# Gender Differences in Online Gaming: A Literature Review

*Completed Research Paper*

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## Abstract

Online gaming continues to grow in popularity enabled by advances in web and mobile technology. Many players around the world enjoy the competitive atmosphere, mental challenges, social interaction and fantasy aspects of the games. However, gaming continues to be perceived as an activity for adolescents and males, which presents problems for companies trying to leverage games for training and marketing because it excludes half of the population – females. To better understand online gaming behavior of men and women we systematically reviewed extant literature on gaming and documented gender differences and similarities in six aspects of gaming: (1) Adoption, (2) Motivation, (3) Social Interaction, (4) Self-presentation, (5) Skills and Performance, and (6) Play. We find that there are both similarities and differences in gaming choices, motives, play behavior and performance of men and women. Based on our findings, we suggest possible strategies for developers, marketers and educators to achieve gender parity.

**Keywords (Required)**

Online games, virtual worlds, MMORPG, gender differences, men, women.

## Introduction

Played by over a billion people globally, digital games are challenging, engaging and fun (Liu et al. 2013). Online games, the most popular of digital games, are enabled by modern information and communication technologies and played on an Internet-based platform. These games transport users to a virtual environment and are played individually or together with other online gamers. Many players crave the competitive nature of online games (Liu et al. 2013), others seek hedonic gratification (enjoyment, fantasy and escape from reality), yet others relish social interaction (Li et al. 2013). The growing popularity of gaming is further amplified by the spread of mobile technologies with 36% of gamers using their mobile devices to access their favorite games anytime and anywhere in 2013 (Entertainment Software Association 2013).

There are many types of online games. Among them, puzzle, logic and card games are most popular accounting for 34% of all online games, followed by action, sports, strategy and role-playing games (26%), casual and social games (19%) and persistent multiplayer universe games (14%) (Entertainment Software Association 2013). An important category, Massively Multi-player Online Role-Playing Games (MMORPGs), allow players to create a new identity, navigate their avatar in a 3D environment and interact with others in a "reality-like" setting. The environment, the roles and stories to be created (Kuo at al. 2012), and the experience in a place different from the one they are physically in (Schroeder 2006) entice gamers to return.

Enormous popularity of online gaming not only created a lucrative market for game developers, but also challenged businesses, non-profit organizations, educational institutions, political parties and governments to harness the power of virtual environments and their users. Games are increasingly used

for learning and training, interacting with customers and political supporters as well as promoting products and services. However, gaming is traditionally perceived as an activity for adolescents and males (Becerra et al. 2008; Chen 2010), which presents problems for companies trying to leverage games for training or marketing as it excludes half of the population – females. As the number of female gamers continues to grow, it is important to understand the motives and behavior of female gamers. To achieve this, more insight is needed into gender differences in behavioral patterns and perceptions of gamers.

The purpose of this study is to systematically document reported gender differences in various aspects of gaming. We believe that identifying these differences is important because gender is a fundamental characteristic that underlies the behavior and societal roles of men and women. Indeed, significant differences exist in the patterns of IT use by men and women (Venkatesh and Morris 2000), and these differences are likely to transfer to online gaming environment. Moreover, gender represents the most simple and, at the same time, effective variable used for targeting, presenting vast implications for marketing and learning. Knowledge gained in this research will inform other scholars of the state-of-the-art in this area. Finally, our findings are likely to be valuable for game developers, educational specialists and advertisers.

# Research Method

In conducting our literature review we followed recommendations of Webster and Watson (2002). First, we searched public scholarly databases Google Scholar, ScienceDirect, EBSCOhost, SpringerLink and JSTOR to identify relevant articles. We were interested in previously reported insights regarding gender differences in online gaming, and thus we entered combinations of words {Virtual Worlds, Online Games, MMORPG} and {Gender; Men; Women; Male; Female}. Additionally, we searched for the most popular virtual game platforms using keywords {Second Life, Habbo, World of Warcraft}. The gender search was extended to include {Girl} and {Boy} to ensure that articles examining gaming behavior of children or teenagers were in our sample. In the second step, we conducted a backward search by reviewing the citations in the identified articles to find additional studies we might have missed. Finally, a forward search was also conducted. The final sample included 47 articles published between 2004 and 2014 that reported or discussed gender differences in online gaming[1]. These articles were comprehensively reviewed to structure gender-relevant insights.

