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Bobby T.K. So
Hong Kong Baptist University, bobbytkso@life.hkbu.edu.hk

Christy M.K. Cheung
Hong Kong Baptist University, ccheung@hkbu.edu.hk

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Bobby T.K. So, Hong Kong Baptist University, Hong Kong, bobbytkso@life.hkbu.edu.hk

Christy M.K. Cheung, Hong Kong Baptist University, Hong Kong, ccheung@hkbu.edu.hk

Abstract

With the popularity of massively multiplayer online role-playing games (MMORPGs), in-game sexual harassment has drawn tremendous attention from game players, game developers, and governments. Because of its devastating impact on victims, researchers from various disciplines have advocated the importance of understanding sexual harassment in MMORPGs. While information systems (IS) researchers have begun to investigate user behaviors in MMORPGs, research on deviant behaviors in MMORPGs remains scarce in the IS literature. With the inherent focus on sociotechnical factors in the IS discipline, we believe it is crucial to consider both the social and technical elements of sexual harassment in MMORPGs. Thus, our research aims to integrate crime opportunity theory and affordance theory to explain how MMORPG affordances give rise to the evaluation of favorable MMORPG environmental conditions for in-game sexual harassment and the inclination to sexually harass others in the games. This research-in-progress paper proposes a research model and presents our research design for examining sexual harassment in MMORPGs.

1 Introduction

According to data from mmo-population.com on September 5, 2022, the top five most played massively multiplayer online games (MMOGs) were all massively multiplayer online role-playing games (MMORPGs), with an aggregate number of active players of around 7.48 million. According to a report on the gaming market released by Grand View Research, Inc. on August 8, 2022, the gaming market was worth USD$202.64 billion in 2021 and MMOGs were experiencing a continuous growth in popularity. Despite this popularity, studies have reported that the problem of in-game sexual harassment remains severe (Tang & Fox, 2016; Fox & Tang, 2017). Since 2014's GamerGate, a Twitter-based campaign of harassment of female gamers, designers, and journalists, the public has paid increasing attention to the sexual harassment issue in the gaming industry. Online harassment experiences may cause rumination, depressive symptoms, psychological distress, and social withdrawal (Runions, 2013; Feinstein et al., 2014; Fox & Tang, 2017). Specifically, in-game harassment diminishes enjoyment, triggers negative emotions, promotes retaliation, or causes players to quit their sessions (Gray, 2012; Ross & Weaver, 2012; Cote, 2017).

Given the persistence of in-game sexual harassment (Atske, 2021), scholars have been putting effort into studying in-game sexual harassment from the perspectives of both the victim (Norris, 2004; Chang et al., 2016; Ruvalcaba et al., 2018) and the perpetrator (Chang et al., 2016; Tang & Fox, 2016; Burnay et al., 2019; Tang et al., 2020; Jagayat & Choma, 2021; Kordyaka et al., 2022; Seo et al., 2022). Nonetheless, there remains a lack of understanding of the role of the gaming environment and the games' system characteristics in in-game sexual harassment. Only recently, Burnay et al. (2019) applied General Aggression Model to examine how the sexualization of female avatars affects online sexual harassment.

With the inherent focus on sociotechnical factors in the information systems (IS) discipline (Li et al., 2022), we believe that it is essential to consider both the social and technical divers of sexual harassment in MMORPGs. Further, our study aims to enhance the scientific understanding of online sexual harassment by constructing a research model that elucidates how MMORPG affordances influence new crime opportunity factors, thereby contributing to in-game sexual harassment. Thus, two research questions are proposed as follows.

Research question 1: What are the technical and social drivers of in-game sexual harassment in MMORPGs?

Research question 2: How do MMORPG affordances provide crime opportunities for in-game sexual harassment?

