Gender Differences in Ethical Stances for Playing AR Games: The Case of *Pokémon GO*

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ABSTRACT

Gender has been acknowledged as a significant factor in the field of ethics; however a dearth of understanding persists regarding gender ethics specifically within the realm of augmented reality (AR) games. To address this knowledge gap, we conducted a study examining 25 ethically ambiguous situations in *Pokémon GO*. The survey included 1,304 men and 645 women. Our findings revealed significant differences in the ethical stances and behaviors between men and women. Specifically, men were more inclined to perceive certain game actions as ethical and engage in a greater number of behaviors. Additionally, our study highlighted distinct priorities in ethical values between men and women. Men prioritized competition and the desire to win, whereas women demonstrated greater sensitivity to their surroundings. These results carry important implications for comprehending the impact of gender on the gaming experience, and they can guide the design of more inclusive and ethically mindful AR gaming environments.

Keywords

Pokémon GO, Location-based Augmented Reality Game, Gender Differences, Ethical Perceptions, Game Actions

INTRODUCTION

Ethics, the critical examination of moral values and decision making processes, is a fundamental aspect of human behavior (Churchill, 1999). The unique nature of video games allows players to experiment and act out their ethics in a virtual world. Location-based Augmented Reality (LBAR) games merge virtual and real-world elements to create a hybrid-play environment, overlaying fictional characters, interactive story elements, and game items onto real-world locations in real-time, enhancing players' gaming experience (Das et al., 2017; FitzGerald et al., 2013). Still highly popular since its release in 2016 (Shinkle, 2022), *Pokémon GO* (Niantic, 2016) is one of the most well-known examples of this type of game (Paay et al., 2018; Yang & Liu, 2017), and scholars suggest that people enjoy playing *Pokémon GO* because of its connection between the real and virtual world (Andone et al., 2017). This hybrid-play experience provides a rich opportunity to examine how a player's identity influences their perception of ethics and their enactment of their ethical system.

Previous studies have argued that gender can influence ethics (Capraro & Sippel, 2017; Dalton & Ortegren, 2011; Franke et al., 1997; Glover et al., 2002). As societies develop, the ethics reflected by societal norms may change, influencing the expectations and responsibilities associated with different genders (Best & Puzio, 2019). Although research has explored the relationship between ethics, player identity, and gender in the virtual space (Bartel, 2021), little research has been done to understand the influence of player identity and ethics in the realm of LBAR gaming. Given that LBAR games blur the lines between the virtual and real world, it is crucial to understand the ethical implications of players' actions both within and outside of the game. Examining ethics in LBAR games provides insight into different choices, decisions, and consequences in the real world based on players' ethical perspectives. Additionally, research in LBAR games suggests that gender affects how players interact in the game (Malik et al., 2020; Potts & Yee, 2019). Therefore, this study aims to investigate and analyze ethical perceptions and behaviors of men and women who play *Pokémon GO* by addressing the following research questions:

> *Are there differences between men and women who play Pokémon GO in regard to motivation, ethical perception, and player actions? If so, how and what might be influencing the players?*

LITERATURE REVIEW

The Relationship Between Gender and Ethical Choices

Numerous studies have examined the relationship between gender and ethical decision making, with a focus on the differences between men and women (Capraro & Sippel, 2017; Ford & Richardson, 1994; Loe et al., 2013). One of the most well-known debates is between Kohlberg and Gilligan, who argued that men and women differ in their ethical perceptions (Gilligan & Attanucci, 1988). Kohlberg maintained that men tend to prioritize rationality, duty, impartiality, and a universally accepted abstract principle of justice, while Gilligan challenged this idea and argued that women tend to emphasize ethical choices based on care and relationships with others (Capraro & Sippel, 2017; Gilligan & Attanucci, 1988; Jorgensen, 2006; Reiter, 1996).

Other research has explored the impact of societal changes on ethical decision-making. According to Rest (1986), societal changes such as economic, technological, and political changes can lead to shifts in ethical values and behaviors. His study proposed a theory of moral reasoning, which posits that an individuals' moral reasoning is influenced by the societal context in which they live and that societal changes can lead to changes in moral reasoning. It is crucial to recognize that gender differences in ethical decision-making might stem not only from individual preferences or game-specific factors but also from the societal and cultural norms that shape ethical perceptions and values. Further research should continue to explore how gender interacts with societal changes and cultural influences to shape ethical choices in gaming and understand the nuances of gender-ethical differences within this dynamic landscape.

