

How gamers manage aggression: Situating skills in collaborative computer games

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Abstract In the discussion on what players learn from digital games, there are two major camps in clear opposition to each other. As one side picks up on negative elements found in games the other side focuses on positive aspects. While the agendas differ, the basic arguments still depart from a shared logic: that engagement in game-related activities fosters the development of behaviors that are transferred to situations beyond the game itself. With an approach informed by ethnomethodology, in this paper we probe the underlying logic connected to studies that argue for such general effects of games. By focusing on proficient gamers involved in the core game activity of boss encounters in a massively multiplayer online game, we examine the fundamentals that must be learnt and mastered for succeeding in an ordinary collaborative gaming practice where aggression is portrayed. On the basis of our empirical analysis we then address the contentious links between concrete instances of play and generic effects. As expected, the results point to “aggression” as well as “collaboration” as major components in the gaming experience, but our analysis also suggests that the practices associated with these notions are locally tied to the game. Based on these results, we propose that to reverse this relationship and claim that game environments foster collaboration or aggression *in general* first assumes strong theoretical claims about the nature of cognition and learning, and second, risks confusing the debate with hyperbole.

Keywords Collaborative gaming · Coordinated action · Boss fights · Ethnomethodology · Skill · Transfer · Violence · Gaming literacy · MMOG

Introduction

The general issue of how learning, cognitive and emotional development is related to various technologies in both good and bad ways has been debated for over two millennia. To this day,

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some instantiations of the question continue to spur heated debates in the media and academia worldwide. The particular instantiation that we take an interest in here concerns the use of digital games for recreational purposes. In the ongoing discussion of what gamers learn from digital games there are two major camps that exist in clear opposition to each other. On the precautionous side, there are those who pick up on negative elements such as the violence and aggression commonly portrayed in games and try to study the effects of these elements on children's behavior (cf. Anderson et al. 2010; Bailey et al. 2011). On the opposing side, we find proponents who choose to focus on positive aspects and argue that users of digital games develop skills and literacies in relation to the medium that better prepare them for life in society (cf. Griffiths 2005; Gee 2003, 2008; Gunter 2005; Hsu and Wang 2009; Shaffer 2006). What is easily forgotten, in the light of the apparent antagonism between sides, is that both these positions furnish arguments on the basis of a shared logic: that engagement in gaming activities fosters the development of (negative or positive) behaviors that are manifested in situations beyond games themselves. Unpacked even further, we find that the very foundation for the argumentation itself relates back to the enduring enigma of transfer.

Transfer has been a central concept and metaphor for learning in educational psychology since the emergence of the field. This educational construct "refers to the appearance of a person carrying the product of learning from one task, problem, situation, or institution to another" (Beach 1999, p. 101). Despite this, there is little agreement on how to delineate the construct and therefore how to empirically account for phenomena associated with it. In the literature, different perspectives in educational psychology show unique ways of approaching these issues, and as a direct consequence, diverge in their views on how *general* or how *specific* the notion of transfer might be (cf. Beach 1999; Mayer and Wittrock 1996). Because of these differences in understood level of generalizability, researchers taking different approaches also employ different units of analysis. For example, Tuomi-Gröhn and Engeström (2003) categorize conceptualizations of transfer into three groups that describe those who construct the notion of transfer on the basis of (1) tasks, (2) the individual or the context, and (3) interaction between individual and context (p. 33–34). In other words, studies addressing transfer vary broadly, ranging from the study of changes across tasks to that of transformations in social organizations.

The topic of transfer has principally been debated in relation to learning outcomes in schools and, in particular, in connection to explorations of the ways knowledge can transcend the schooling system. By contrast, in the context of studies addressing digital games the concept of transfer is recurrently taken for granted and rarely called into question. Despite this, when games are framed in terms of positive or negative effects, this implies that particular views on transfer have been implicitly taken. On one hand, games are seen to afford generic models of activities that inspire transfer across practices (cf. Gee 2003; Shaffer 2006). On the other hand, it is assumed that transfer of general forms of learning and knowledge (e.g. literacy) will occur *incidentally* through participation in activities and practices related to games and game design (cf. Harel Caperton 2010; Hsu and Wang 2009; Partington 2010; Salen 2007; Steinkuehler 2007, 2008; Schrader et al. 2009; Walsh 2010). What is often overlooked in studies of gaming and its effects on learning is that educational science has engaged with the notion of transfer as a *problem* for over 100 years. This long history of considering the issue suggests that, whatever perspective one takes there is a mutual agreement that transfer is utterly challenging to achieve even when one intends to (cf. Beach; 1999; Marton 2007; Packer 2001). Even the core metaphor of transfer itself has long been challenged. As early as 1953, Smedslund described transfer as a pseudoconcept and "an artifact created by the traditional experimental design" (p. 157). More recently, there are a number of studies that critique "the culture of transfer experiments" (Lave 1988, p. 34) or the metaphorical nature of the concept (cf. Beach 1999; Säljö 2003).