2   Theoretical background

2.1   The definition of in-game sexual harassment

To define in-game sexual harassment, two components should be considered: "sexual harassment" and "in-game." First, sexual harassment originally referred to "unwanted sex-related behavior at work that is appraised by the recipient as offensive, exceeding her resources, or threatening her well-being" (Fitzgerald et al., 1997b, p. 15). Fitzgerald and her colleagues (1997b) suggested that gender imbalance in the environment and a lack of adequate punishment are two conditions that may trigger the occurrence of sexual harassment, and these conditions may apply to the context of online gaming. For example, data from Statista.com show that there has been a gender imbalance in the online game environment over the years. Although the latest data show that the proportions of female and male gamers are nearly equal (males still slightly outnumber females), the online gaming environment is still perceived as a male-dominant space due to a long history of gender imbalance and the masculine social identity of gamers (Tang et al., 2020; Jagayat & Choma, 2021; Kordyaka et al., 2022; Seo et al., 2022). In addition, McLean and Griffiths (2019) discovered a lack of social support to help the victims of or prevent in-game harassment, reflecting that sexual harassment is unlikely to be punished and any punishments tend to be inconsequential. Second, that the sexual harassment is committed in-game implies that this type of sexual harassment is delivered through or facilitated by the game's features or systems. For example, Tang and Fox (2016) posited that anonymity of the authentic self enables a potential perpetrator to evaluate the environment created by the game as an opportunity to commit sexual harassment with little or no consequences. Therefore, in this study, in-game sexual harassment is defined as a range of unwanted sex-related behaviors that are committed through or facilitated by the game's features or systems where such behaviors are appraised by the recipient as offensive, exceeding the recipient's resources, or threatening the recipient's well-being.

2.2   Prior studies on in-game sexual harassment

Our review of prior studies finds that in-game sexual harassment research has mostly adopted the perspective of the perpetrator, with the focus on biological gender to explain the phenomena (see Table 1). These scholarly works were obtained from an extensive electronic literature search using a variety of databases, such as Academic Search Premier, PsyINFO, Scopus, and Web of Science, and manual searches of five recognized conference proceedings, namely the proceedings of the International Conference on Information Systems, Americas' Conference on Information Systems, European Conference on Information Systems, Pacific Asia Conference on Information Systems, and Hawaii International Conference on System Sciences. The keywords applied for the abstract search were "Internet gaming OR internet games OR online gaming OR online games OR internet video games OR online video games OR MMOG OR MMORPG" and "sexual harassment." The inclusion criteria were that the study (i) focused on the factors of in-game sexual harassment, (ii) was published in peer-reviewed journals or recognized conference proceedings, (iii) was written in English, and (iv) was a complete empirical research paper. From Table 1, all the identified studies assumed that the male player

or gamer was the perpetrator and most studied the phenomenon without theorizing about the impact of the game's technical characteristics on online sexual harassment. Only Burnay et al. (2019) revealed the relationship between the game feature of the sexualization of female avatars and online sexual harassment. As in-game sexual harassment is, by definition, anti-social or deviant behavior that involves technology, it is crucial to study its mechanism from a sociotechnical perspective.

Study	Relevant finding(s)	Perspective	Factors
Norris (2004)	Women who favored playing games experienced less sexual harassment while experiencing a less friendly online environment.	Victims	Biological gender; purpose of using computer
Chang et al. (2016)	Online sexual solicitation victimization can be predicted by levels of online game use, pornography media exposure, internet risk behavior, depression, and cyberbullying experience. Online sexual solicitation perpetration can be predicted by levels of internet chat room use, pornography media exposure, internet risk behaviors, cyberbullying experiences, and offline sexual harassment experiences.	Victims and Perpetrators	Behavioral patterns; online experiences; psychosocial conditions
Tang & Fox (2016)	Men with a higher social dominance orientation and hostile sexism might have a higher likelihood of committing in-game sexual harassment due to the masculine social identity of gamers.	Perpetrators	Biological gender; cognitive Factors
Ruvalcaba et al. (2018)	Female gamers might be more likely to receive sexual comments than male players in the context of video game streaming.	Victims	Biological gender
Burnay et al. (2019)	The sexualization of female avatars in the game can trigger the activation of online sexual harassment toward women.	Perpetrators	Biological gender; game features
Tang et al. (2020)	Replicating prior research (Tang & Fox, 2016) with more cognitive factors, such as Machiavellianism, psychopathy, and gamer identification. The result supported the effect of these predictors on a higher likelihood of committing in-game sexual harassment perpetration	Perpetrators	Biological gender; cognitive Factors
Jagayat & Choma (2021)	The endorsement of cyber-aggression toward women is a unidimensional psychological construct, and a social dominance orientation might be the most consistent predictor of endorsement of cyber-aggression towards women, in which perceived threats had a partial effect as a mediator.	Perpetrators	Biological gender; cognitive factors

