this ethnographic research is to explore what literacy practices unfold through and beyond gaming, how metagaming is conceptualized and how metagaming shapes the players' view and relation to their literacy practices with a particular focus on the first-person shooter *Counter-Strike: Global Offensive (CS:GO)*. Data from this study were drawn from ethnographic research of four young males within and around *CS:GO* in the context of Cyprus. Findings indicate that players go through a cycle of layering literacies in order to evolve their metagaming. Metagaming is about creating fluid forms of optimal or unexpected tactics and strategies during game play that go beyond the rules of the game to counter the opponent(s) by using pre-existing, current, and new knowledge from past game plays, as well knowledge and information from online and offline literacy practices. These layered literacies are multi-directional, interest-based and are part of learning related to high-level making decisions. The results contribute to the body of literature suggesting ways videogames and more specifically metagaming, could support literacy in L1 classrooms.

Keywords: videogames, gaming literacy, metagaming, layering literacies, problem solving

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1. INTRODUCTION

1.1 Literacy and videogames

Answering what literacy comprises has been—and continues to be—a focus of scientific discussions worldwide (Bartlett, 2008; Gee, 2003; Horton, 2007; Sang, 2017). Up until the late 1980s, the dominant literacy pedagogy relied almost exclusively on traditional definitions of literacy as a reified set of basic skills, such as reading and writing, and was restricted to paper-based, formalized, and standardized forms of language within the classroom context (Applebee, 1984; Green & Dixon, 1996). During the last three decades, however, there has been a shift towards more social and ideological models of literacy (Street, 1995, 2001). The social approach to literacy emphasizes literacy as a socially situated practice (Jones & Hafner, 2021) in which people address reading and writing rooted in conceptions of knowledge, identity, and existence with other social, political, economic parameters and local ideologies (Street, 1995). Hence, it extends beyond the conventional view of literacy as printed and written texts and includes meaning-making practices using digital technologies (e.g., videogames, weblogs, mobile texts, etc.; Gee, 2003; Gerber & Price, 2011), exploring the changes of beliefs toward literacy in the process of practices (Cope & Kalantzis, 2000). Here, literacy is considered situated because literacy practices may vary in different contexts. This expanded concept of literacy that emphasizes the diversity of social-cultural practices, and the diversity of the context of communication practice in the modern world—along with the fact that communication media have become multimodal—brought about the concept of multiliteracies (Kress 2003; Lankshear & Knobel, 2003; New London Group, 1996). Multiliteracies entail aspects of searching, sifting, evaluating information, understanding, and creating multimodal texts that involve multiple modes of representation, such as gestures, sound, and language (Kress, 2010; Lankshear & Knobel, 2011; Perry, 2012), according to the learning environment, the social space, and interests and expectations of the individuals involved in the learning process (Cope & Kalantzis, 2000).

However, even though gaming literacy (Bourgonjon, 2014; Zimmerman, 2009) embodies multiliteracies, it also differentiates, because videogames are not just multimodal texts that need to be read or written. They are digital environments that require action in terms of solving the problems within of the game (Apperley & Beavis, 2011). In this sense, gaming literacy requires practical and interpretive knowledge of visuals, sounds, writing, and other forms of expression that are integral to the gaming experience (Buckingham & Burn, 2007). In other words, players, interact in the game world in terms of texts, spaces, objects, actions, and the ways they can use these aspects to accomplish their goal of winning the game and solving its problems.

To solve the problems of the game though, players need to understand how the game mechanics work (Gee, 2014). Here, game mechanics refer to the particular components of the game at the level of data, algorithms, various action, and control

mechanisms afforded to the players within the game context (Rouse III, 2005). Game mechanics are what the game allows the player to do, how to do it, and how this leads to a compelling game experience (Donaldson, 2017; Gee, 2014). For example, in *Counter-Strike: Global Offensive* (CS:GO), grenades can be effective tools for eliminating opponents, and walls are good places for hiding; there is a time limitation of 1 minute and 55 seconds for each game round, and interactive texts, such as maps, inform players about the actions of co-players and opponents. In another videogame, the *Shadow of the Colossus*, the game mechanics include elements that can make the player act in different ways, such as climbing, riding a horse, whistling, swimming, or diving (Sicart, 2008).

In this regard, players interact with the game rules—the mechanics (Gee, 2014)—while simultaneously layering their literacies because they are engaged in combinations of independent and collaborative, digital and nondigital practices and spaces as they make meaning within and across texts and modalities (Abrams, 2017). Players are engaged in layering literacies (Abrams, 2015) and they produce paratexts, such as game reviews, YouTube videos, and fan discussions of games; hence, they tend to become engaged in relevant print-based and multimodal literacy practices, making these activities a fluid example of situated learning (Apperley & Beavis, 2011; Nebel et al., 2016). From this point of view, the concept of layering literacies can be understood as a multidirectional and fluid process in which the players are involved in collaborative, self-directed, and interest-based experiences by going back and forth and around game play and other peripheral activities; here, players have their own rhythm when it comes to learning the process (Abrams, 2015, 2017).

Thus, acquiring gaming literacy does not merely involve learning how to play videogames or how to read multimodal texts during game play on a superficial level. Players must also have knowledge of the intertextual navigation, as well as the requisite reading skills of the official and unofficial paratexts, that is, the system of game-related media products, communications, and artifacts (Consalvo, 2007). Gaming literacy requires skills to contextualize the information contained in light of the credibility of the particular sources (Apperley & Walsh, 2012) in terms of how the images and possible actions can be used to solve problems (Beavis, 2013; Gee, 2014) and the ways of manipulating the game story to win.

The current research draws on the concept of gaming literacy (Bourgonjon, 2014) and layering literacies (Abrams, 2015, 2017) to account for the various practices in and around the videogame *CS:GO* with respect to the semiotic domain of games, the ability to produce meanings to solve problems, and the ways these layering practices are helping players evolve their metagaming.

1.2 From Gaming Literacy to Metagaming

Considering that the rapidly advancing technological landscape is challenging individuals' skills to solve problems flexibly and think critically (Greene, 2021), the idea of how and who is considered literate in contemporary tech-oriented societies has

been changing (Beavis et al., 2009; Cope & Kalantzis, 2015). Thus, metagaming stands as a core notion in the current paper, providing answers to how videogames can function not only as dynamic literacy environments that can engage players in layering literacies, but also in producing high-level decision making for solving problems. An example of high-level decision-making can be found in the videogame, *Oscar Night*, in which two teams wanted to lose the game in order to dodge a stronger opponent. To make their loss more believable, they played an unconventional, or “off-meta,” strategy (see Kokkinakis et al., 2021, p. 2).