Current Understanding of Gender-Ethical Differences in Gaming

Over the past three decades, there has been significant attention given to the study of the relationship between gender, ethics, and gaming. This research has delved into the impact of gender on gameplay, perception within gaming communities, and ethical decision-making in game contexts. It has become evident that gender plays a crucial role in influencing players' decision-making, motivations, and behaviors within the gaming community.

For instance, research by Zhao & Zhang (2022) demonstrated that gender biases exist within gaming communities, with men being perceived as "serious" gamers as compared to women. Additionally, gender has been shown to influence players' ethical perspectives, with women prioritizing altruism and collaboration, and men focusing on competition and personal gain (Cassell & Jenkins, 2000; Klimmt et al., 2006). Further, studies on *Pokémon GO* have demonstrated gender differences in players' motivations, with men being more competitive and willing to take risks, while women prioritize socialization, therapy, and exercise (Malik et al., 2020; Potts & Yee, 2019).

Although much of game ethics research has focused primarily on game behavior and etiquette (Tavinor, 2007), it is important to recognize that ethical stances within video game contexts pose unique challenges when compared to traditional ethical studies, such as well-known trolley dilemma study (Thomson, 1976). The game environment introduces additional considerations that can significantly influence ethical decision-making. For instance, the concept of moral disengagement (Hartmann & Vorderer, 2010), where players believe they can hide their real-world identity using anonymous avatars, has been identified as a potential challenge to ethical decision making in gaming contexts (Shafer, 2012). Furthermore, research has shown that players' ethical behaviors can differ between gameplay and real life, as demonstrated by a study on players' changing ethical behaviors when selecting a different gender avatar (Hussain & Griffiths, 2008). Ethical judgments with a game environment are shaped by various factors, including game characters, technology, social or individual play, or situations.

The relationship between gender and ethics in gaming is complex, and multiple factors contribute to these differences. One potential factor is the characteristics of the game itself, as different games may appeal to

different genders and encourage different ethical perspectives and behaviors. While research in this area has shown that gender influences ethical decision-making in games, further studies are needed to explore how gender contributes to variations in ethical perspectives and player behaviors.

Ethical Issues in *Pokémon GO*

The emergence of location-based augmented reality (LBAR) games like *Pokémon GO* has created a new set of ethical issues that differ from those encountered in traditional digital games. In this regard, Goette et al. (2019) have identified several ethical concerns associated with LBAR games, including:

- Privacy concerns: *Pokémon GO* requires players to share their location data with the game, which raises questions about privacy and the potential misuse of data by game developers or other players. It is worth noting that the General Data Protection Regulation (GDPR) is now being used to address privacy concerns in LBAR games.
- Safety concerns: There have been reports of players who have been involved in accidents or have trespassed on private property or dangerous areas while playing the game.
- Distractions: *Pokémon GO* has been criticized for causing players to become overly absorbed in the game, leading to problems with productivity and social interactions.

A survey conducted by Wang & Skjervold (2021) on over 2,000 active *Pokémon GO* players found that 11% of respondents reported having experienced dangerous situations while playing, with 4% experiencing accidents. The survey also revealed that over half of the participants admitted to playing *Pokémon GO* while driving a vehicle or trespassing on private property or culturally sensitive spaces, such as cemeteries. Lee et al. (2022) further found that there is a discrepancy between players' perceptions of the ethics of gameplay and their actual performance while playing in unethical situations.

Ethical decision-making in *Pokémon GO* is influenced by various factors such as ethical perception and action (Yücel & Çiftci, 2012), group characteristics (Frederick et al., 2015; Reiss & Mitra, 1998), and individual factors such as gender and age. The players' identities are also important to consider, as certain aspects of their identities, such as physical characteristics, cannot be easily hidden in the real-world setting while playing LBAR games (Layland et al., 2018).