## *Aspects of Gaming Behavior*

After careful review of the articles, we identified six areas where significant gender differences in gaming context have been reported: (1) *adoption*, (2) *motivation*, (3) *social interaction*, (4) *self-presentation*, (5) *skills and performance,* and (6) *play*. Figure 1 summarizes these themes.

[1] A complete list of articles is available from the authors upon request.

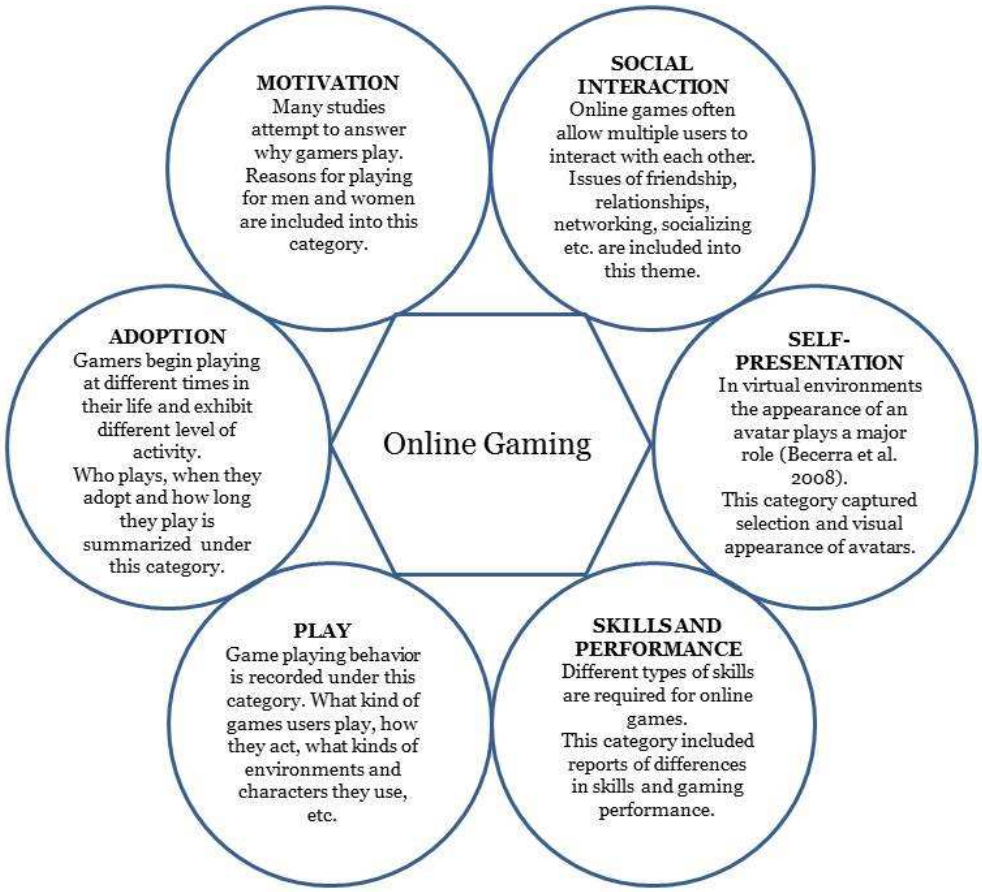


**Figure 1. Aspects of Gender Differences in Online Gaming**

# Findings: Gender Differences in Online Gaming

## *Adoption*

Traditionally, video games have belonged in the male domain (Lucas and Sherry 2004; Fox and Tang 2013). Existing findings continue to support this perception, albeit some exceptions (Table 1). First, men and women adoption rates differ. Indisputably, studies indicate that more men play online games than women (Becerra et al. 2008; Hainey et al. 2011). Second, men develop interest in computer games earlier in their life, while females take up gaming later in life and on average female players are older than male (e.g. Hainey et al. 2011).