The meaning and value of metagaming, though, is not actually heavily debated in game studies as it is in the fields of mathematics and economics (see Howard, 1972; Nash, 1997); nonetheless, the term has various definitions. The word “meta” is of Greek origin, entailing multiple meanings, with the most relevant one for the current paper referring to “higher or beyond” (Merriam-Webster, n.d.) According to Garfield (2000)—a mathematician and creator of the card game, *Magic: The Gathering* (Edwards, 2020)—metagaming is what a player brings to the game (e.g., the equipment), what a player takes away from a game (e.g., more experience), what happens between games (e.g., preparation), and what happens during the game other than the game itself (e.g., linguistic utterances). For Salen and Zimmerman (2003), metagaming is considered “the relationship between the game and outside elements, including everything from player attitudes and play styles to social reputations and social contexts in which the game is played” (p. 481). Steinkuehler (2007) suggested metagaming as a literacy practice in which players theorize about their own game, both within the digital environment of the game world and beyond it in the online fandom space (e.g., websites, discussion forums, chat rooms, blogs, wikis). In the same spectrum, a more recent study (Kahila, Tedre, Kahila, Vartiainen, Valtonen and Mäkitalo, 2021) suggests metagaming can occur within and outside of game play. Within game play, players devise, test, analyze and improve strategies to master the game, but they also can engage in other metagame activities such as watching game videos, discussing, searching for information, creating, and sharing activities and consuming activities. Carter et al. (2012) stated that metagaming includes “the goals and symbols of advancement implicit in the game architecture” (p. 15) and the pregame meaning that metagaming is optional content within the official game and excludes activities that do not contribute to success in the game.

Offering a broader conception, Boluk and LeMieux (2017) defined metagaming as “a critical practice that encompasses everything occurring before, after, between, and during games as well as everything located in, on, around, and beyond games” (p. 315). Players perform metagame routines using real-life information that typically would not be accessible within the bounds of the game, here with an aim to gain advantage over other players during game play (Boluk & LeMieux, 2017). An example of this conception is role-playing games (RPG). In RPGs, metagaming is the information the player has, but the character does not have. In this sense, metagaming is when players use knowledge that goes beyond or exists outside the game to change the way they play their game avatar.

First, although there is an understanding that the strength of metagaming in games lies in its ability to hook the interest of players, the variety of notions surrounding metagaming suggest that there is no unified term for metagaming. Second, metagaming has not yet been connected as a vital notion embedded in the concept of gaming literacy. For these reasons, the present paper seeks to present the ways in which metagaming and layering literacies relate to acquiring gaming literacy.

1.3 Understanding games and practices through frame analysis

To understand the practices of players during game play and the symbolic actions within it, I revisit Goffman's (1974) frame analysis. The idea of frame analysis as a theoretical tool was proposed by Pargman and Jakobsson (2008) as an alternative theory of the concept of the "magic circle" (Huizinga, 1970; Salen & Zimmerman, 2004). The notion of the "magic circle," which has been used by many scholars (e.g., Juul, 2008; Castronova, 2005), describes game play as a meaningful activity, unconcerned with materiality that is separate from the ordinary demands of everyday life (Juul, 2008). Scholars have criticized how the magic circle has been used to depict videogames as spaces in which players get into a "magic circle" totally separate from the outside world (Pargman & Jakobsson, 2008). Thus, frame analysis (Goffman, 1974) offers a lens for understanding game play without dichotomizing gamers into their online and offline lives (Kiourti, 2019). According to Goffman (1974), a frame denotes a set of conventions for a type of situation that organizes subjective experience, meaning, material doings, utterances, and events. In other words, a frame is what the participants are allowed to do or say in a specific situational context, and the frame depends on the rules, norms, expectations, and possible roles available to social actors to make sense of any given situation or encounter. For example, killing an opponent during game play would be perceived as pressing a button on the keyboard and simultaneously moving the mouse while having all of one's attention on a computer screen. In the frame of playing, the individual is a player, and in the frame of the game, the individual is an avatar. In any situation, multiple framings can occur simultaneously, and individuals can partake in multiple frames that can be switched among quite rapidly. Within frame analysis, there are norms that allow or prohibit actions. For instance, in the frame of social society, killing someone is considered a public wrong, and the individual will be punished. In the frame of playing, the individual is not only allowed to kill as many characters as desired, but specific types of killings, such as headshots, may be rewarded because they are considered to be skilled player actions. Within the gaming frame, it is crucial also for players to know what to say and how to say it and to be aware of the social and cultural settings in which each communicative act is embedded. Thus, game play conversations are enriched with special words, phrasings, and grammatical patterns (Gee, 2014) that exhibit a high frequency of short and long pauses "for the sake of focused game play" (Ensslin, 2012, p. 99). These multilayered social frames are exactly what help us locate and understand videogames as environments that empower individual

creativity, experimentation, investment in learning, critical thinking, and agency for change within a wider social context in which actions can take place in a symbolic way.

2. METHODOLOGY

Although there is a rich line of research on literacy in videogames, there is a dearth of research in understanding the importance of connecting metagaming as an aspect of a player's engagement in layered literacy practices and, more broadly, with gaming literacy. As such, I will address the following research questions:

- What kind of literacy practices unfold through and beyond gaming, particularly in the first-person shooter *CS:GO*?
- How is metagaming conceptualized in relation to *CS:GO*?
- How is metagaming shaping the players' view and relation to their literacy practices?

The complex nature of literacy practices in gaming environments required the exploration of rich data; thus, the current study embraced the methodological approaches of ethnography (Hammersley & Atkinson, 2007) and virtual ethnography (Hine, 2000). Ethnography helps the researcher participate "overtly or covertly in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions; in fact, collecting whatever data are available to throw light on the issues with which he or she is concerned" (Hammersley & Atkinson, 2007, p. 4). During the research, I was immersed in drawing data from a conventional face-to-face ethnographic study of gamers, but also from data in online gaming and other digital environments (e.g., game plays, participants' Facebook activity, Google searches, YouTube). For this reason, I chose to use virtual ethnography (Hine, 2000). Virtual ethnography is used as a methodology for bringing the features that were taken to be special about the analyzed technologies to answer the complexities of the objectives of research and ways to observe heterogeneous data (texts, audiovisual data, etc.). The research procedure, participants, data collection, and data analysis are discussed below.