METHOD

Participants

A total of 2,207 survey responses of which, after data cleaning (e.g., missing data or consistent responses), 2,023 remained for analysis. Of the cleaned dataset, 1,304 (64.46%) respondents identified as men, 645 (31.88%) as women, 24 listed a different "Preferred Identity" (1.19%), and 50 did not provide a response (2.47%). Due to the limited number of responses in the latter two categories, this study focuses on analyzing the differences between self-identified men and women (a total of 1,949 responses). Of these results, the majority of participants were from North America (57%) and fell within the age range of 25 and 39 years (60%).

Table 1: Participants' demographics by genders.

	# of participants	% of participants
Men	1304	(64.46)
Women	645	(31.88)

Preferred identity	24	(1.19)
No answer	50	(2.47)
Total	2023	(100)

The survey included questions related to participants' playing habits and characteristics with regard to playing *Pokémon GO*. Results revealed that both men and women generally spent more than 7 hours per week playing the game. However, a higher proportion of men (68.48%) reported playing for 7 hours or more per week, as compared to women (58.76%). Conversely, a greater percentage of women (28.06%) reported playing for less than 6 hours per week, in comparison to men (22%). Moreover, men reported spending more money on in-game purchases, with an average expenditure of $244, while women spent an average of $222. A higher proportion of women (56.59%) self-identified as free-to-play players, in comparison to men (50.30%).

Survey Design

To initiate the survey development process, we engaged in an in-depth discussion with four active *Pokémon GO* players, each of whom reported an average of 4 to 5 hours of play a week. The two-hour discussion yielded valuable insights into various ethical challenges that players encounter while playing the game, such as cheating and rule-breaking, and shed light on how players perceive and deal with such issues. Based on the insights gathered, we identified 25 ethically questionable situations that served as the basis for creating the survey questions.

The survey comprised five sections: 1) Demographics, which included questions about the participants' playing habits in *Pokémon GO*; 2) Motivation to Play, which sought to identify the reasons why participants play the game; 3) Player Actions, which presented a list of 25 ethical situations related to playing *Pokémon GO* and asked participants to identify all of the game-related actions they had performed; 4) Ethical Perception of Player Actions, which gauged participants' views on the aforementioned ethical situations using a six-point Likert scale ranging from "Not at all ethical" to "Completely ethical"; and 5) Open-Ended Questions, which encouraged participants to elaborate on their thoughts or reasoning the ethically problematic aspects of playing *Pokémon GO*.

Table 2: Description of 25 ethically questionable situations.

#	Keywords	Gameplay Situations
1	3rd-party app stats	Using a third-party application to evaluate a Pokémon's stats (e.g., Poke Genie, CalcyIV)
2	3rd-party maps Pokémon	Using third party maps or scanners to find specific types of Pokémon or Pokémon with good stats
3	3rd-party maps raids	Using third party maps or scanners to find raids
4	Automatic bot	Using a bot to automatically play
5	Changing time	Changing time on your phone to get the next day's raid pass or do multiple special trades a day
6	EX raid (other player)	Attending an EX-raid in place of friends, family, or an acquaintance who cannot make it
7	Explicit spoof trade	Trading and obtaining a Pokémon when you know or suspect that it was caught by spoofing
8	Financial incentives	Playing (e.g., catching Pokémon, raiding) for financial incentives OR offering financial incentives to someone to play for you, including buying/selling accounts

9	Going to business	Going to a business for the express purpose of playing *Pokémon GO*
10	Gotcha	Using a "Gotcha" to automatically catch Pokémon or spin Pokéstops/Gyms
11	Gym shaving	Gym shaving (having an account from a different team "open up a spot" for your Pokémon in a gym of your color which was full)
12	Multi-accounting	Playing with multiple accounts
13	Playing for children	Playing (e.g., catching Pokémon, raiding) for children as their guardian
14	Playing for others	Playing (e.g., catching Pokémon, raiding) for friends, adult family members, or acquaintances
15	Playing in sensitive location	Playing inside a culturally sensitive location (e.g. cemetery, religious location, hospital)
16	Playing while driving	Playing while driving as the driver, not the passenger
17	Private lobby (spoofers)	Creating a private lobby to exclude people who are not visually present who might be spoofing
18	Raid group color/level	Asking someone to join a different raid group based on their team color and/or level
19	Self-kicking	Using another account to kick your own Pokémon out of a gym
20	Social media info	Using Facebook groups or Discord servers to obtain information about raids, wild Pokémon, and research tasks
21	Spoofing	Spoofing your location in-game (playing while not moving)
22	Taking gym (short time others)	Taking down a gym when the other team's Pokémon have only been there for a short time
23	Taking gym midnight	Taking down a gym shortly before midnight
24	Trespassing private	Trespassing on private property while playing
25	Trespassing public	Trespassing on public property (e.g., parks after hours)