In this study, it is not our intention to debate the notion of transfer as such. Instead, we use the concept as a reminder of, and a pointer to, what is *assumed* in the ongoing debate on *what is learnt from engagement with digital games*. With an approach informed by ethnomethodology (Garfinkel 1967; 2002) we probe the underlying logic connected to approaches that argue for general effects of games. In the study we will closely examine gamers' actual engagement in the core game activity of boss encounters. By focusing on players involved in a set of collaborative gaming episodes where aggression is represented, we seek insights into the work required to proceed in the studied gaming environment. In other words, we examine the fundamentals that must be learnt and mastered for succeeding in the studied game. Our first aim is thus to provide a detailed description of the ways in which gamers' display skills and produce social order in an ordinary gaming practice. On the basis of this empirical analysis our second aim is to address the contentious links between concrete instances of play and generic effects.

Gaming and its effects

As digital gaming has become a widespread everyday activity, the desire to understand the consumption of this new medium has increased. Following the tradition of media studies, there is an interest in the effects of computer games, i.e., how gaming affects different strands of human life. One of the more intense debates concerning computer games is the discussion about how the violence in many games affects the players. The issue at stake is whether or not exposure to violent games triggers aggression, aggressive and violent behavior in players' everyday lives. Even though the subject is well studied, researchers do not agree about the results (cf. Anderson, et al. 2010; Ferguson and Kilburn 2010; Bushman et al. 2010, for an overview of the current state of the debate). The discussion as such has been criticized for using ambiguous definitions, being based on poorly designed research and confusing correlation with causality (Goldstein 2005). The effects of computer games are often framed in a dualistic model where *positive* and *negative* effects are played out against each other. For instance, Griffiths (2010) states: "Despite this rather negative side of video games, there is much evidence suggesting that gaming can have very positive effects on people's lives." (p. 37) When discussing meta studies of effects Ferguson (2007) concludes: "Taken together these results suggest that violent video game exposure is associated with some positive effects, but does not appear to be associated with negative effects in relation to aggressive behavior" (p. 314).

Other studies focus exclusively on possible beneficent outcomes related to games. One strand of research discusses digital games in relation to cognitive effects, effects on social behavior and health effects (Gunter 2005). One example are studies that consider the therapeutic potentials of games as tools for cognitive rehabilitation and pain management (Griffiths 2005). Furthermore, games are said to have qualities that increase student motivation, provide a more authentic learning experience and facilitate collaborative problem-based learning (Cairncross and Mannion 2001; Gredler 1996; Shaffer 2006). This approach to games presents the idea that it is possible to create specific educational games that would be superior to other instructional approaches. Historically, this has been the dominant view of games and learning, an idea that games can and should be used in different educational practices as a tool (Gredler 1996). Parallel with the discussions of the potential of games in educational practices, there is a large volume of literature suggesting that gaming results in players' developing skills that will be beneficial for them in other situations. For instance, the effects of gaming on visuospatial cognition (Ferguson 2007)

have been said to provide students with skills that are in demand in some professional practices. Calvert (2005) concludes an overview of cognitive effects of video games by stating: "Where our school system ends, our informal gaming environments begin, providing lessons in the visual skills needed to excel in many technical careers" (p. 130). This kind of suggestion, that players develop skills for the future, is frequently tied to the notion of literacy. For the remainder of this section we will therefore discuss some of the different positions of games *vis-a-vis* this educational concept.

The process of developing literacy in games is often described as the ability to understand and produce specific ways of *meaning* in social and cultural practices (cf. Gee 2003; Squire 2008). The notion of literacy has been used in somewhat different ways in relation to games. One approach is found in research that use the notion of '*game*' (or *gaming*) literacy with reference to the practice of *teaching about games*, comparable to teaching about literature and film (cf. Buckingham and Burn 2007). These studies aim to educate people in how to "minimize harmful effects." (Klimmt 2009, p. 28; see also Delwiche 2010); and to advance game education students' 'naïve' understanding of games by improving their abilities to engage in critical analysis (Zagal 2010; Zagal and Bruckman 2009).

Another conceptualization of game literacy is found in studies that juxtapose *designing* games with *playing* games, thereby making an analogy to the ways *writing* relates to *reading* (Hsu and Wang 2009, p. 3; see also Harel Caperton 2010; Partington 2010). As a consequence, game literacy is not only understood as something gamers cultivate through playing, but also as a set of skills attained in *the process of designing games* (cf. Buckingham and Burn 2007; Delwiche 2010; Partington 2010; Pelletier 2005). As already alluded to, the notion of game literacy is used as an umbrella term for a number of positive effects of gaming. Gamers are said to develop general transferable abilities such as *technology competencies*, *critical-thinking skills* (Hsu and Wang 2009), *models and systems thinking* (Salen 2007; Zimmerman 2009; Bogost 2008; Gee; 2008). Another strand of research target Massively Multiplayer Online Games (MMOGs) and based on engagements in such games, claims are made that gamers learn so called "21st century literacy skills" (Schrader, et al. 2009, p. 794): multiple text comprehension and digital media literacy practices (Steinkuehler 2007; Schrader, et al. 2009), systems-based literacy practices (Walsh 2010); collaborative problem-solving practices (Steinkuehler 2008), second-language socialization (Soares Palmer 2010), informal science literacy (Steinkuehler and Duncan 2008), and computational literacy (Steinkuehler & Johnson, 2009). In summary, it is argued that gaming becomes a training ground for hybrid forms of literacies that are applicable *outside* gaming practices.