2.1 *Participants and data collection*

The research data were collected in Cyprus, a geographical context with a diglossic Cypriot Greek speech community (Karyoleμου & Pavlou, 2001). Thus, the participants' conversations were in the Greek Cypriot dialect and were translated into English. The participants were a group of four young Cypriot gamers (aged 16–17) named Demetris, Nestoras, Panos and Philippos whom I systematically observed (46 observations and 195 hours in total) through face-to-face video recordings and screen recordings in online environments for a period of nine months (May 2015–January 2016). The data in the next sections (see figure 8) also include excerpts with some of the participants' friends of the local gaming community (e.g., Alex, Nikos,

Gregory). To address the ethical routes in the research, all of the participants, the parents of the participants and their friends included in the paper had been provided with relevant information about the research and what the participation would involve. Participation was discussed that it was voluntary and informed parental written consents were obtained, along with a written consent also from the participants. Taking into consideration that in an ethnographic research participants' observation is a core activity, gaining access to the social world of the participants and establishing a trusting relationship was a crucial aim. While I was entering the research field, I tried to situate myself in the space and develop a rapport with the participants, and I made myself available to the participants upon request. For example, the participants would sometimes gather at Kinx during late night hours (e.g., from 2:00 a.m. until 07:00 a.m.) and/or over their summer holidays during late mornings, afternoons, or even for a whole day. Data collection was a dynamic procedure that required me to participate in the participants' daily lives, observe their practices, listen to what was said, and ask questions. I personally was immersed in the ongoing gaming and other daily activities of the participants, which took place across a number of spaces: In a gaming center named Kinx (where the participants could use computers, primarily for the purpose of playing multiplayer computer games), at their houses, in those areas they ate (e.g., cafeterias), and even in nightclubs. With the use of Go Pro HERO3+ action cameras, research data were collected through video recordings of the participants as they played *CS:GO*, video-screen recordings of their game play were taken via Open Broadcaster Software, and rich field notes of their overall literacy practices (e.g., posts on social media, Google searches), field interviews, post-field diary notes, and a semi-structured interview per participant after the completion of the research were all performed. To protect the research participants' identities, their names and any identifiers have been replaced by pseudonyms.

2.2 *Data analysis*

For the analysis of *CS:GO* game play, I used unified discourse analysis (Gee, 2014). Unified discourse analysis offers tools to analyze game play as conversations between players and the game world (Gee, 2014). Here, videogames are composed of combinations of units (e.g., boxes, texts, equipment, maps) that make up patterns that are meaningful to players, and videogames share the syntax and semantics of the human visual world. The syntax of games is composed of the objects, spaces, and tools in the game that players can combine to make actions happen to accomplish their goals during game play: "The semantics is a conceptual labeling of these spaces and things not just in terms of their real-world identity (e.g., a crate), but in terms of what they are functionally good for in the game (e.g., breakable to get a power up)" (Gee, 2014, p. 43). Thus, unified discourse analysis helped me understand and analyze the ways the participants were making meaning during game play in terms of their actions.

For the rest of the research data, I followed multimodal discourse analysis (Kress & Van Leeuwen, 2001). Multimodal discourse analysis considers how text draws on various modes of communication, such as pictures, film, video, images, and sound, in combination with words to make meaning. Within this frame, multimodal discourse analysis was the scientific tool helping me analyze the various and different semiotic modes and signs (e.g., layout, colors) of the data.

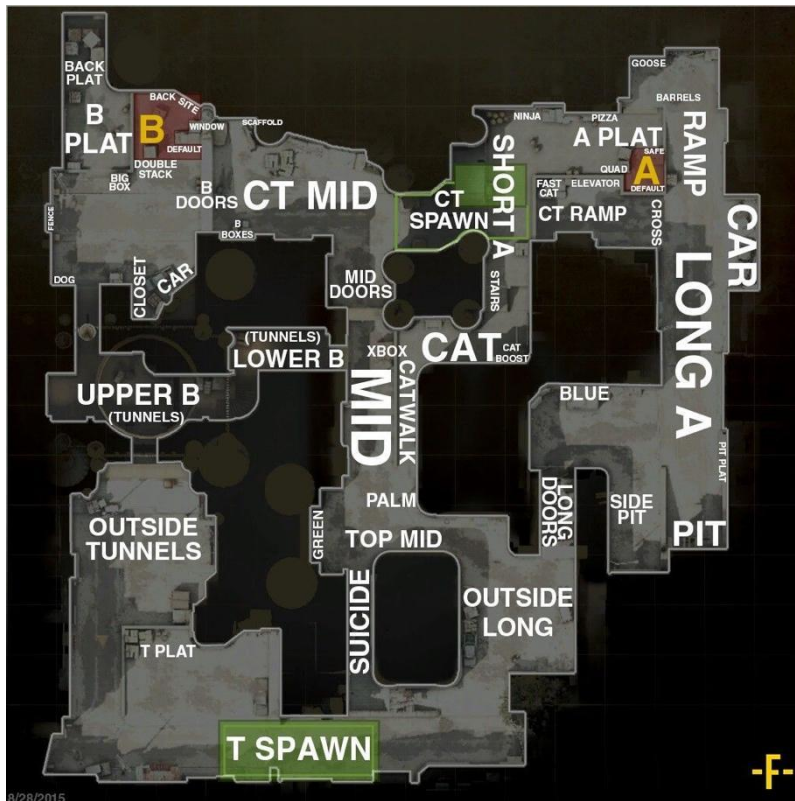
I coded the data by relying on inductive coding (Saldaña, 2015) of the various literacy practices in which the participants were engaging within and around game play. I identified the main themes and bottom-up categories and categorized them using the data software MAXQDA (Kuckartz & Rädiker, 2019). More specifically, I analyzed each participant's screen recordings of their game play because it was important first to analyze each participant's actions frame by frame to have a more detailed view of the data. Additionally, to re-examine and reconfirm specific categories, I simultaneously merged and analyzed all participants' screen recordings of the same game sessions. This provided me with the opportunity to analyze segment by segment the game play of the participants' screen recordings collectively. From analysis, a specific number or categories arose, such as literacy practices in social media, long strategies, and interconnection of texts in game. I re-examined the categories, focusing on critical incidents of all the participants' screen recordings during game play. This examination produced coding with more detailed categories, such as strategies for deceiving opponents, Facebook activity, and Twitch professional matches, which enhanced access to the sizable dataset and allowed me to organize the observations in different thematic categories linked to (a) the practices of the participants during game play, (b) the layering of literacies around game play, and (c) metagaming. In the final stage, after the overall data analysis, I asked the participants to read extracts of the analysis to reconfirm and discuss whether the analysis was presented accordingly. Hence, data triangulation (Denzin, 2015) helped to strengthen the credibility and validity of this research.