Men and women also differ on time they spend playing and in frequency of play. Multiple studies report that men play more often and for a significantly longer time than women (Chou and Tsai 2007; Hainey et al. 2011; Chen 2010). However, there is no consistency in existing findings regarding game duration and several studies suggest that women spend more time gaming (Williams et al. 2008; Kuo et al. 2012). It is important to note that the sample in the study by Kuo et al. (2012) had over 3,000 players ranging in age from 8 to 86 (average 25), possibly indicating a difference in the gaming time for older players. While we can't unequivocally conclude that men spend more time playing because of these conflicting results, earlier research on game duration in offline context suggests that men play for longer periods. For example, in childhood play 72% of all boys' activities last longer than one hour, compared to only 43% of girls' activities (Lever 1976). This indicates that boys have a tendency to play for longer periods of time, corroborating the findings of longer online game duration for men.

| Source | Study Findings | Conclusion |
|---|---|---|
| *Number of users* | | |
| Becerra et al. (2008) | Males use virtual worlds more than females. | More males play online games |
| Hainey et al. (2011) | More male players (92.6% of men vs. 69.9% of women). | |
| *Time of Adoption* | | |
| Hainey et al. (2011) | Males have played games for a longer time period (13.68 years) than females (11.05 years). | Males adopt online games earlier in life |
| | Males exhibit interest in computer games earlier. | |
| *Level of Activity (Time, Frequency)* | | |
| Chou and Tsai (2007) | Males spend more time playing (284 min/week for males vs. 172 min/week for females). | Males play more frequently and spend more time playing |
| Hainey et al. (2011) | Males spend more time playing (9.02 hours/week for males vs. 4.39 hours/week for females). | |
| Chen (2010) | Males spend more time gaming online. | |
| Cohen (2009) | Females less likely to play time-intensive games. | |
| Kuo et al. (2012) | Males spend less time playing (173.96 min/day for males vs. 223.70 min/day for females). | Females spend more time playing |
| Williams et al. (2008) | Males spend less time playing (25.03 hours/week vs. 29.31 hours/week for females). | |

**Table 1. Gender-Relevant Findings on Gaming Adoption**

## *Motivation*

Many studies investigated what motivates users to play online games. Lucas and Sherry (2004) identify six motives for gaming: competition, challenge, arousal, fantasy, diversion, and social interaction. We follow this classification to group identified gender-relevant insights in this area (Table 2). It appears that men and women exhibit some differences and similarities in the motives to play online games (Chou and Tsai 2007; Lucas and Sherry 2004), with research evidence offering some conflicting conclusions, as shown in Table 2.

| Source | Study Findings | Conclusion |
|---|---|---|
| *Competition* | | |
| Yee (2006) | Male players score higher on all achievement dimensions. | Achievement more important for men |
| Hassouneh and Brengman (2014) | Achievement factor more motivational for male users. | |
| *Challenge* | | |
| Lucas and Sherry (2004) | Challenge is the top-rated motive for both. | Both genders seek challenge, men more so |
| | Young men more motivated by challenge. | |

| | | |
|---|---|---|
| *Arousal* | | |
| Choi et al. (2012) | Avatar manipulation and shopping are viewed as significant entertainment activities in virtual worlds, with female users reporting higher entertainment scores. | Both men and women recognize benefits of arousal |
| Zhou et al. (2011) | Females emphasize exploring, researching and shopping within the Second Life world more. | |
| Chou and Tsai (2007) | Entertainment, excitement and enjoyment sharing are greater motives for men to play computer games. | |
| *Fantasy* | | |
| Chou and Tsai (2007) | Fantasy is a greater motive for men to play computer games. | Fantasy more important for men |
| *Diversion* | | |
| Chou and Tsai (2007) | No gender difference on escapism and filling time as motives to play computer games. | No differences for escapism and pass time |
| Hassouneh and Brengman (2014) | Females more motivated by escapism. | Female stress escapism more |
| *Friendship and Social Acceptance* | | |
| Yee (2006) | Women score higher on the relationship dimension (e.g. personal self-disclosure, finding and giving support). | Both men and women recognize relational benefits |
| Chou and Tsai (2007) | Men emphasize computer games as a social device. | |
| Hassouneh and Brengman (2014) | Male users seek 'Relationships' more; Females seek 'Friendship' more. | |
| Iqbal et al. (2010) | Need to socialize is an important reasons for girls to not participate in Virtual Worlds. | Differences in motives to reject virtual worlds |
| *Other Motives* | | |
| Choi et al. (2012) | Females show greater interest in information seeking and derive more benefits from information resources in virtual worlds. | Females seek information; functional and experiential value |
| Zhou et al. (2011) | Women pay greater attention to functional and experiential values. | |
| | Males emphasize making money on Second Life. | Men emphasize money-making, possibility to "manipulate", seek information and wait for "good" games |
| Chou and Tsai (2007) | Information seeing is a greater motive for men to play computer games. | |
| Hassouneh and Brengman (2014) | Men motivated by "manipulation" motive. | |
| Iqbal et al. (2010) | Non availability of better games is an important reason for boys to not participate in Virtual Worlds. | |