It is noteworthy that not only do the different lines of research accounted for in this section base their claims on gaming and its effects on pre-conceptualized ideas of gaming, but in many cases they are grounded on analyzes of activities *around* gameplay (such as chat and messages, design processes, fan fiction, discussions on Internet forums, modding etc.). In other words, the studies are not always concerned with activities *central to* gameplay (cf. Reeves et al. 2009). Whatever could be learnt from engaging in these activities, we find it questionable to debate gaming and its effects or to construct a concept of gaming literacy (or literacies) on accounts that fail to acknowledge its core activity.

Finding a middle ground

The reviews provided of the discussions on violence and literacies in relation to gaming are in no way exhaustive. They are rather to be seen as exemplars of the forms of reasoning that dominate current conceptualizations of gaming. When relating these discussions to the

literature on transfer, both the negative and positive accounts of the effects of gaming resonate with what Mayer and Wittrock (1996) label *general transfer views*. There are many issues that could be raised in relation to these fields of research, but our ambition here is merely to draw attention to the common assumption that it is possible to find *effects of the technology* that carry across situations. Not only does such a position imply a mechanistic view of human action, through a one-sided search for (harmful or beneficent) effects, there is also the risk of pre-conceptualizing the phenomena addressed as well as the possibility that the whole matter of what people actually do during gaming is overlooked. As an alternative to this search for good or bad in terms of *outcomes*, we will analyze gamers' *involvement* in one common gameplay practice. We have chosen to highlight the core gaming activity of 'boss encounters' in a MMOG. By laying down details of a witnessed performance, an attempt is made to reveal the knowledge needed in order to successfully carry out this work.

Studies of game-in-action

For the purposes of our study, we have adopted an ethnomethodological approach (Garfinkel 1967; 2002). This entails the study of members' *methods* for producing and recognizing actions and activities (i.e. analyzing the accountability of actions). On the basis of this empirical material the analysts can raise (theoretically and/or empirically driven) topics and questions. Central for this approach is that it adopts the members' own perspective of their conduct in particular practices.

In comparison to studies focusing on gaming effects that are driven by the researcher's pre-conceptualized understanding of gaming or investigations of practices around gaming, ethnomethodologically informed studies of gaming examine *how* gamers manage particular gameplay activities and provide detailed insights into the practices that gamers are involved in. Previous studies of gaming within this tradition have used video recordings and/or auto-ethnographies in order to provide detailed accounts of the sequential organization of action and talk of games-in-action (cf. Bennerstedt and Ivarsson 2010; Crabtree, et al. 2007; Mondada 2011; Reeves, et al. 2009; Sjöblom 2008; Sudnow 1983). A majority of these studies share an interest in exploring the organization of play by documenting how skills are socially displayed among gamers in order to gain insights into how they approach, make sense of, and master a particular game. Hence, these detailed accounts not only demonstrate how play gets done but also exhibit players' skills. Key results of these studies are the game-specific skills involved in managing the temporal and spatial organization of play.

For example, Mondada (2011) examines 'mobile' actions between two co-located gamers playing on the same team in a football console game. Mondada gains access to the ways they assess their gameplay by studying the *timing* of verbal orders, embodied instructions and directives relative to actions performed on the football field. In other words, by examining how the players distribute and attribute responsibilities of actions in-game, the study shows how they morally assess each other's performance. In a study at an Internet café, Sjöblom (2008) goes into the details of how play is organized around online games when players are seated in front of computers in various arrangements. Collaboration is achieved by re-arranging postures, talking and pointing at features on the screen, and instructing members of the same team (friends) as well as the opposite team (foes) at the café. By investigating the ways in which the players issue instructions and follow or reject them, Sjöblom shows how they depict, or in some cases attempt to depict, themselves as competent gamers. Focusing on cooperative gameplay against computer-controlled foes in MMOGs, Bennerstedt and Ivarsson (2010) investigate "how action is coordinated in practices that neither rely on the use of talk-in-interaction nor on a socially present living body" (p. 201). By examining how small-scale

MMOG teams' shift between different forms of activities, the study show the artful ways gamers project and align with co-players' actions and activities in the game. In another study that focuses on gamers that come together online to compete against other teams, Reeves et al. (2009) give an account of "the development of player skill" (p. 220) (skilled play) in a particular game (Counter-Strike). The descriptions of skilled play in Counter-Strike include players' fluency with technical input devices, and consequently their *competent movement* in a particular 'map', and the ways in which members of the game make sense of what friends and foes are doing. The account of skilled play displays players' familiarity with this particular game's "interactive temporal environment" (p. 224) developed from earlier play sessions. In other words, by means of a gradually developed 'sense' of play, they are able to skillfully plan and initiate counter-attacks in their terrain of play.