2.3 *CS:GO game mechanics and maps*

CS:GO is a first-person shooter game played between two teams competing against each other in a 30-round game. At the start of the game, the players join either the Counter-Terrorist or Terrorist side and play on that team for the duration of the first half of the game. Once the game reaches the halfway point, the sides swap. Each round lasts for 1 minute and 55 seconds, which counts down to 0 seconds. During this time, the Terrorists must plant a bomb, while the Counter-Terrorists need to defuse it. Once the bomb is planted, it takes 40 seconds to explode. Each round is completed when a team wins the round by completing the aims of the game (plant, defuse the bomb, or kill the opposing team) or when the round's time limit has been reached. *CS:GO* tracks and evaluates how many times each team has won, how many players an individual player has killed, and how many times the players have died; the game rewards players in-game money for killing enemies or completing

team objectives. Both teams receive additional money at the beginning of a new round, with the winners of the last round receiving more money than the losing team. If the players are killed before the completion of that round, then they become spectators, but they can still communicate with each other after they die (Counter-strike Fandom, n.d.). CS:GO has a variety of maps in which players can interact. In the research, the participants preferred the Dust II map because they considered it to be an equal map for both sides: both spawn sites (i.e., where the avatars first appear in the game) are in the middle line of the map (see Figure 1). To understand the description of the game play in the forthcoming sections, I briefly provide an explanation of the structure of Dust II. Dust II has a four-square map (see Figure 1), and it is divided into three interconnected lanes: Tunnels (T) connect the Terrorist Spawn (T-Spawn) to Bombsite B (Site B). The Middle Site (Mid) connects T-Spawn to Counter-Terrorist Spawn (CT-Spawn) and the Catwalk (Cat). The long site connects T-Spawn to Bombsite A (Site A).

Figure 1. CS:GO map Dust II.



3. FINDINGS

The findings suggest that the game participants interactively were engaged with multiple problems with subtle complexity during game play. This drove the players to go through a cycle of layering literacies to improve their metagaming in their next game play. Metagaming in *CS:GO* is a critical practice of collective, individual, long-term, short-term, fluid, optimal and unexpected strategies and tactics that occurs within the act of game play and is the result of a cycle of online and offline layering literacies within and beyond game play. More specifically, metagaming involves a player selecting and creating optimal and/or unexpected tactics and strategies during game play, using pre-existing, current, and new knowledge from past game plays, and layering literacies through a variety of online and offline practices: (a) solving problems in a multimodal literacy space, (b) using situated communicative patterns to be effective for implementing metagaming strategies in the limited time, (c) watching live tournaments to learn of better tactics and strategies for metagaming, (d) exploring gaming sites and forums, (e) watching and discussing tutorials and co-players' game plays (f) sharing articles, texts, and game play highlights on social media, and (g) speaking with local gamers to further develop their gaming literacy. In this way, metagaming can be viewed as a critical game-related practice in which players demonstrate their knowledge and skills in *CS:GO* in order to be recognized as literate gamers. Within this context, the coding of the data revealed the following themes.

3.1 Metagaming: Countering the opponents from a complex theoretical and action standpoint

Here, I provide and discuss two critical episodes of how metagaming is conceptualized in *CS:GO* during game play. The act of metagaming was about selecting and creating optimal and/or unexpected tactics and strategies in the game and using pre-existing, current, and new knowledge, from both online and offline sources (e.g., discussions, forums, articles), to maximize the chances of winning. This required strategizing, which was directly linked to higher-level decision making for the players and was affected by how the opponents' tactics and strategies were played out.

The first excerpt is from an episode when eating burgers at Nestoras's house, in which I observed the participants discussing *CS:GO* with Nestoras's father (who also was a gamer). Throughout the conversation, the participants described instances of metagaming in *CS:GO* when they addressed ways to counter their opponents (see Excerpt 1). The second episode (see Excerpt 2, Figure 2, and Figure 3) focuses on an example of game play discussing metagaming as fluid individual and collective strategies and tactics during game play.

Excerpt 1

Strategies to deceive opponents

Philippos: If you are not a good player in killing opponents, your co-player will choose to hide, and you will choose to sacrifice yourself. You will let the opponent kill you. Then, your co-player will go behind the opponent, and he will kill him. Everything about gaming is to deceive opponents. The main aim is to make your opponent think you are in a specific place, but in reality, you are somewhere else. Another example is when the players of one's team decide to go to Site B instead of Site A. So, in this situation, one player of this team will step back and start throwing flashbangs in Site A, and the opponents will assume, "Guys, they are in site A. Let's go there." So, they will all go to Site A, but the other team will actually be at the opposite site. Do you understand? This is the strategy I am talking about. And these are just the simplest examples.

Nestoras: It's a mind game.

Philippos: That's right. I want to make my opponent say, "Okay man, I thought about doing this, but my opponent challenged me. He hypothesized what I was planning to do and he did something else to avoid me."

Panos: Best feeling to be called a hacker.

Philippos: Yes, man.

Playing *CS:GO* includes a complex procedure in which players have to constantly analyze the problems of the game during game play, with the aim of applying those analyses into actions to maximize the chances of winning the game. In Excerpt 1, Philippos, described a strategy of deceiving opponents by letting the opponents assume that they had gained an advantage when they killed Philippos's co-player. This strategy can be used in cases where the team has players who are not "good players in killing opponents." This means that those players who are less experienced than others in *CS:GO* can fail at killing an opponent that may appear in front of them. This can result in the decrease of possibilities for the team to win. With these conditions, the player chooses to implement a rather unexpected tactic of sacrificing himself and be killed by the opponent to help the team deceive the opponents into thinking the unskilled player is the only one in that area. This strategy creates an ambush to the opponents because, as Philippos said, "Your co-player will go behind the opponent, and he will kill him." This means that another player of the team will appear unexpectedly and eliminate the opponent(s). For players, it is crucial to predict or understand the strategies of the opposing team and challenge, deceive, and defeat them because as Philippos mentioned "everything about gaming is to deceive the opponents."

Another way to deceive opponents is when players orchestrate long strategies including tactics (throwing a flashbang), by letting opponents assume that the whole team is navigating in a specific location in the map, while they are actually navigating to a different location. More specifically, Philippos said that an example of this kind of strategy can be implemented specifically in *CS:GO* in the following way: "When the players of one's team decide to go to Site B instead of Site A." Site B is where the players can activate the explosive device, which is one of the main objectives of the

game for winning. The tactic for implementing the strategy is “one player of this team will step back and start throwing grenades in Site A.” The explosion of a grenade indicates the existence of a player or players of a team in the location which is exploded. In this example, players threw a grenade in Site A, while in reality they were navigating in Site B. This tactic, as they explained to me when we were discussing *CS:GO*, was implemented in order to deceive the opponent team in terms of location. Thus, opponents are expected to navigate to the area of explosion to find and kill the players of the other team (“Guys, they are in Site A. Let’s go there”). On one hand, this strategy gives an advantage to the team in that they gain time and complete the objectives of the game (planting the bomb). On the other hand, successful deception of the opponent team results for them to lose time in the game. This happens because they are searching Philippos’ team in the location where the grenade was exploded (Site A). Broadly, during game play, the participants agreed that they constantly challenged their opponents with unexpected tactics and strategies and vice versa. As Philippos stated, “I want to make my opponent say: ok man, I thought about doing this, but my opponent challenged me. He hypothesized what I was planning to do and he did something else to avoid me.” For players, successfully challenging opponents with high-level and unpredictable strategies results in a recognition of their gaming literacy, and this is best summarized by Panos using the phrase, “Best feeling, to be called a hacker.” This phrase is very common among the gaming community that plays *CS:GO*. All participants explained to me “a hacker” is any player that builds upon experiences and knowledge (e.g., skills on *CS:GO*, information gained from the opponents’ metagaming during game rounds), can predict the opponents’ next strategies and, as a result, challenges them with unexpected actions, thus taking advantage in the game. In other words, players metagame to show they are better players than others, meaning that their gaming literacy level is higher.