**Table 2. Gender-Relevant Findings on Gaming Motivation**

## *Social Interaction*

The ability to play, interact and compete with others is a major attraction for all gamers, yet there are similarities and differences in the types of interactions men and women seek (Table 3). Various studies report female gamers as more sociable: they are more likely to meet people while playing (Guadagno et al. 2011), engage in group activities in virtual environments (Choi et al. 2012), and participate more in peer-discussions (Hou 2012). Findings also suggest that female players are more cooperative and use more supportive language to encourage their counterparts (Hong and Hwang 2012). Further, women are also more likely to recruit new players both online and offline (Williams et al. 2006). Men appear to enjoy the social aspect of gaming as well, but they look for different things in such interactions and relationships (Yee 2006). According to Hong and Hwang (2012) boys are less willing to seek help than girls in the beginning of the game, but do so later on as the competitive pressure mounts. A similar pattern can be also found in children offline games, where there is a much higher competitive spirit in boys' activities (Lever 1976).

| **Source** | **Study Findings** | **Conclusion** |
|---|---|---|
| *Relationship Seeking* | | |
| Guadagno et al. (2011) | Women are more likely to meet people. | Women are more active in seeking friendships in online games |
| Hassouneh and Brengman (2014) | 'Friendship seekers' are more common among females. | |
| Choi et al. (2012) | Female Second Life players more active in making friends (social life factor). | |
| *Type of Relationship Seeking* | | |
| Yee (2006, p. 774) | "*Male players socialize just as much as female players, but are looking for very different things in those relationships*". | Males seek different types of relationships |
| *Group / Social Behavior* | | |
| Hou (2012) | Female gamers more likely to engage in peer discussions. | Women are more social and participate in group activities, discussions and generally seek help more |
| Choi et al. (2012) | Female players of Second Life more active in group activities (social life factor). | |
| Hong and Hwang (2012) | Girls exhibit more communal attitude; use more encouraging language (e.g. "Go" or "Hurry up"). | |
| | Boys more likely to use negative expressions (e.g. "You are stupid"); less willing to ask for help in the beginning of the game. | |
| Yee et al. (2007) | Male avatars in male-male dyads less likely to look at each other than those in female-female and mixed dyads. | |
| *Recruitment of New Players* | | |
| Williams et al. (2006) | Female players more likely to recruit new members from online or offline. | Women recruit new players more |

**Table 3. Gender-Relevant Findings on Social Interaction in Gaming**

## *Self-presentation*

The interaction in virtual online game-playing environments often takes place using avatars, which can be customized by players. Females pay more attention to the visual appearance of their avatars by regularly buying items such as clothes for them to change their look (Hou 2012). Furthermore female players with

high neuroticism scores and introverts of both genders create more attractive avatars (Dunn and Guadagno 2012). This focus on avatar appearance is promoted by girl specific games online and offline, such as dressing-up a Barbie in real life or on Barbie.com (Iqbal et al. 2010).

While both genders are curious to try an avatar of the opposite gender, switching gender is more popular among male players (Ducheneaut et al. 2009; Hassouneh and Brengman 2014). This gender switching behavior for males is somewhat surprising because masculine behavior is typically rewarded in gaming world (Fox and Tang 2013) and female voiced avatars are reported to receive three times as many negative comments (Kuznekoff and Rose 2013). A possible explanation for this behavior might be that female avatars get more attention in form of messages and friend requests (Kuznekoff and Rose 2013) as well as an improvement in helping behavior in both directions, i.e. males are more likely to ask for help and at the same time receive more assistance (Lehdonvirta et al. 2012). Table 4 summarizes our findings.