Note. alphabetical order of keywords

Data Collection and Analysis

The survey was distributed randomly to several online communities where Pokémon players frequently engage, such as The Silph Road, Facebook groups, and Discord servers. A total of 2,207 survey responses were collected, with 1,304 (64.46%) from men and 645 (31.88%) from women, as previously mentioned. While the number of men was more than twice that of women, we believe that the sample size of over 500 participants for each gender provides sufficient data for gender comparison analysis.

For the analysis of the quantitative data, we used the SPSS statistical software and performed Fisher's exact test for motivation, t-tests to compare the ethical stance questions and chi-square test for action-performed questions between men and women. The responses to open-ended questions were analyzed to understand the reasoning behind the qualitatively coded responses. We took an inductive approach to a portion of the responses (Wuetherick, 2010). Based on the responses, we created the initial codebook (i.e impact to others, alignment with the goal of the game, fairness, social pressure, physical and mental safety, degree of violation, and contextual inappropriateness, etc.) and refined themes in an iterative process. We employed the consensus approach (Hill & Carley, 1999) by having two coders independently examine and code the responses. Discrepancies were resolved through dialogue to reach a consensus on code application. In cases of disagreement, a third person served as a tiebreaker.

RESULT

Gender Difference in Game Motivation

Upon analyzing the survey data, we discovered noteworthy differences in game motivations between genders. Specifically, men were more motivated to play due to their existing enjoyment of Pokémon games and the franchise, engage in battles with Pokémon, play new types of games, and try augmented reality games. Women, on the other hand, were more motivated to play with friends and family, and help destress. Both genders reported they enjoyed collecting and raising Pokémon as one of their primary motivations. Our findings suggest that women in the survey derived greater enjoyment from the social aspects of the game, while men appeared to be more invested in winning.

Table 3: Fisher's Exact test for comparison of the motivations for playing Pokémon by gender.

	Men (n=1,304)		**Women (n=645)**		
Motivation	***N***	***%***	***N***	***%***	***p***
I like Pokémon games and/or the franchise	961	(73.70)	392	(60.78)	<.001***
I enjoy meeting new people through playing this game	607	(46.55)	291	(45.12)	0.563
I like battling with Pokémon	528	(40.49)	174	(26.98)	<.001***
I like playing new types of games and wanted to try ARG	225	(17.25)	88	(13.64)	0.042*
I like collecting Pokémon	1081	(82.90)	549	(85.12)	0.217
It encourages me to go outside and walk more	994	(76.23)	507	(78.76)	0.253
I enjoy playing with friends and family	899	(68.94)	478	(74.11)	0.020*
I like exploring new areas/discovering interesting physical locations	741	(56.83)	387	(60.00)	0.188
It helps me destress	640	(49.08)	379	(58.76)	<.001***
I like leveling up and/or obtaining badges	637	(48.85)	328	(50.85)	0.413

*Notes. *p < 0.05, **p < 0.01, ***p <0.001*

Gender Differences in Ethical Perception

Overall, the men (M = 3.53; SD = 0.67) tended to perceive the game actions as slightly more ethical than women (M = 3.43; SD = 0.66). Table 4 displays the average scores regarding the 25 actions on a six-point Likert scale measuring the participant's ethical stances. Additionally, there were statistically significant differences existing between the genders, t (1947) = -1.53, p <.01, with a small effect size (d = 0.150). Regardless of gender, the top two most ethically acceptable game actions were the use of information from social media (M = 5.49) (Using Facebook groups or Discord servers to obtain information about raids, wild Pokémon, and research tasks) and third-party statistical applications (M = 5.40) (Using a third-party application to evaluate a Pokémon's stats (e.g., *Poke Genie*, *CalcyIV*)). People generally think it is ethical to use social media and statistical applications. On the other hand, automatic bot (M = 1.35) and spoofing (M = 1.60) were two gameplay actions that both genders think are unethical.