Informed by these studies, we will focus on the production and accountability of gameplay activities in the practice of boss encounters as a way to tease out the elusive character of gamers' skills at play.

The data and the setting

For this study, we based our investigation of boss fights on so-called pick-up-groups (PUGs) in MMOGs. PUGs refer to a small group of players (most commonly strangers) who come together to take on a joint activity for shorter periods of time (from around 30 min to a few hours). We selected PUGs because these teams cannot rely on previously established forms of cooperation. This means that members either have to communicate their expectations or assume a shared understanding of how to proceed in the game and what to do next.

To capture the details of the gamers' actions we used screen-captured video from a large body material (about 90 h from three MMOGs) where PUGs are present in about 40 h. A European server of *The Lord of the Rings Online* (LotRO) was used for the empirical illustrations of this study. The data were gathered in 2007 by the first author. At that time, LotRO had about 150,000-200,000 subscribers (Woodcock 2008). The recordings have been made in accordance with previous video and auto-ethnographic studies of virtual game worlds; this means that we as analysts do not know who the players are outside the game (cf. Moore, Duchenaut, and Nickell 2007). The names and kinship (guild) of the avatars have been changed or concealed. As the gender of the other players is undisclosed any gendered pronoun in the analysis refers to the displayed sex of the avatar.

LotRO (see Fig. 1 for an overview of the game interface and illustration of the embodied involvement) resembles other MMOGs that enable social actions through a virtual body in third-person view (comparable to World of Warcraft, Everquest, Lineage, Star Wars Galaxies, and City of Heroes/City of Villains, cf. Chen 2009a, 2009b; Keating and Sunakawa 2010; Moore et al. 2007; Steinkuehler 2006; Taylor 2006). Gameplay activities (i.e., involvement in activities that in part originate from the game producers' designed interactive structures) commonly include encounters with computer-controlled foes, hereafter analytically referred to as *mobs* (the term is an abbreviation of 'mobile objectives').¹ Players can engage in combat against mobs alone but often face such creatures collaboratively with friends and strangers, in small- or large-scale teams (cf. Nardi and Harris 2010).

¹ It is often claimed that the term mob originates from a research report by Richard Bartle in 1980 where he refers to moving objects as 'mobiles' in one of the early multi-user dungeons (MUDs, a text-based precursor to MMOGs) (Bartle 2004). In game worlds of today, the term mobs often refers to monsters while other 'mobiles' are referred to as non-player characters (NPCs, such as those who sell items or those with whom players can engage in pre-scripted dialogues).

Fig. 1 Left, the field of view of a single player's combat involvement with one monster's attention (aggro) (the chat and text-based game system information is observed in the bottom-left, whereas various game-related abilities and skills are visible in the bar at the bottom). Right, the player's left hand in position to push buttons tied to various pre-programmed actions in-game



The pick-up-groups studied consisted of strangers who teamed up following announcements in particular chat channels. Of central importance for selecting players for groups is consideration of their character's specializations ('classes'; such as Champion ('tank') and Minstrel ('healer')) in order to get a balanced team. In LotRO, these groups, or fellowships, support a maximum of six players and the recorded teams mostly contained a full team. We decided to focus on so call boss encounters because one frequent goal that these groups agreed on was to kill *bosses*. While the game's labeling of more demanding creatures is, for

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example, 'Elite Master' and 'Nemesis', members of LotRO often refer to such encounters as bosses or elites. We selected and studied instantiations where fighting against bosses occurred (in the recorded LotRO material about 25 cases). The design layout of boss encounters varies profoundly in LotRO, but usually consists of one mob that is more difficult (as the management of it will include more complex counterattacks and be of longer duration). In addition, boss fights often include guards (referred to as 'adds').²

In all the sessions studied, the members used the text chat when communicating whereas the built-in voice chat was never used.

For our presentation of the analyzed game activities, we have used frame-captures from the video data. For presentation of certain sequences we have employed stylized renditions in order to visualize gamers' collaborative actions and movements for readers who are not used to the visually cluttered field of game interfaces. These renditions were made in studio photo sessions and highlighted the spatiotemporal organization of team play as observed in the video data. The stop-motion photo sequences were then given a finishing treatment in Comic Life, Adobe Photoshop and Adobe Illustrator.

The dynamics of the boss encounter

The empirical material we investigate concerns *teams of players approaching and fighting bosses*. In these encounters, members work to secure mutual awareness of and orientation towards their common tasks. As we will see, a central feature of boss fights is that they are designed to challenge and disrupt the players' internal organization as a team. In order to survive such an encounter, the players must take into account the very mechanics of gameplay. Furthermore, members of MMOGs are held morally accountable for acknowledging the zones in which mobs will detect player presence and attack. In gaming terminology, these zones are known as the *aggro circles* surrounding mobs. These are invisible areas continuously calculated by the game system. This means that team members must manage their movements in relation to an invisible spatial element in order not to trigger an attack from a mob (by mistake). Once triggered, the aggressive interests of the mob must be continuously monitored and held in check by the team. This form of management is, in our view, a key in understanding much of the social order of these core gaming activities. How members execute boss fights and demonstrate their positions as competent gamers will be further explored on the basis of this fundamental mechanism. As a first way in to these phenomena we will provide a general overview of boss encounters in the next section. This will be followed by more detailed accounts of specific encounters.