Kordyaka et al. (2022)	Benevolent and hostile sexism might be similar but different versions of prejudice. Only negative contact was found to significantly influence both versions of sexism, which may trigger someone to commit sexual harassment to others in the game.	Perpetrators	Players' interactions
Seo et al. (2022)	In-game harassment induced by sexism can be predicted by offline sexist beliefs (masculine norms and hostile sexism), game-related factors (perceived territoriality and advancement), and environmental factors (peer harassment). Perceived territoriality and peer harassment had a direct positive effect on committing harassment in the game.	Perpetrators	Cognitive factors; environmental factors

Table 1. Summary of prior studies on in-game sexual harassment

2.3   Technology affordance perspective

Affordance is "the potential for behaviors associated with achieving an immediate concrete outcome and arising from the relationship between an artifact and a goal-oriented actor or actors" (Strong et al., 2014, p. 69). "Technology affordance" refers to the use of an IT artifact as perceived by the user (Chan et al., 2019; Lee et al., 2020). Lee and his colleagues (2020) argued that the technology affordance perspective is a useful theoretical lens for MMORPG research. There are three core MMORPG affordances: (i) achievement affordance referring to "the extent to which MMORPGs offer players the potential or possibility of attaining achievement through playing the game" (Lee et al., 2020, p. 40), (ii) immersion affordance referring to "the extent to which MMORPGs offer players the potential or possibility of understanding, exploring, and discovering the virtual game world and immersing themselves in it" (Lee et al., 2020, p. 42), and (iii) social affordance referring to "the extent to which MMORPGs offer players the possibility of socially interacting with others through playing the games" (Lee et al., 2020, p. 41). These affordances are associated with the typical MMORPG features. For instance, avatar-leveling, skill-learning, and ranking systems can lead players to perceive their achievement and advancement in the game; chat channels, dungeons, guilds, teams, and social networking systems can provide features for players to interact socially with other players in the game; and avatar customization, map navigation, and role-playing systems can offer players the sense of immersion into the game. According to the definitions and their related features, the achievement and immersion affordances mainly focus on the game design related to gameplay, whereas the social affordance mainly focuses on the game design related to players' interaction. Thus, these affordances may represent the technical elements affecting the environment-based and individual-based social factors causing in-game sexual harassment.

2.4   Crime opportunity theory

Crime opportunity theory claims that opportunities are the cause of all crimes, regardless of their nature and severity (Felson & Clarke, 1998). According to the theory, new crime opportunities can be generated by environmental conditions, such as the spacetime that the likely offender occupies. MMOGs have been conceptualized as a magic circle, that is, as a "special place in time and space created by a game" (Salen & Zimmerman, 2004, p. 79). Specifically, MMORPGs create a specific environment in which for players to interact, live, and pursue goals with others with their avatars. The immersion affordance can provide players with the perception that they are in a spacetime that is separate from reality, while the achievement affordance and social affordance offer the opportunities to compete or cooperate with others for specific goals in the game (Salen & Zimmerman, 2004; Lee et al., 2020). Therefore, MMORPGs create new environmental and psychological conditions that may generate new crime opportunities. For instance, during a dungeon mission, players may be forcibly grouped with friends or

strangers to accomplish the goals and obtain the rewards (Yee, 2006). Most dungeon missions are designed to force players to cooperate and communicate with others for achievements so that the interaction between players is enhanced (Yee, 2006). However, some players may become likely offenders because of sexist beliefs (Tang & Fox, 2016; Tang et al., 2020; Jagayat & Choma, 2021; Seo et al., 2022), real-life experiences and psychological conditions (Chang et al., 2016), the observed sexualization of female avatars (Burnay et al., 2019), or negative experiences with players (Kordyaka et al., 2022; Seo et al., 2022). The likely offender can target a suitable player to sexually harass by observing the target's contributions to the mission and profile information. Meanwhile, due to the anonymous nature and a lack of immediate consequential punishment, the likely offender may consider they have an opportunity to commit sexual harassment with little or no consequence (Tang & Fox, 2016; Cote, 2017). Thus, we argue that the interactions among the mass population of gamers in a MMORPG and the game features generate ample opportunities for sexual harassment. With reference to a prior study (Chan et al., 2019) that applied a similar approach to the study of cyberbullying in the social network site context, we propose two environment-based social elements ("presence of suitable targets" and "absence of capable guardianships") and one individual-based social element ("inclination to harass sexually").