Table 4: Statistical significance of overall ethical stances between genders.

Gender	***N***	***Mean*[a]**	***SD***	***t (1947)***	***p***
Men	1304	3.53	(0.67)	-1.53	0.002**
Women	645	3.43	(0.66)		

[a] *1=Not at all ethical, 6= completely ethical.*

In order to examine specific situations for ethical stance by gender, the independent t-test was used for each situation (see Table 5). Among the 25 gameplay actions, ten showed significant differences between the genders: 3rd-party app stats, changing time, explicit spoof trade, financial incentives, private lobby (spoofers), raid group color/level, taking gym (short time others), taking gym midnight, trespassing private, and trespassing public. Interestingly, all of the ten actions show that men's mean values are higher

than women's, which suggests that men tend to perceive these actions to be more ethical than women during play.

Table 5: Independent t-test for ethical perception by gender.

	Men (n=1304)		Women (n=645)			
Gameplay Situations	***M***[a]	***SD***	***M***[a]	***SD***	***t***	***p***[b]
3rd-party app stats	5.49	(1.11)	5.24	(1.28)	4.14	<.001***
3rd-party maps Pokémon	3.58	(1.77)	3.71	(1.72)	-1.53	0.125
3rd-party maps raids	4.41	(1.69)	4.33	(1.65)	1.048	0.295
Automatic bot	1.35	(0.95)	1.36	(0.87)	-0.38	0.704
Changing time	2.63	(1.61)	2.02	(1.23)	9.24	<.001***
EX raid (other player)	4.67	(1.58)	4.64	(1.57)	0.35	0.724
Explicit spoof trade	2.52	(1.36)	2.40	(1.19)	1.99	0.047*
Financial incentives	1.74	(1.29)	1.57	(1.12)	2.89	0.004**
Going to business	4.40	(1.54)	4.44	(1.50)	-0.46	0.645
Gotcha	4.40	(1.72)	4.34	(1.72)	0.72	0.468
Gym shaving	2.11	(1.42)	2.18	(1.41)	-0.99	0.319
Multi-accounting	3.49	(1.80)	3.35	(1.70)	1.68	0.093
Playing for children	4.81	(1.52)	4.94	(1.36)	-1.90	0.056
Playing for others	4.28	(1.66)	4.39	(1.56)	-1.44	0.15
Playing in sensitive location	3.55	(1.48)	3.46	(1.47)	1.28	0.198
Playing while driving	1.90	(1.27)	1.96	(1.29)	-0.87	0.38
Private lobby (spoofers)	5.06	(1.41)	4.74	(1.59)	4.37	<.001***
Raid group color/level	3.99	(1.69)	3.67	(1.61)	4.00	<.001***
Self-kicking	3.03	(1.82)	2.94	(1.71)	1.07	0.281
Social media info	5.48	(1.13)	5.51	(1.07)	-0.47	0.636
Spoofing	1.61	(1.72)	1.57	(1.11)	0.72	0.466
Taking gym (short time others)	4.84	(1.58)	4.57	(1.67)	3.35	<.001***
Taking gym midnight	4.70	(1.67)	4.53	(1.66)	2.12	0.034*
Trespassing private	1.73	(1.08)	1.59	(0.91)	3.07	0.002**
Trespassing public	2.56	(1.50)	2.42	(1.41)	1.96	0.049*

Notes. [a] *1=Not at all ethical, 6= completely ethical.* [b] **p < 0.05, **p < 0.01, ***p <0.001*

Gender Differences in Ethical Conduct

In this session, we used the chi-square test to analyze differences in ethical conduct between men and women by comparing how often they actually engaged in the game actions in ethically questionable situations. As a result, most questionable situations (19 out of 25) showed significant differences in the game actions, excluding financial incentives, Gacha use, playing for children, playing for others, playing in a sensitive location, and social media information. Similar to the result from the analysis of the ethical perception, all the mean values of men were higher than the mean values of women.