Overview of boss encounters

Being subjected to attacks by a mob is called getting "aggro", which is an abbreviation of the words "aggravation" or "aggression". Boss encounters are designed so that players must co-ordinate their actions in order to keep the boss attacking a specific player, typically a player able to withstand severe attacks. This role (tank) is often represented by an avatar who has heavy armor, shield, force field, etc. Thus, in contrast to solo play where the mob (s) normally target the player by default (see Fig. 1), groups of players have to *manage*

² In the studied material, the boss encounters were managed by teams with widely varying specializations. Furthermore, in the material, the death of whole teams (wipes) rarely occurred and wipes leading to breakdowns of groups (members quitting the team after an unsuccessful fight) occurred only once.

aggro between them. The actual initiation of combat depends on the type of mob. An aggressive mob, most commonly encountered in boss fights, will attack either when attacked by a player over a distance or when the players come into their vicinity. The size of this aggro circle, the range between the player and the mob, depends on the level of the avatars in relation to the level of the mobs.³ In addition, there exists a threat (also known as 'hate') level system relevant for understanding collaborative attacks on mobs. This system continuously keeps track of which player in a team has accumulated the most threat and is thus subjected to a mob's aggro. The underlying details of this system are for the most part hidden from the players.⁴ Threat is generated by performing aggressive acts on mobs, but also by cooperative acts (for example healing co-members) and through the use of abilities and items. Players can reduce threat, and thereby the attention of mobs by, for example, monitoring their combat actions and by utilizing aggro-diminishing abilities or items. A consequence of this is that players must work not only to *draw* aggro and generate threat but also to *avoid* aggro and to reduce their threat level. Taken together, this cooperative work is referred to as *aggro management*. It should be noted that even if we, as researchers, use this notion for analytical purposes, players already use it for their own analyses.

In relation to the temporal organization of boss encounters there are distinguishable phases that divide each event into three parts. These will be named the pre-fight phase, the combat phase and the post-fight phase. Since the purpose of our investigation is to discuss the management of aggro, a non-constituent element once the fight is over, the third phase is not included in our analysis. Next, we provide more detailed accounts of the first and second phase and a number of illustrations of the ways in which the management of aggro is carried out.

How close is safe for boostings

When approaching a boss, experienced members assess the upcoming battle in several ways; they interpret the *terrain of play* by considering "what to do next, seeing the implications for those actions in this environment, at this point in the course of play of the game" (Reeves, et al. 2009, p. 223; see also Sudnow 1983). In the material, it was observed that during this pre-fight phase, the teams displayed an acute awareness of the aggro circle as they skillfully managed a *safe distance* to the boss. On some occasions the members explicitly addressed this invisible line, through directives such as "*wait*" in the chat, but most often the relationship was managed without written remarks.

One example that illustrates the ways members tacitly relate to this perimeter is taken from an encounter with the dragon Bloodwing. The boss Bloodwing is located in a large, nest-like area on top of a mountain. To get there, the members had to move along narrow tracks where smaller dragons roam. The member Merenwen, currently in the lead, stops just outside an opening in the mountain. The rest of the team acknowledges this and they all come to a halt, closely positioning their avatars next to Merenwen (see Fig. 2). This mutual coordination and halt suggests that there is work to be done before engaging in the fight.

³ In LotRO, certain aggressive mobs do not automatically attack if the player is several levels higher, while other mobs ('threatening' mobs) instead provide the player with some seconds' respite and reset aggro if the player moves out of aggro range within a time limit (while 'passive' mobs only attack the player if they are attacked).

⁴ Players can in various ways get input from the threat system and status displays of which member(s) are currently subjected to aggro. In LotRO, such status displays of which player is currently receiving aggro can be obtained by, for example, marking a particular mob with the mouse cursor or, if several mobs are present, to cycle through the mobs by pressing the "tab" button.

Players allocate time, not only to 'getting ready' to carry out a joint coordinated attack (cf. Moore et al. 2007), but also to prepare their avatars in various ways. In this way, the halt made by Merenwen initiates a new activity (boosting) and it signals a right time and place for this. Boosting is a form of temporary augmentation of the avatars and is accomplished by the consumption of food, drink and the use of magical items. The majority of boosts have a time limitation that results in players keeping an eye on the time left to make sure it will last for the duration of the fight (as the majority of boosts cannot be managed during combat).

At times members verbally request boosts ("*eat and drink!*"), ask for the appropriate level of boosts ("*Umm, is it time for Talon's token?*"), and show that they are busy boosting (themselves or others, "*love boosting*"). By sharing such information the team members create a mutual understanding of the kind of preparatory work needed and the assessed level of risks in the upcoming fight.