3 Research model and hypothesis development

We adopt a sociotechnical view to develop our research model explaining in-game sexual harassment (see Figure 1). In particular, we build on crime opportunity theory and examine in-game sexual harassment by considering both environment-based and individual-based social elements. We also integrate the technology affordance perspective to explore how the three affordances affect the social elements.
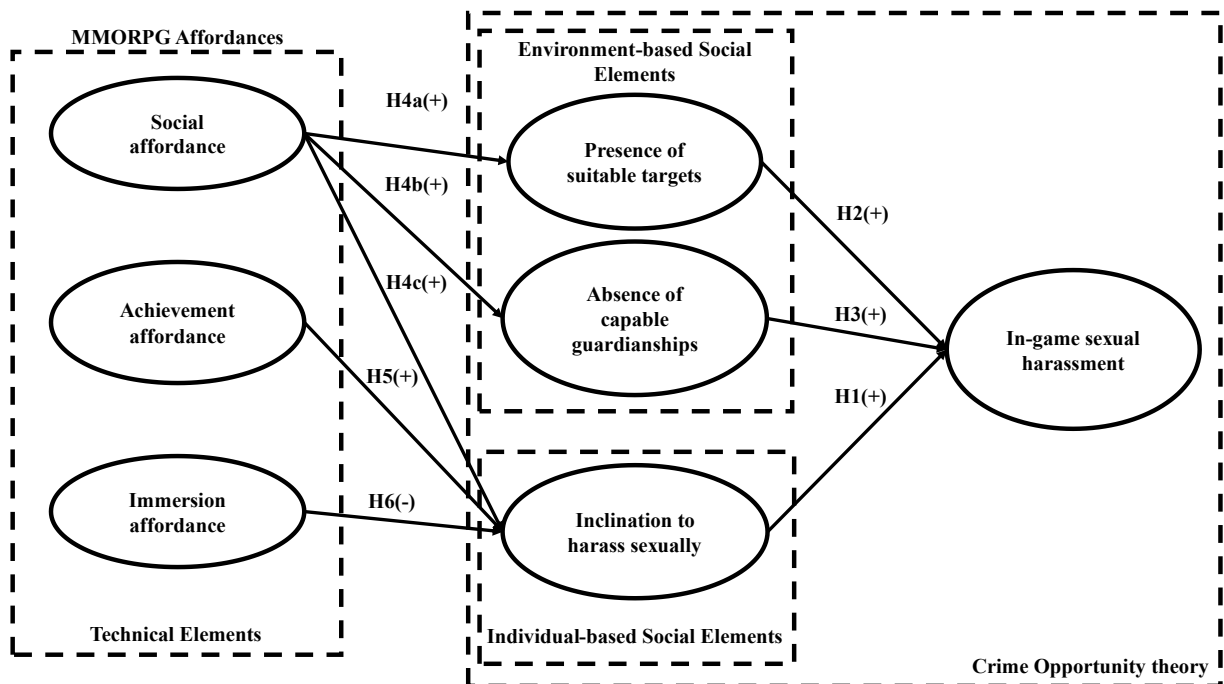

Figure 1. Research model

3.1 In-game sexual harassment and crime opportunity theory

According to crime opportunity theory (Felson & Clarke, 1998), a likely offender is a person who might consciously commit a crime or engage in deviant behavior. As a crime cannot occur without an offender,

a likely offender is an essential component of crime opportunity. In the current study, a likely offender is conceptualized as someone inclined to commit in-game sexual harassment. Studies have identified numerous factors that could increase an offender's inclination toward sexual harassment, such as sexist beliefs (Tang & Fox, 2016; Tang et al., 2020; Jagayat & Choma, 2021; Seo et al., 2022), observed sexualization of female avatars (Burnay et al.,2019), peer harassment (Seo et al., 2022), and negative interaction with players (Kordyaka et al., 2022). In addition, they were found to have significant positive relationships with in-game sexual harassment. Thus, we hypothesize as follows:

Hypothesis 1 (H1): Inclination to sexually harass positively influences in-game sexual harassment.