On the other hand, there were only two actions that women performed more than men - going to a business (60.31%) and playing for children (16.74%). The latter action was often justified as doing something for another person (e.g., "*I personally only have 1 account, but have a second device my child plays on. If she's in school or not available to attend a raid in person, I have no issue raiding in hopes of making a young girl happy with a legendary pokemon*." (P1282, Woman)). Others were more skeptical: "*Playing for "your kid" when your kid doesn't actually play, that's just a second account, buddy.*" (P658). Of the two, going to a business had a much larger difference than playing for children, which was performed at nearly the same rate for both genders. This could be because women may enjoy playing the

game for social reasons and center their playing experience around businesses they frequent with friends and family.

Table 6: Chi-square test for ethical game actions by gender.

	Men (n=1304)		Women (n=645)			
Gameplay Situations	***N***	***%***	***N***	***%***	***χ2***	***p***
3rd-party app stats	1108	(84.97)	495	(76.74)	19.99	<.001***
3rd-party maps Pokémon	724	(55.52)	284	(44.03)	22.81	<.001***
3rd-party maps raids	707	(54.22)	243	(37.67)	47.27	<.001***
Automatic bot	23	(1.76)	4	(0.62)	4.13	0.042*
Changing time	242	(18.56)	39	(6.05)	54.75	<.001***
EX raid (other player)	521	(39.95)	227	(35.19)	4.13	0.042*
Explicit spoof trade	224	(17.18)	78	(12.09)	8.52	0.004**
Financial incentives	17	(1.30)	3	(0.47)	2.98	0.084
Going to business	627	(48.08)	389	(60.31)	25.85	<.001***
Gotcha	405	(31.06)	200	(31.01)	0.00	0.982
Gym shaving	185	(14.19)	65	(10.08)	6.51	0.011*
Multi-accounting	568	(43.56)	193	(29.92)	33.71	<.001***
Playing for children	201	(15.41)	108	(16.74)	0.57	0.449
Playing for others	746	(57.21)	364	(56.43)	0.10	0.745
Playing in sensitive location	727	(55.75)	343	(53.18)	1.15	0.283
Playing while driving	700	(53.68)	313	(48.53)	4.59	0.032*
Private lobby (spoofers)	638	(48.93)	232	(35.97)	29.31	<.001***
Raid group color/level	384	(29.45)	127	(19.69)	21.24	<.001***
Self-kicking	270	(20.71)	84	(13.02)	17.13	<.001***
Social media info	1116	(85.58)	551	(85.43)	0.00	0.926
Spoofing	135	(10.35)	38	(5.89)	10.61	0.001***
Taking gym (short time others)	992	(76.07)	441	(68.37)	13.14	<.001***
Taking gym midnight	625	(47.93)	192	(29.77)	58.46	<.001***
Trespassing private	164	(12.58)	49	(7.60)	10.99	<.001***
Trespassing public	399	(30.60)	163	(25.27)	5.96	0.015*

*Notes. *p < 0.05, **p < 0.01, ***p <0.001*

DISCUSSION

Influence of Real-World Identity and Rules on LBAR Gameplay Ethics

Within the virtual world, across genders, actions that are inconsistent with the game's mechanics and design, such as the use of bots or spoofing, were considered morally dubious. Both men and women spoke of cheating, or intentionally performing actions that would give an individual an advantage, in deontological terms. Research by Paay et al. (2018) showed similar results that using maps and Innate Value (IV) measurers was well-accepted amongst the gaming community, whereas the use of bots and GPS spoofing was generally frowned upon. In this way, players see the role of the game's rules as a deontological contract, in which they agree to the rules so as to benefit all and create cooperation between the player base. Similar to Gautheir's (1986) theory of Morals by Agreement, the rules of the game act as a foundation for moral behavior, in which regardless of consequences for themselves, adhering to the contractual rule of "not cheating" respects the rights of others, while ensuring their sense of personal moral grounding.

Interestingly, players of *Pokémon GO* did consider acts of cheating that arose from "real-world social experiences" more ethical, indicating that not all game rules fell under the deontological contract. Sharing information online, or playing for a friend or child was considered ethical by both genders, suggesting

that when rules inhibited the social experience of play afforded by LBAR games, the experience of interacting with others within the real-world reduced the enactment of the players' deontological ethical system. The real-world player interactions further complicated the player's ethical judgment, encouraging them to see themselves as not existing within a virtual world, but one where their ethical choices did have *consequences* in the real world. One respondent P 969 (man) shared: "*Most ethically problematic issues for me have come through the fact that you really get to know other people of other teams during raids. When it comes to gyms, you often need to evaluate if it's ethical to kick them out or not depending on if they've likely got the coins for the day etc., which is funny because you're kinda supposed to play against the enemy teams, not with them, as far as most games go*."