| **Source** | **Study Findings** | **Conclusion** |
|---|---|---|
| *Gender Switching* | | |
| Ducheneaut et al. (2009) | 24% players used the opposite gender: more male players used a female character. | Men are more likely to use avatars of the opposite sex |
| Hassouneh and Brengman (2014) | More males are interested in using an avatar of the opposite gender than females (10% males vs. 4% females). | |
| *Avatar Customizing and Visual Appearance* | | |
| Hou (2012) | Women pay more attention to their avatar's appearance. | Women are more concerned about the visual appearance of their avatars |
| Guadagno et al. (2011) | Women are more likely to change their avatar's appearance. | |
| | Women are more likely to buy clothes/objects for their avatars. | |
| Dunn and Guadagno (2012) | Women with high neuroticism and introverts of both genders are more likely to create attractive avatars. | |

**Table 4. Gender-Relevant Findings on Self-Presentation**

## *Skills and Performance*

Playing games requires different types of skills, such as spatial, cognitive, motor and social. Overall, results indicate that male players perform better in online games (at least in the types that have been studied, see Table 5). Male navigation performance is superior (Tlaukaa et al. 2005), while females demonstrate more navigational difficulties, take longer to travel from start to end and make more incorrect navigational decisions (Tippett et al. 2009). Male adolescents seem to have a longer attention span for games in general (Cohen 2009) Furthermore the predominantly male orientation of many popular online games might support this factor. Since females are motivated by ease of use in their use of technology (Venkatesh and Morris 2000) and prefer to play games where the skills can be acquired much faster (Lever 1976), they may not develop the same gaming skills that men do.

| **Source** | **Study Findings** | **Conclusion** |
|---|---|---|
| *Gaming Skills* | | |
| Tippett et al. (2009) | Men navigate more efficiently through virtual environments. | Men exhibit better spatial skills |
| | Men had greater spatial problem solving efficiency than women. | |
| *Gaming Performance* | | |
| Tlaukaa et al. (2005) | Women needed more time to travel from start to finish of the route. | Men perform better on a variety of tasks |
| | Women needed more time for directional estimates. | |

| | | |
|---|---|---|
| | Women placed the target objects more imprecise on the map. | |
| | Women made more incorrect navigational decisions. | |
| | Women performed less accurately when asked to navigate back to the start location. | |

**Table 5. Gender-Relevant Findings on Skills and Performance**

## *Play*

Both differences and similarities exist in game preferences and play patterns of men and women (Table 6). Men play more action and simulation games, while women play logic and skills training games or do not play at all (Quaiser-Pohl et al. 2005). Female gamers usually play very gender specific games, such as dress up on Barbie.com (Iqbal et al. 2010), or family oriented simulations related to pregnancy and maternity (Lomanowska and Guitton 2013). In general, women prefer to play games where they can correct mistakes easily and undo functions (Wang 2013).

There are also gender differences in various roles user play. Females are more 'role players', 'friendship seekers' and 'achievement seekers', whereas males are 'manipulators', 'uninvolved users' and 'relationship seekers' (Hassouneh and Brengman 2013). Males are also found to seek social dominance and power over women in games (Fox and Tang 2013).

Some similarities exist in gaming as well. When it comes to making money in virtual worlds, studies report that both women (Hassouneh and Brengman 2014) and men enjoy it (Zhou et al. 2011). Both men Guadagno et al. (2011) and women (Hassouneh and Brengman 2014) like to build objects and work on their virtual property. Further, both genders play the role of a 'relationship seeker' equally (Hassouneh and Brengman 2014). Finally, the number of males and females found in sex-related simulations are almost the same (Lomanowska and Guitton 2013).

| **Source** | **Study Findings** | **Conclusion** |
|---|---|---|
| *Types of Games* | | |
| Quaiser-Pohl et al. (2005) | More males among "action-and-simulation" game players (81.7%). | Men prefer action-oriented games |
| Zhang et al. (2010) | Male avatars perform more active physical actions than female avatars. | |
| Quaiser-Pohl et al. (2005) | More females among "logic-and-skill-training" game players (82.9%) and among non-players (81.9%). | Women play traditional female-oriented games, logic games and games with undo functionality |
| Iqbal et al. (2010) | Girls play gender specific games, such as dress-up. | |
| Lomanowska and Guitton (2013) | Female avatars were more commonly in family oriented simulations related to pregnancy and maternity. | |
| Wang (2013) | Ability to undo operations and easily recover from mistakes has more influence on the intent to play a new game for female online game players than for male players. | |
| *Types of Activities in Games* | | |
| Zhou et al. (2011) | Male users take more notice of using Second Life for making money. | Men enjoy building, making money |
| Guadagno et al. (2011) | Men build more things, and own and work on their own virtual property. | |
| Zhou et al. (2011) | Females are more likely to shop and research. | Women enjoy |