Crime opportunity theory (Felson & Clarke, 1998) defines targets as objects or persons who are visible and accessible to the likely offender. As the game systems–related social affordance of MMORPG creates an environment for enhancing players' interaction (Lee et al., 2020), information on players or their avatars might be visible and accessible to the likely offenders. Meanwhile, studies have posited that the anonymous nature of MMORPGs and a lack of immediate consequential punishment for in-game sexual harassment can lead a likely offender to consider it an opportunity to harass others sexually (Tang & Fox, 2016; Cote, 2017). Thus, we hypothesize as follows:

Hypothesis 2 (H2): The presence of suitable targets positively influences in-game sexual harassment.

Hypothesis 3 (H3): The absence of capable guardianship positively influences in-game sexual harassment.

3.2   Crime opportunity theory and MMORPG affordance

Game systems related to the social affordance of MMORPGs, such as social networking systems, organization forming systems, and dungeons, offer an environment for players to interact and communicate with others (Lee et al., 2020). These systems might provide an access point for a likely offender to search for a suitable target. For instance, a likely offender might target someone by looking at information on his/her teammates, other members in the guild or clan, or random players who have posted a comment on the chat channel. Meanwhile, studies have shown the inevitability of gender-based harassing comments being delivered through real-time communication, especially through the audio communication channel (Kuznekoff & Rose, 2013). Furthermore, according to studies of victims' coping strategies (Cote, 2017; Fox & Tang, 2017; McLean & Griffiths, 2019), most victims applied self-defending or belief-adjusting coping strategies, implying that the games' interacting systems lacked capable guardianship to prevent in-game sexual harassment. Thus, we hypothesize as follows:

Hypothesis 4a (H4a): The social affordance positively influences the presence of suitable targets.

Hypothesis 4b (H4b): The social affordance positively influences the absence of capable guardianship.

Moreover, Kordyaka et al. (2022) found that negative interaction among players positively affects both benevolent sexism and hostile sexism, which are similar but take different forms. Hostile sexism has been found to have a positive impact on in-game sexual harassment (Tang & Fox, 2016; Tang et al., 2020; Jagayat & Choma, 2021; Seo et al., 2022). Seo et al. (2022) also found that a likely offender's peer harassment experiences positively affected in-game sexual harassment. As game features related to social affordance enhance the interaction among players, they also increase the chance of negative interaction and peer harassment. Therefore, we hypothesize as follows:

Hypothesis 4c (H4c): The social affordance positively influences the inclination to harass sexually.

Seo et al. (2022) found that likely offenders' advancement motivation positively influenced players' sexist beliefs, potentially increasing their likelihood of committing in-game sexual harassment. In addition, an advancement motivation could be activated by the game systems and features related to the achievement affordance (Lee et al., 2020). Therefore, we hypothesize as follows:

Hypothesis 5 (H5): The achievement affordance positively influences the inclination to harass sexually.

The immersion affordance relates to how players can immerse themselves in the spacetime created by the MMORPG and the extent to which players consider themselves members of the community developed by the MMORPG (Lee et al., 2020). Mancini and Sibilla (2017) found that players did not necessarily reference their offline personalities when customizing avatars. The avatar often differed from or was the antithesis of the player's offline personality and sometimes embodied socially undesirable characteristics. They also found that players who had customized their avatars with socially undesirable characteristics tended to have low identification with the avatars (Mancini & Sibilla, 2017). This phenomenon may discourage deep involvement as players may not treat the avatar as a part of their reality-self. This situation may trigger an online disinhibition effect (Cheung et al., 2021). Furthermore, Teng (2017) found that avatar identification had a significant positive relationship with participation in gaming communities and social presence. Thus, low avatar identification may give a player insufficient incentives to maintain a healthy gaming environment as a member of the gaming community. A higher capacity of the MMORPG to let players immerse themselves in the game might therefore lessen the inclination for players to harass other players sexually. We hypothesize as follows:

Hypothesis 6 (H6): The immersion affordance negatively influences the inclination to harass sexually.