However, this statement exhibits that ethical systems in *Pokémon GO* arise, not just arise from the rules of the game (deontology), or consequences of game actions (consequentialism), but also from the player's identity. They are defined by the game's rules *and* their perceived identity in their real lives and social circles. For instance, we assume roles such as "woman" because society perceives us that way, and with that categorization comes associated roles and expectations. Our identity is socially constructed by others, which complicates this ethical system and makes it difficult to categorize (Windleharth et al., 2020). Similarly, in *Pokémon GO*, a player is identified by their allegiance to a gameplay team and their caregiving to their Pokémon; outside the game they may identify as woman or man, where their identity is not static. Navigating these many identities superscensed other forms of ethical reasoning, following the logic as described by Kwame Anthony Appiah in *The Ethics of Identity (2010, p.65)*:

> It follows that what I can do intentionally depends on what concepts I have available to me; and among the concepts that may shape my action is the concept of a certain kind of person and the behavior appropriate to a person of that kind.

With regard to this, Appiah (2010) argues that societal perception of gender influences behavior. Identity outside of the game influences game ethics. Empirical research has shown that men are often perceived as competitive, which allows them to justify actions in pursuit of winning (Goette et al., 2019; Lucas & Sherry, 2004). Additionally, men have been found to have a lower standard of ethics in regard to trespassing in private and public spaces in our result. It is aligned with the argument by Pawlowski et al. (2008) that men are described as risk takers for competition.

Women, on the other hand, may prioritize helping others and adhering to established social norms, as determined by their gender identity. For instance, women in LBAR games like *Pokémon GO* may be impacted by concerns for personal safety and the fear of playing alone after dark. This is evident from participant quotes, such as *"I was followed and felt unsafe"* (P1322) and *"a girl was physically beaten for trying to flip a gym before an ex-raid"* (P1667). While Potts & Yee (2019) found that the majority of players prefer to play during the day (37.22%) rather than at night (20.90%), women generally feel less safe walking alone after dark compared to men, even in busy public spaces and parks (Personal Safety, 2022). These societal issues have a significant impact on shaping the behavior of women in *Pokémon GO*. Simultaneously, women are asked to exhibit their virtual identity, support their team, care for their pokémon, and adhere to the legal and socially constructed norms within the virtual world. Thus, it is important to consider to continuously balance these concerns with their personal identities outside of the game.

Additionally, the motivations for winning in *Pokémon GO* can vary from individual satisfaction to supporting a team's victory. Gender identity plays a role in shaping players' decisions, as shown in their differing perceptions on using *3rd-party app stats* and *explicit spoof trade*. According to Goette et al. (2019), men find the challenge of winning battles or raids with friends more rewarding than women do. This was supported by our motivation results and men' comments in open-ended questions, where they emphasized the importance of winning and group work. This shows that real-world factors can impact

players' perceptions of ethics in the virtual world of *Pokémon GO*. Our results showed that actions related to group efficiencies, such as raid groups/level and private lobbies, were seen as more ethical by men than women (e.g., *"Coordinating with a large group to maximize rewards? Super cool."* - P1233, man).

In a similar vein, men tend to be more competitive and adventurous in playing games, as influenced by the mechanics of augmenting the real world (Goette et al., 2019; Lucas & Sherry, 2004). The individual desire to achieve victory drives them to collect Pokémon, regardless of location. Our results showed that men were more likely to view game situations as ethical due to their strong desire to "win." This is exemplified by quotes such as "*It is a game, playing to win is within both the games and societies rules.*" (P1648) or "*It's part of the game…I am of the opinion that if you can do it in-game, that's just the game. That's life, despite being unethical*." (P295). This perception is similar to "Moral Disengagement", where an individual becomes morally detached and believes ethical standards do not apply, with no consequences in the real world (Smith, 2019). A similar concept, "It's just a game" moral management, also can explain our result in that gamers believe that no actual killing takes place, and no real property is destroyed in the game environment (Klimmt et al., 2008). However, *Pokémon GO*, as an LBAR game, is closely related to real-world situations while playing the game. Despite the alignment with real-world situations, the result showed that men still tend to apply moral disengagement as evidenced by their tendency to view trespassing in private and public spaces as more ethical than women. This suggests that men justify their unethical actions in pursuit of victory and apply the sense of "It's just a game" to *Pokémon GO*.