| | | |
|---|---|---|
| Guadagno et al. (2011) | Females meet people, shop, modify their avatar's appearance and buy clothes/objects for their avatars. | socializing, shopping, exploring and improving their character |
| Hou (2012) | Females are more likely to configure various items and tools. | |
| Hassouneh and Brengman (2014) | Men and women show interest in relationship seeking. | Players of both genders seek relationships and engage in sex-related activities |
| Lomanowska and Guitton (2014) | Both males and females are found in sex-related simulations. | |
| *Types of Roles* | | |
| Hassouneh and Brengman (2014) | Male users of social virtual worlds are 'role players' (18.6% of male users), 'manipulators' (17.7%), 'uninvolved' users (16.8), or 'relationship seekers' (13.2%). | Men and women take on somewhat different roles. |
| | Female users of social virtual worlds are 'role players' (21.3%), 'friendship seekers' (16.2%), 'achievement seekers' (15.3%), or 'relationship seekers' (7.9%). | |
| *Negative Aspects of Gaming* | | |
| Huanhuan and Su (2013) | Males are at a greater risk of developing online game addiction than females. | Males more likely to be addicted to gaming |

**Table 6. Gender-Relevant Findings on Play**

# Discussion

Our literature review uncovered various gender differences and similarities in online gaming. First, gaming continues to be dominated by male players, who are more motivated to play, start playing games earlier in life, play more frequently and spend more time playing. Persistent perceptions of gaming as a male domain and sexist and even hostile environment in some worlds and games could be reasons for this trend (Fox and Tang 2013). However, female participation in games continues to grow, and recent statistics indicate that women were 46% of the most frequent purchasers of video games in 2013 (Entertainment Software Association 2013). Thus, women may simply be playing different types of games.

Second, we find that men and women prefer different types of games and engage in different types of activities while gaming. Men play more action and simulation games, because they are more competition minded, but they are also more likely to get addicted to games (Huanhuan and Su 2013). Women prefer logic and skill training games and participate in stereotypical female activities, such as shopping and dress up. While gaming, women are more likely to make friends, join groups, seek help and recruit new members. Many of these play patterns can be traced back to the disparate motives of men and women online. Overall, men online behavior is more goal-oriented, while women's activities are relationship and socialization focused (Gefen and Ridings 2005).

Third, women's motives for playing games are similar to men's. Both genders enjoy the fantasy aspect of the games and like living through their virtual identities, both men and women seek relationships, diversion from daily lives and excitement. Thus, we find that women are interested in gaming experience and could be enticed to play as long as the games offer them the types of activities that they enjoy, incorporate social components and provide quick training for the required skills.

As we continue to rely more on games for education and training, developers need to ensure that the games are attractive for both men and women. Our findings suggest that women and men skills differ when it comes to gaming, which may further discourage women from participating. Therefore, learning

and training games should be gender neutral and include components for motor and spatial skill training to initially help females with navigation and play. Further, educational gaming platforms should promote safe and comfortable social environment which does not alienate women with its stereotypical and sexist content (Fox and Tang 2013).

Our findings also have implications for game developers and marketers. Since existing gaming culture is frequently a deterrent for women participation (Yee 2006), developers can design games and worlds specifically for women or incorporate more social, family-oriented and visually appealing features into existing games. Finally, successfully leveraging online games for marketing requires more than establishing a commercial presence. Understanding gender preferences can help marketers to sharpen the precision in targeting their product and service ads or even develop particular product or service focused games for different population segments.

## Conclusion

While a multitude of studies examine various aspects of gaming behavior, motives, outcomes and performance, few report gender differences. The ones that do, however, suggest that men and women gaming choices and behavior differ. We review and structured these insights to identify differences and similarities and recommend possible strategies to achieve gender parity in online gaming.

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