Entering the boss fight

The player (tank) that starts the fight (combat phase) is at times requested to do so by the co-players ("*Go!*"). In several of the studied encounters, the player assuming the tank position posted a one-liner to the effect 'I'll do this, and you do that' before initiating the attack. The organization of real-time combat requires smooth internal co-ordination where each team member has to carefully monitor if the other team members are subjected to aggro and they must also be prepared to make swift adjustments in the case of incoming 'adds'. This element of additional guards that come to the aid of the boss is an important feature of many boss encounters and it is specifically designed to disturb or disrupt the internal organization of the team.

Fig. 2 Keeping a safe distance outside Bloodwing's lair



Case-specific knowledge of boss encounters is at times made a topic in order to establish some common ground as to what to expect in particular cases. This occurred in the case of a boss fight containing visible guards, “*they [the guards] don’t come at the same time*”. In several other instances, the guards become visible and enter the fight first during combat. With one-liner postings like “*I’ll tank the ghost, kill the trolls*”, “*Okay we’ll kill goblins first. I’ll tank the big one!*” or “*you guys take out adds, I’ll keep him busy?*” players display both general and case-specific knowledge of boss encounters. This listing of responsibilities and tasks is further illustrated below (see Figs. 3 and 5).

As a precursor for initiating the imminent attack, the team’s tank Merenwen (the blue marked character) proposes that she will take care of Bloodwing and asks if the others can take care of the ‘adds’ (guards) (Fig. 5, frame 1). The brevity of this proposal indicates that there is much assumed about other team members’ familiarity with the game mechanics and as further evidence, the team also quickly accepts the proposal. This explicitly made request is accepted by one member after four seconds (by posting “k”) and the second after by another member (by posting “ok”). The next second, Merenwen steps into Bloodwing’s aggro zone and attracts his attention (frame 2). To further raise the level of threat Merenwen executes a number of combat actions. As a third part of this sequence of actions, she circles Bloodwing and positions the avatar between the boss and the wall of the lair (frame 3–4). This causes Bloodwing to turn around and focus all attacks on Merenwen. This means that the rest of the team are now free to attack the boss from behind, which is both safer and more efficient in terms of damage.

The rest of the team decides on *when* it is appropriate to enter the fight by waiting five seconds before they join in (frame 5). By waiting, they provide time and space for the tank to acquire and maintain (secure) aggro and accumulate threat. This means that members



Fig. 3 Initiating a fight with Bloodwing

Fig. 4 Watching Barashal from a safe distance



avoid taking over aggro from the tank as such an incident could initiate a bouncing effect where the boss/guards start to attack different team members. Such an uncontrolled situation easily leads to confusion and mistakes that might result in death of the whole team ('wipes') (cf. Chen 2009a, 2009b).

Managing multiple aggro zones

As has been indicated, boss encounters often involve management of several aggro zones. In the encounters studied, it is observed that one recurrent reason for trouble during the fights concerns the challenges of supplementary guards that the game designers have set-up. These additional aggro zones stress the co-operation of the team. This can be seen in the

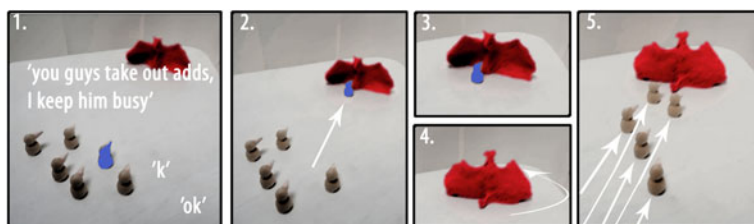


Fig. 5 The tank refers to a priority list of upcoming tasks relevant to the encounter with Bloodwing and initiates the fight (subjected to aggro). The rest of the team waits for a proper time to enter the fight without attracting Bloodwing's attention

ways members give warnings and directives and respond to those when managing the sudden onset of incoming guards.

For the sake of simplicity, we again select the encounter with Bloodwing as an illustration. Besides the tank Merenwen, the player Heal (the character marked in green in Fig. 6) plays a central role in this episode. Heal controls an avatar (a so-called minstrel) who has healing abilities (ensuring that the team has a good morale (health)). Some time into the fight when Bloodwing's morale (health) is lowered to about 1/3, the game mechanic shifts into a new "phase" (cf. Chen 2009b). As a result, Bloodwing recovers some of its morale and a moment later a mini-dragon circles down from the sky, landing a short distance from the team (Fig. 6, frame 1). The team immediately detects the new trouble. A few of the members stop fighting against Bloodwing and move to pick up the guards' aggro and simultaneously the healer posts "add" as a request for action.

Two seconds later the tank (still positioned between the wall and Bloodwing) can be seen warning of the appearance of a second guard as he is also posting "add" (frame 2). This second warning is timed so that it is given right before the appearance of a second mini-dragon (frame 3). In fact, the second guard lands on the healer, who bears the brunt of its aggro (frame 4). This turn of events is problematic for the entire team since Heal is a character who not only is unsuitable for close combat, but also, because he is subjected to aggro, the player is unable to fulfill the responsibilities of a healer with respect to the other team members. Five seconds after the second mini-dragon appeared, Heal tries to evade the mini-dragon's aggro by moving away. A third team member steps in and takes over the aggro (frame 5) while Heal continues to move to find a new safe spot.