4   Future Research Plan

To empirically test our research model, we will use an anonymous, self-reported, longitudinal online survey design. Specifically, we will recruit our target population of MMORPG players through Amazon Mechanical Turk (MTurk). The longitudinal setting can reduce the common method bias method and offer more support for causal inference (Podsakoff et al., 2003; Rindfleisch et al., 2008). We will not focus on any specific MMORPGs because we have observed that in-game sexual harassment is common in the gaming community (Fox & Tang, 2017; Fox et al., 2018). We believe that this approach may increase the external validity of the study because we can develop a more generalized picture to demonstrate the mechanisms of in-game sexual harassment occurrence. Our target respondents are (1) MMORPG players for over three years who are (2) living in the United States. These requirements will ensure consistent perceptions of laws and norms regarding sexual harassment and sufficient experience to evaluate the MMORPG's features and gaming environment. We will distribute the questionnaires on MTurk because it can ensure respondents' anonymity. Sexual harassment is a sensitive and socially unacceptable behavior, and using MTurk may reduce social desirability bias. We propose to use a structural equation modeling approach and partial least squares technique to run the research model.

The items for the MMORPG affordance constructs will be adapted from Lee et al. (2020) and the items for the crime opportunity theory constructs will be adapted from Chan et al. (2019), with modifications to suit the MMORPG context. We will also capture as control variables the respondents' demographic information, such as age, education, income level, marital status, and self-identified gender. Finally, the items to measure in-game sexual harassment will be developed for the specific context.

5   Discussion

5.1   Conclusion and expected contributions

In conclusion, we aim to examine in-game sexual harassment by answering the two research questions specified above. We build on crime opportunity theory and the technology affordance perspective to develop the research model. By integrating the sociotechnical perspective into the research model, we focus on both the social and technical elements of sexual harassment in MMORPGs. This study is expected to contribute to the literature by introducing a new theoretical perspective to study in-game sexual harassment. Specifically, we hypothesize that three technology affordances affect in-game sexual harassment through two social elements: environment-based social elements (i.e., the presence of suitable targets and absence of capable guardianship) and an individual-based social element (i.e., the inclination to harass sexually). Finally, our findings may offer valuable insights to practitioners on how

to effectively prevent in-game sexual harassment by prioritizing resources to modify individual- and environmental-based criminogenic conditions.

5.2 Challenges for the next steps

A lack of robust items for capturing in-game sexual harassment is our main challenge at present. The available items are insufficient to capture nonverbal in-game sexual harassment, such as the avatar's sexual moves, intentionally misusing the general avatar's actions for sexual-harassment purposes, and unwanted sexual attention. We argue that in-game sexual harassment is likely to be similar to other in-game deviant behaviors, such as cyberbullying (Huang et al., 2019), trolling (Cook et al., 2019), grief-play (Ladanyi & Doyle-Portillo, 2017), and toxic behavior (Kordyaka et al., 2020), in that it can take verbal and nonverbal forms. However, the most common items widely adopted by in-game sexual harassment research are the five items from Tang and Fox (2016), which focus on verbal forms. We may follow the suggestions of Chu and Chau (2014), who developed instruments to measure information security deviant behaviors, and the guidelines from Lewis et al. (2005). Accordingly, we will first identify the premise, dimensions, and conceptual definition by conducting a content analysis of the literature, and then deliver an open-ended questionnaire to MMORPG players asking them to describe three incidents of "players engaging in something considered to be in-game sexual harassment." Finally, we will follow the steps and guidelines from Chu and Chau (2014) and Lewis et al. (2005) to refine and validate the instruments.

With improvements in mobile technology and market changes, playing MMORPGs is no longer restricted by location, free-to-play MMORPGs tend to dominate the market, and the range of players' ages is much broader than before. These phenomena may bring confounders into our research framework. Therefore, our control variables, besides demographic variables, will include gaming experience, gaming devices, and game market models (i.e., free-to-play, one-time purchasing, or subscription fees). We also argue that players can be fruitfully classified into game-related categories. Inspired by the insights from Wang et al. (2022), we may capture players' orientation (i.e., play-to-win or play-for-fun) and in-game purchase behaviors (i.e., in-game functional items purchase and in-game non-functional items purchase) to deepen the insights generated from the studies. Compared with the typical classification of players by gender or other demographic conditions, we reason that this novel approach of game-related classification may provide clearer suggestions to practitioners for understanding players' behaviors and offer a clearer picture to the public and scholars of the "what," "who," "how," and "why" of in-game sexual harassment.

6 Acknowledgement

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