In Excerpt 2 (Figures 2 & 3), a complete round of game play is described, focusing on metagaming as the implementations of individual and collective fluid strategies and tactics that can change because of the strategies, movements, and actions of the opposing team.

Excerpt 2

Demetris organizing a collective strategy for the team

Demetris: Mid to B. Panos, Smoke. Gregory, go quickly, Tec 9. Nestoras, stay here and get in B once you see Philippos and I going through Mid.

Panos: Ok

Philippos: Ok

Demetris: Nestoras, answer!

Nestoras. Yes, dude.

Figure 3. Team strategy plan is changed because of the unexpected elimination of Panos by an opponent.



Once the game play started, however, the opponents' metagaming altered the initial strategy of the team. For example, 12 seconds (= 1:43) after the start of the game play, Panos was killed by an opponent (see Figure 3). This non expected action from the opponents affected the teams' strategy. With these new conditions, Demetris tried to continue implementing the initial strategy plan. Thus, Demetris killed the opponent and continued navigating to Site B. However, after 5 seconds (=1:38), he heard gunshots from the stairs behind him. This was an indicator that the opponents were near them, making him re-evaluate his individual strategies and the overall team strategy. Demetris decided to change direction and go to Upper Tunnel, because he hypothesized that the opponents would pass from there and he wanted to wait for them there to kill them. Once all the remaining players passed T-Spawn, as was the initial plan, Nestoras tried to navigate to Site B, but he was immediately killed by an opponent. When he was killed, he informed his co-players about the existence of opponents in the area ("Watch out! Two here"). By listening to this information and knowing from the map that he was near the area where Nestoras was killed, Demetris decided to alter his strategy once again. Instead of navigating to Site B, he decided to hide behind a wooden box, waiting for the opponents to arrive. Indeed, 20 seconds later, an opponent approached the area, and Demetris immediately killed him. The rest of the team, though, was killed by the opponents, and Demetris was the only survivor in the game, successfully going to Site B to plant the bomb.

Data revealed players constantly organized and reorganized their strategies and tactics both collectively and individually based on the ongoing metagaming of their team, but also the opponents' team. Metagaming is about critically gathering and analyzing information to plan tactics and strategies and to challenge opponents with unexpected actions to take advantage of the game and increase the chances of winning. During metagaming, each player, as a member of a team, continuously tries to predict what the opponent/s assume/s about their own thoughts and actions during game play while simultaneously trying to predict the opponent's ongoing thoughts and next actions. Therefore, the goal is to "read" opponents' thoughts about their next strategies and anticipate future actions to outperform, outwit, and/or overcome them. In that way, players are engaging in a critical and predicting procedure with the aim of winning. Metagaming is a critical practice fueled by the pain of defeat and hours spent ruminating, looking for solutions, and competing through continuously acquired knowledge and meta-critical thinking. It is the in-game action outcome of a complex cycle learning process that encompasses the collection and critical analysis of layering literacies—as will be described in the following section—such as game play expertise, online, and offline literacy practices (e.g., watching troll videos, participating in forum discussions, sharing gaming information, mods, watching game plays, searching for new knowledge). In this sense, metagaming functions as a result of a cycle of layering literacies that has a positive impact on stimulating individuals as literate gamers. Players want to engage in a variety of online and offline literacy practices to gain all the information and knowledge they lack to become more literate in the ways they metagame. This complex procedure increases their chances of winning. Winning the game is beating the other players' gaming literacy level in respect to their tactics, strategies, and overall game play.

The second section of the findings addresses specific literacy practices in which players self-engaged. As such, players' practices were fluid as they engaged in a cycle of layering literacies, here with a core aim to enrich the knowledge required and expertise to employ higher-level metagaming in subsequent game play.

Learning to Solve Problems in a Multimodal Literacy Environment

As mentioned in the introduction, videogames are highly multimodal environments in which players interact, trying to solve the problems of the game. With that in mind, one of the most important multimodal texts of *CS:GO* is the map. Considering that the game mechanics (e.g., in between rounds players can purchase weapons, items, utility, and armor using in-game cash: radio commands) are the same for every player in the game, the variety of *CS:GO* emerges from the ways in which players and teams approach each map and how they implement their strategies and tactics against their opponents.

Figure 4 focuses on a segment of game play that discusses players' situated multimodal literacy practices in *Dust II* as they employed actions at an exact time to solve the problems they faced during game play.

Figure 4. Demetris understands the presence of opponents through a shooting white line.



Figure 4 is a screenshot from Demetris's screen after 28 seconds (seen as 1:22 minute in Figure 4) of the game round. In this game round, Demetris was reading and interacting with a variety of multimodal texts, such as the map, the radio commands, the sounds from the shootings, and the opponents' steps, to make decisions for his next actions. The circle on the upper left-hand side of Figure 4 features a mini map that shows the overall map layout. The map in *CS:GO* is dynamic. It constantly changes based on the live movements of co-players and indicates in what areas of the map the players are located (each player is represented by a different colored dot) and when gunshots are exchanged (represented by a red dot). The player colors are interlinked with the profile pictures of each player (see the upper-middle section of Figure 4). Underneath each profile, there is a line with a color for each player's profile in the game (which corresponds to the colored dot representing each player). Information about players' actions (e.g., killing) is displayed. For example, on the right-hand side of Figure 4, Demetris's gear is displayed and, more specifically, what gun he chose to hold during that time. In the lower left-hand side of Figure 4, there is information related to player positioning and action (e.g., Panos threw smoke and Nestoras, who was nearby, verbally informed Demetris that an opponent was close). All this information is crucial for the players; they also need to have the skills to link this information quickly, understand the ongoing situation in the game (e.g., the location of an opponent, which team player has been killed), and make decisions for their next actions without losing any time. Any delay in interconnecting the information would give an advantage to the opposing team.