In the sequence, it can be seen how individual members skillfully predict the entry points of mobs and manage their aggro in order to protect the entire team. This example illustrates the fact that members constantly monitor the ongoing fight by the ways they project, search for and detect incoming adds and also how they watch over more vulnerable characters in order to quickly pick up on new aggro zones. The fluctuation of different aggro zones makes the centers of attention shift during boss encounters, often in the space of a moment. These spatial and temporal challenges require that the players be able to navigate in and manage the entire gamut of role-bound obligations and rights (i.e. healer, tank, etc.).

Finding structures in the environment and fine-tuning spatial positions

During the fights, there are several instances that escalate into high-risk projects, endangering the characters. In most of the encounters, there are several solutions for re-establishing control over the situation. One of the last resorts is to flee from the fight. This is proposed by a team that lost their healer due to an encounter with Barashal. Barashal is a single troll boss, without any guards, with a special attack (slap). When hit by this

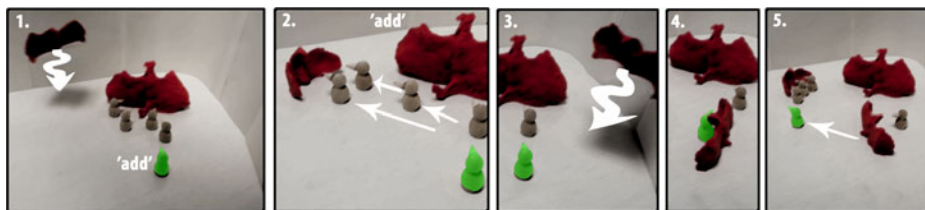


Fig. 6 Collaboratively collecting aggro and protecting the healer (the character marked in green)

attack the player-controlled characters tumble away in an uncontrollable fashion. To further complicate things, Barashal is located on ledges and narrow spaces high up and a fall into the green deadly water below leads to “instant death”. The primary solution for this encounter is to organize the team spatially so as to safely manage the troll ‘knockbacks’. This means that competent gamers gather at a selected spot with a backing wall and lure (‘pull’) the boss to this place.

In the recorded situation the team has surveyed the upcoming encounter by watching Barashal from a safe distance (see Fig. 4). The tank in the group calls attention to some preparation work that has to be done before the fight is initiated; “*all come by this wall and wait till I pull him down*” (see Fig. 7, frame 1). The team members non-verbally agree by re-positioning their characters with their backs against the wall where the tank was located just a second before (on a spot situated next to a waterfall) (frame 2–3). As a solution to the envisaged problems of the encounter with Barashal, they line up their characters so as to be knocked back into the wall (and not into the deadly water) during the fight. The tank moves towards Barashal on another ledge and by getting his attention she lures (pulls) Barashal towards the waiting team (frame 4).

Nevertheless, during combat an upcoming crisis is detected. Barashal’s attacks do not only result in the characters being thrown up in the air but also, somewhat unpredictably, to the side. This occurs a few times to several members and each time they have to re-position their character. The consequence of this game mechanic is that the players constantly have to work at fine-tuning their spatial positioning and carefully, but quickly, re-establish a safe position in the local terrain (however temporary). Furthermore, in order to execute combat actions, the distance-sight relationship between the location of the character and the mob must be within a certain range (depending on weapon and ability). This means that in order to execute combat-related actions the players again have to move their characters. These spatial re-configurations are often managed in relation to automatic responses provided by the game system, such as “Too far away”, “Target not in line of sight” or “You must face target”. Thus, in order to perform combat actions, it is necessary to balance and adjust the avatars’ distance and sight relationship to mobs (and for certain members such as the healer, towards co-members), while simultaneously considering safety precautions by keeping close to the wall.

Forty seconds into the fight Barashal attacks and throws around several team members. One of them, the healer Aug (the character highlighted in frame 4–6), is thrown off the plateau and plunges to his death (frame 6). After 10 s with continuously diminishing health in the rest of the team, one team member comments on the situation (“*damn*”) and suggests they flee from the battle (“*run?*”). The minor mistake by the healer, presumably by positioning the character slightly wrong in relation to the wall when calibrating the sight

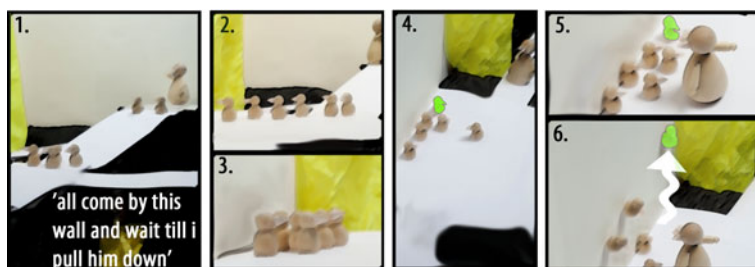


Fig. 7 Fine-tuning the distance-sight relation to boss and wall so as to manage troll ‘knockbacks’

relationship towards co-members, has escalated into a situation that is now endangering the entire team.