Specifically in this example, Demetris was informed by his co-players about the existence of an opponent in the area. He double checked this information along with the red dot provided in the live map. The shootings stopped though, but after three seconds, Demetris quickly checked near the wall to see if there was any opponent in

the area. He did not see any opponent, so he decided to leave the area. Before walking away, he heard another gunshot. In less than a second and with his weapon high (preparing to shoot), Demetris went to a corner behind a wall, and this time, he heard (in his headset) and saw a second gunshot (which was visible on screen as a white line) for less than a second (see the arrow pointing to the line on the lower left-hand side in Figure 3). The white line functioned as a text for Demetris because it provided him with information about the direction and height of the opponent's gunshot in relation to the ground. Upon reading the text, Demetris informed his co-players of their opponents' presence: "They are here!"

This intensive situational awareness, text management, and quick decision making reinforced the players' ability to take functional actions, solve problems, and use their audiovisual and kinesthetic skills (clicking on the mouse and keyboard) while blocking out distractions. As illustrated in the example, the gamers interacted with a variety of modalities (audio, visual, linguistics) and text genres (maps, chat, hybrid texts¹) to solve problems. The players constantly needed to read, analyze, compose, and combine not only the text genres, but also the information from their co-players, and they needed to interact with different semiotic modalities to make decisions about future game play. In this sense, players learn to simultaneously read different text genres (e.g., maps, chat, labels) and text types (e.g., dialogues, narration) and combine this information to make their decisions regarding their next actions during game play. Thus, *CS:GO* functions as a demanding multimodal literacy problem-solving environment in which players constantly need to negotiate and interact with different texts, modalities (e.g., sound, image, symbols, gestures), and actions to solve the problems they face during game play and to metagame.

3.2 *Watching live tournaments to evolve expertise for metagaming*

When the players failed to solve the game's problems during game play, they were highly enthralled in finding ways to solve them in other ways because one of the main elements that highly engaged the players into playing games was metagaming (see Excerpt 1. "Best feeling, to be called a hacker"). Thus, the end of each game was the beginning of a cycle of layering literacies not only within but also around, and back and forth through game play in both online and offline spaces. Fan fiction, forum discussions, game play highlights, community feedback, live tournaments, Googling, sharing texts and extracts of their game play on social media, and gaming experiences within the local gaming community were some examples of the gaming literacy practices the players constantly engaged in. These activities were instances of situated learning that enhanced combinations of independent and collaborative—

¹ *Hybrid texts are single or multimodal texts that creatively weave together narrative and informational text using a variety of design elements, such as marginalia, text boxes, and miniature embedded illustrations (Jewitt & Kress, 2003).*

as well as iterative and generative—practices and (re)interpretations of meaning with no particular pattern but based on their learning preferences.

Excerpt 4 (Figure 5) focuses on the preferences of the participants to watch live tournaments and have discussions on Twitch because those live became vital resources for the participants not only for entertainment purposes but also in terms of gathering new knowledge and information about new tactics and strategies that could offer them new ideas on how to metagame.

Excerpt 4

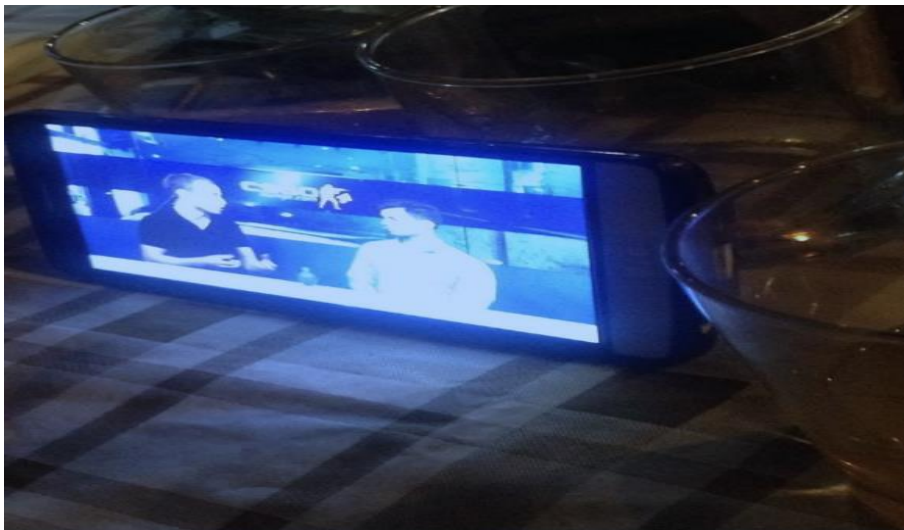
Watching live tournaments on Twitch

Demetris: Two days ago, I watched a live tournament on Twitch because the teams are extremely good, and this is awesome. They play nice matches.

Elisavet: And why is this nice? Because you see their strategies?

Demetris: Yes. They are really good teams, and their game playing style is very good, and you see what they are doing, how they react during game play; if there is something good, you can learn a lot of things by watching them. You learn a lot. Tactics, not the way they shoot. Shooting is a different thing, and the tactics is another.

Figure 5. Philippos watching CS:GO live tournaments at a Cypriot traditional restaurant.



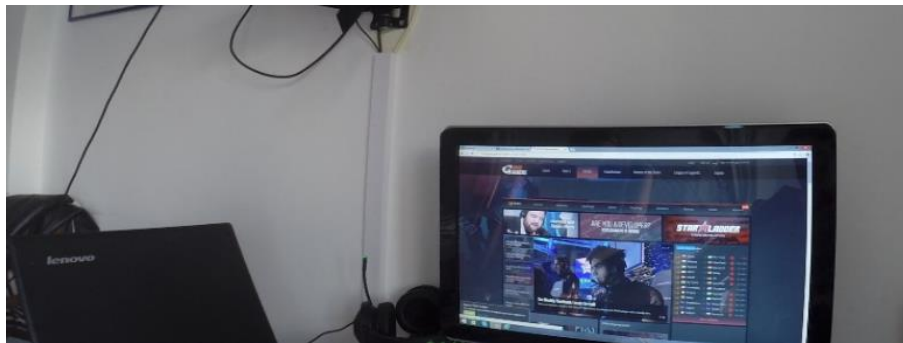
Excerpt 4 features a segment from a conversation I had with Demetris at Kinx. He explained to me that on one hand watching live tournaments was an entertaining practice for him. On the other hand, live tournaments were also a vital source of gathering new knowledge and information about new tactics and strategies that could offer him new ideas he could embed in his own game plays. The information received from watching the matches was not achieved through memorization, but

rather from an understanding and analysis of the strategies such as to know that holding a knife means to be able to run faster. This literacy practice engaged participants in interpretations and analyses of those live tournaments for collecting information on tactics, strategies by professional players to improve their knowledge on how to play and metagame in *CS:GO*.

3.3 Googling and reading gaming sites and forums

Moreover, Nestoras and Panos, were Googling, reading articles, and exploring national and international gaming websites (see Figure 6) to learn more about *CS:GO*. Some examples of the sites were www.unboxholics.com, www.gameover.gr, www.gr.ign.com, www.gosugamers.net, www.gamespot.com, www.valvesoftware.com, and www.blog.counter-strike.net.

Figure 6. Nestoras exploring gaming sites.



Excerpt 4

Elisavet: Is there anything else you do to learn more about *CS:GO*?

Philippos: No. Nestoras, though, is searching all the time on the internet. This is something that he is famous about, I think. Only for this, though. He might not be smart at *CS:GO*, but the game he will play, he will search for it.

Nestoras, for instance, throughout the research mentioned that “even though I am a good player in League of Legends, I do know that I am still a noob in *CS:GO*. I can’t have the guys explaining me their tactics all the time, so I search a lot on the internet. I want to learn about *CS:GO* as much as possible because I want to be on their level.” In Figure 5, Nestoras was navigating in different gaming sites and forums, gathering and composing information from different digital sources. On that day, he was Googling “How not to be a noob!”. He was trying to find valid sources that would provide him with information on performing better in *CS:GO*. During an interview, Philippos also spoke about Nestoras’s literacy practice of Googling (“Nestoras, though, is searching all the time on the internet. This is something that he is famous about, I

think”). This literacy practice helped Nestoras reconfirm his existing knowledge and/or gain new knowledge on the ways *CS:GO* is played to embed it in his game plays and metagaming.

3.4 *Spectating and discussing (co)players’ game plays and exchanging feedback*

Another literacy practice in which all the participants were engaged was watching game plays of other players of the gaming community, as well as co-players’ game play highlights, with the more experienced co-players providing feedback. Taking into consideration that *CS:GO* is a videogame in which two opposing teams consisting of five players each compete and that the players may vary, players bring in their own knowledge, experience, tactics, and strategies. Thus, every time the game is played, it feels different for the players. This type of active spectatorship (Abrams, 2015) enriched the players’ understandings of the possible ways that *CS:GO* is played by employing known tactics and strategies, as well as innovative ones. In the next section, I analyze this active spectatorship (see Figure 7 and Excerpt 5).

Figure 7. Active spectatorship: Demetris watching Nestoras, Philippos, and Panos playing CS:GO.



Excerpt 5

Watching co-players game plays

Elisavet: So you learn about *CS:GO* only when you are playing?

Nestoras: Most things I have learned in *CS:GO* was because I was watching other players’ game play. The other time I was watching Philippos game play, for example, and he was holding his gun always here (he shows high up), and when he was opposite an opponent, he was faster than him and managed to kill him first because the gun was in position. This way, I save time.

As shown in Figure 7, Nestoras, on the left, was playing *CS:GO* with Philippos, in the middle, and Panos, on the right. Behind them was Demetris, watching the game. In this example, Demetris was commenting when he was observing the tactics or strategies he believed were wrong and that could make the team lose. Per Excerpt 5, Nestoras described that the literacy practice of watching other players' game play or highlights of the game play functioned as a learning environment for them. As previously noted, Nestoras was called a "noob" (i.e., newbie or less experienced player) by his co-players and mentioned several times throughout the research that he wanted to catch up to his co-players' level of expertise. By watching other players' game plays, he was learning of ways of employing more effective tactics, such as that holding up the weapon high when navigating on the map saves time and helps the player shoot faster, strategies and evolve his metagaming.

3.5 Sharing articles, texts and game play on social media

Social networking sites, such as Facebook, served as useful spaces for the participants to share articles, extracts from their game play, thoughts about gaming, and videos (see Figure 8). These practices created the space for participants to get involved in, sharing their own views and opinions about *CS:GO*, but also getting new information from their friends that were also gamers.

Figure 8. Panos' Facebook post included a *PC Gamer* article about *CS:GO*.

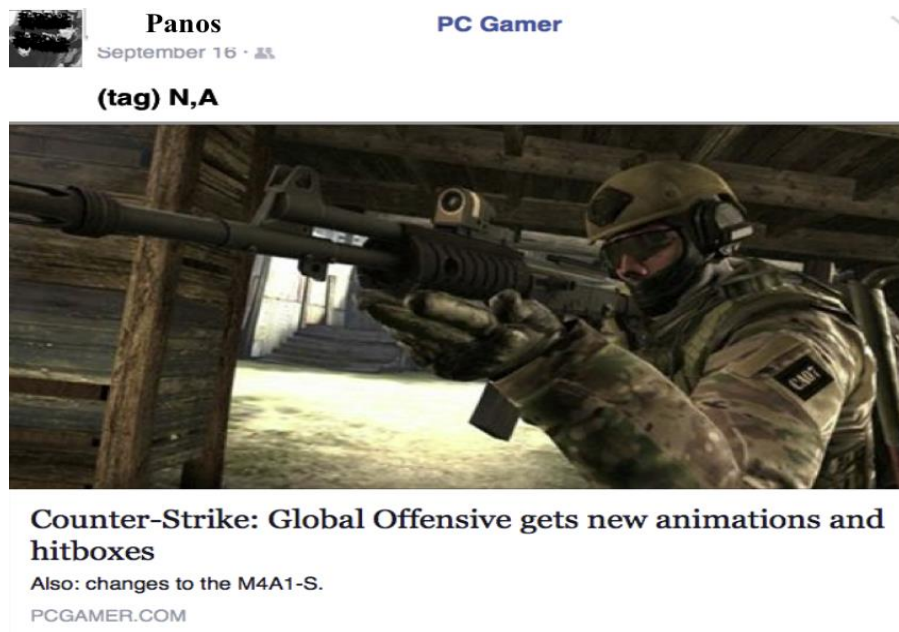


Figure 8 features an article about *CS:GO* that Panos shared on his Facebook account. The article referred to an update of *CS:GO* features such as the introduction of brand-new player body and world model weapon animations and solutions to the enduring problem of some weapon models that were sticking through walls, doors, and other surfaces. This update was carried out due to complaints by the community of gamers. Panos shared the article on his personal Facebook account, tagging two of his gamer friends, Nikos and Alex. Here, tagging was a practice of asking the opinion of friends considered extremely good players in *CS:GO*. This was also confirmed in a discussion we had afterwards. Nikos and Alex were very popular gamers in the local gaming community because of their expertise in *CS:GO*, and Panos sometimes was playing *CS:GO* at Kinx with them. Nikos commented below the article, “They fucked everything up. I have already played the game with this patch.” Panos replied, “Omg cs go rip.” (i.e., Oh my god. *CS:GO* Rest in peace). With this phrase, Panos expressed his worries believing that players would stop playing *CS:GO* because the upgrades were not good, and this would have an impact on reducing the interest of gamers. On the other hand, Alex had a different opinion on the new alteration of the *CS:GO*: “What did they fuck up dude? Finally, these patches will change the game.” When I met Panos’s friend, Alex, I asked him what he meant by that, and he explained to me that the new patches helped to the improvement of game play in *CS:GO* because with those changes, the gun fire and the bullets became more realistic in the sense that the energy of each bullet showed whether it went through an avatar’s body. Such posting and commenting functioned as a literacy practice of sharing information and exchanging opinions about *CS:GO*.