To summarize, the sequence illustrates that the ability to fine-tune the avatar's position in relation to mobs, co-players and other structures in the terrain of play is a central part of the skills that players have to develop. These skills have been cultivated through long-term involvement in the game and participation in various teams and battles against different mobs.

Discussion

In this study we have drawn attention to research on gaming and its effects that builds on the unspoken idea of general transfer. Instead of accepting such a view of transfer, we have addressed the question of what gamers learn by exploring their exhibited skills in concrete instances of gameplay. More specifically, we have approached collaborative gaming where aggression is represented as a practice to be studied on its own premises. By having scrutinized the detailed dynamics and situational contingencies of a number of instances of gameplay, we can now begin to discuss some aspects of what members of LotRO might learn from their gaming. The analysis has explored events in which the participants deal with the complex nature of the game. In this analysis, we have neither topicalized learning nor studied instructional sequences as such. Yet, clearly these gamers have developed skills and knowledge that distinguish the competent from the incompetent. By closely examining skilled performance, our aim has been to render visible the *relevant knowledge* drawn on and required in order to successfully carry out this work.

One of the premises of boss encounters is that they are heavily scripted with respect to the computer-generated properties of the events. For instance, the onset of additional guards, the occurrence of special attacks or the regeneration of health follows a pre-specified pattern. Still, the practical management of aggro and possible success in boss encounters require much more than a general understanding of these patterns. Four interrelated themes can be discerned.

First, gamers display knowledge about applicable procedures and techniques for successfully managing the boss encounters. As argued throughout the analysis, the understanding of the dynamics and accountability connected to the studied boss encounters hinges on the participants' management of aggro. They are seen administering timely actions, monitoring the co-participants' actions and continuously assessing the projected outcome of the encounter.

Second, the technical nature of the game, based on its underlying computer program, has given rise to a specialized language among gamers (adds, mobs, tank) and a number of locally adapted practices (boosting, pulling).

Third, the assignment of different roles, coupled to specialized capabilities of the avatars in the game, is in part structured by the technology. For the gamers, however, these roles also constitute a greater moral order of rights and responsibilities. Figure 6 exemplifies some of these background expectations as the healer is mistakenly subjected to aggro from one of the incoming guards. This breach in the preferred flow of events was immediately detected and repaired by others' swift repositioning and overtaking aggro. Similarly, in Fig. 5, the team's choice to stand back and let the tank move into the fight alone shows how much is taken for granted and not necessarily explicitly communicated.

Fourth, one additional dimension in the witnessed management of aggro pertains to the avatars' spatial involvement with the projected space. Here, we refer both to the invisible

areas (and outer perimeters) made up of mobs' aggro zones and the visible elements in the local terrain. In Fig. 7, something as simple as a wall was turned into a resource for countering the effects of a special attack. In this case, the members had to work at constantly repositioning their avatars in order to be able to hold their ground in the face of the disruptive efforts of the mob.

In summary, the analysis uncovers specialized forms of knowledge that are of a very technical nature. Many of the cultivated proficiencies gained through playing the Lord of the Rings Online seem locally tied to the particular game and its specific bosses. Whether these proficiencies will carry over to the world beyond the screen lies outside the scope of our investigation. However, we remain doubtful. To clarify our position, the notion of *collaboration* can be used as a case in point. The situations studied are clear examples of computer-supported collaborative endeavors undertaken by a number of physically distributed participants: collaboration is the key to success. Nevertheless, the forms of collaboration witnessed and the material conditions under which they operate, are not necessarily generalizable or possible to practice in other situations. Any claim to the effect that the studied environment fosters collaborative skills *in general* thus runs a serious risk of becoming hyperbolic.

A second example of how the use of vaguely defined notions can muddle the argumentation is connected to the topic of "aggression". Within the experimental tradition researchers argue that exposure to violent action games can lead to an increase in aggression (Bailey et al. 2011). But closer scrutiny of the different usages of the term "aggression" in the light of our investigation offers a radically different understanding. The boss encounters in the Lord of the Rings Online are full of portrayals of violence and aggressive action. The details of the ways in which gamers manage this form of portrayed aggression has been the primary subject of our investigation. The resulting picture is one of highly specialized forms of conduct. In terms of the actions it gives rise to, the portrayed aggression is most relevantly conceived of as being transformed into *aggro management*, a practice that surely contains an element of arousal, but which bears little semblance to any real-life acts of violence.

We acknowledge that the analysis we have presented in no way completely rejects the possibility of transferable effects connected to the use of digital games. However, we want to stress that anyone who argues that skills developed on this level automatically affect actions in the world outside the game, simultaneously embraces strong theoretical claims about the nature of cognition and learning and that such positions are neither obvious nor 'neutral'. We hold that it is central to make such implicit theoretical assumptions explicit when discussing gaming and its effects. Given that a long tradition of educational research suggests that the accomplishment of transfer is anything but unproblematic, the rather heavy burden of proof must be shifted. Those who advocate for the view that engagement in gaming activities promotes the development of either negative or positive behaviors, *without* accounting for *how* such connections might be realized, comes dangerously close to the fallacious reasoning of *petitio principii*. If the conclusion has been assumed in the premise, one is begging the question.

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