3.6 Oral discussion for upgrading gaming literacy from the local gaming community

Finally, the data showed that all the participants shared information and past game play experiences in oral discussions within the local community of gamers in various settings, including, but not limited to, home and gaming centers. These discussions were vital for the participants because they incorporated new knowledge regarding how to learn from mistakes, how to learn about new strategies and tactics, and, generally, how to acquire knowledge for better performance during game play (see Excerpt 6). Excerpt 6, which is from Panos’s interview, indicates how interactions about gaming with other players was a source of important knowledge that helped improve his game play.

Excerpt 6

Learning from more experienced gamers

Elisavet: So you learn stuff only during game play?

Panos: No, also when you are out of the game. Especially us. The gamers, we are going to Kinx, and we find more experienced gamers than us. From those players, you learn.

And they will tell you what tactics or strategies to follow. We always talk about gaming. I believe that you learn from discussions.

Panos argued that players upgraded their existing knowledge not only by playing the game, but also by exchanging information in discussions within the local community of gamers that “are more experienced gamers” than them. The experienced players were considered to be resources of valuable information regarding learning new tactics and strategies for *CS:GO* that could be employed to improve their own performance.

4. DISCUSSION AND IMPLICATIONS

This paper presented the findings of an ethnographic study examining the literacy practices and metagaming within and around *CS:GO*. From the analysis of the research data, it became evident that players self-engage in a cycle of layering literacies within and around game play with an aim to go back to the game and perform better metagaming. Metagaming in *CS:GO* is a critical practice tactics that are both collective and individual, long-term and short-term, fluid and bounded, as well as anticipated and unexpected. These practices occur during and beyond game play through a cycle of layering literacies online and offline. The aim of metagaming for the players is to overcome the opponents’ tactics and strategies with an aim to maximize the chances of winning. This requisite strategizing is directly linked to a high-level decision making. The findings argue with Boluk and LeMieux (2017), that players metagame using real life information that typically would not be accessible within the bounds of the game with an aim to gain advantage over other players during game play. To implement tactics and strategies during game play means to understand that players are empowered to engage into a meta-critical constant self-learning by interpreting and responding to layering online and offline literacy practices around and through game play. Players layer their literacies as they solve problems in the game, watch live tournaments, explore gaming sites and forums, observe co-players’ game plays, discuss tutorials, speak with local gamers, and share articles, texts and game play highlights on social media. These layering literacies are multidirectional (Abrams, 2015, 2017), based on participants’ interests, and are “fluid, porous, and flexible in the same way that, ideally, learning should be” (Abrams, 2015, p. 15).

The study suggests that bringing layering literacy practices and metagaming together offers a new perspective on what gaming literacy can offer in education. Winning the game is not just about entertainment, but also about beating the other players’ gaming literacy level in respect to their tactics, strategies, and overall game play. Thus, this study suggests videogames can offer educational opportunities in L1 classrooms that extend beyond the conventional view of literacy as a reified set of basic skills, such as reading and writing and restricted to paper-based (Applebee, 1984; Green & Dixon, 1996). Examples of L1 metagaming practices for students could include co-organization of tactics and strategies for solving game-related problems

and challenges, prediction of the future actions of the opponent team during game play and collaboration for high level decisions. Literacy practices similar to metagaming practices might include, but not be limited to, students commenting on matches in *CS:GO*, students writing a guide for players identifying key goals for communication, or students developing an archive of moves and related consequences.

Videogames with an emphasis on metagaming can provide rich and situated problem-solving learning environments for students to create and share artefacts, seek and create information, and also engage in meta-critical thinking with respect to game-related problems and challenges alone and together with their peers, planning strategies, reflecting on the problems of the game, experimenting through trial and error, comparing, analyzing, evaluating, deconstructing and reconstructing meanings and actions. Overall, integrating gaming literacy in L1 classrooms offers opportunities for a more student-oriented, socially situated and dynamic learning environment that can prepare learners into be critical thinkers and solvers of real-life problems in effective ways.

5. FINAL THOUGHTS

If students are to be self-directed learners who think critically (achieved through variety of strategies, such as comparing, contrasting, analyzing, evaluating, deconstructing, and reconstructing knowledge), then the integration of videogames into L1 classrooms can support such efforts. Students need to become not only agents of the learning procedure, but also designers of creative solutions to real situated problems and in the best way possible. Gaming literacy approach including metagaming can encourage students' engagement, collaboration, competition with peers, critical thinking, problem-solving, experimentation and higher-level decision making. Teachers can engage students into projects that focus on real local and global problems that need to be solved. Examples of videogames that focus on solving situated real life problems can be found for example in *Games For Change* website (<https://www.gamesforchange.org/>). Team collaboration and competition should also be at the center of the learning procedure. Students can interact with each other in the form of exchanging ideas, competition of searching the best solutions to the problems, knowledge sharing and expertise sharing between students. Educators can achieve this by making synergies with other educators and bringing their classes together in online and offline environments. Just as gamers learn from observing and discussing videogame play, so, too, students can watch and ask questions for their classmates solving problems, e.g., science problems, environmental problems, literature problems, asking questions and witnessing how such operations are performed. In these ways, the learning procedure could function as an open space for students to sit in groups and to walk in the classroom watching other peers how they work, to communicate and collaborate online. This is a key point of understanding the knowledge should be share among others to understand mistakes, improve knowledge and act in the best possible way to solve a problem. Considering also that

videogames are designed with game mechanics (e.g., time-limitation, rewards, educators could redesign the mechanics of learning activities in class such as time-limitation, coopetition, space for failing and retrying. With this, students can be empowered to explore, experiment, fail and retry. Students could also engage with different text genres, online multimodal environments in order to gain information, and or understand the ways each mode interacts with each other in order to create texts (e.g., posters to be shared in the community) that could be used as strategies to solve a problem. Therefore, educators can promote layered literacies by using existing online and offline spaces or by creating new ones. Concluding, a gaming literacy approach is about helping students to be critical literate problem-solvers. In this way, through gaming, learning is situated and tangible, and students can be problem-solvers prepared to enact change in the world around them.

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