Additionally, our study's results are similar to Kohlberg's justice-based morality, although there are some notable differences. Kohlberg emphasized deontology based on social justice and social identity in men (Jorgensen, 2006), whereas in the context of the LBAR, deontology appears to be more focused on upholding the game rules within the game system. This implies that a player's identity outside of the game can influence their decision to engage in ethically questionable actions. In games where the actions occur in both the virtual and real worlds, the ethical system of the real world may take precedence. Rather than an inherent difference in the ethical choices of men and women, our study highlights the crucial role of expectations of gender roles in ethical decision-making.

While our study provides insights into the interaction of identity and game ethics, we acknowledge the limitations of our binary approach to understanding the multifaceted nature of identity. Gender is just one aspect of a player's identity and cannot be viewed as a sample dichotomy. Nevertheless, our study about LBAR games provides valuable implications for exploring the complex relationship between identity and game ethics, given their existence in both the virtual and real world.

Gender Differences in Behavior Versus Perception

The statistical significance between the two genders was much more apparent when examining their actions (i.e., whether the players have actually engaged in each game action in their past gameplay) than their perceptions (i.e., how ethical the players believe each action is). This suggests that exploring the influence of societal pressure and perceptions on women may be crucial in understanding the disparities in perceptions and behaviors between men and women.

Questions about a player's perceptions of ethical actions provide a safe space for them to examine their beliefs. However, engaging in these actions while playing LBAR games not only exposes players to the issues of the "real world", including potential dangers of physical harm, but also the expectations and attitudes of other players of *Pokémon GO*. Thus, the theoretical perceptions of ethical behavior faces the reality of the actual gameplay experience.

One example of this is the action of taking a gym around midnight. Women may be less likely to engage in this behavior due to concerns about personal safety and fear of playing LBAR games alone at night.

Research has shown that women generally feel less safe walking alone after dark compared to men, even in public spaces and parks close to their homes (Office for National Statistics, 2021). According to Windleharth et al. (2020), players' behaviors in LBAR games are influenced not only by their own identity but also by the identities of others, including non-players (see Figure 1). Women may limit their gameplay behaviors due to concerns about safety and privacy, resulting in a self-imposed restriction. This may be seen in the reduced participation of women in gym battles during nighttime. In this case, it is not the game itself that discourages women from taking gyms at night, but larger societal factors that play a role in their actions, outweighing their ethical perceptions as defined by the game's ethical system.

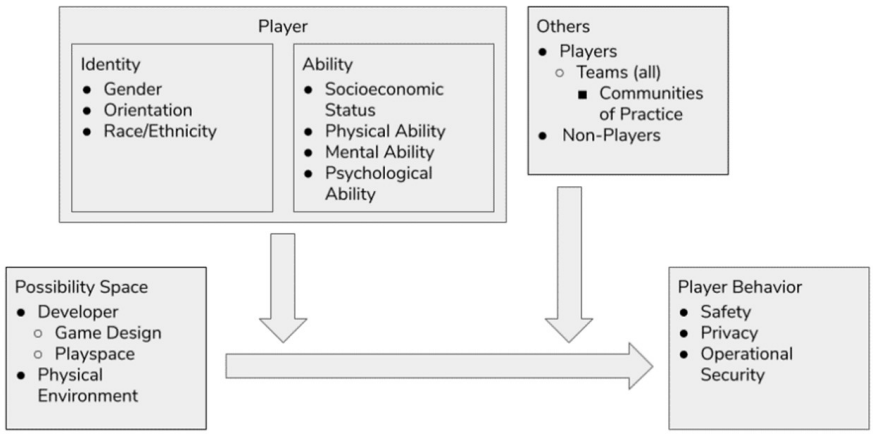

Figure 1: Explanatory Framework by Windleharth et al. (2020): Factors influencing player behaviors based on player's identity.

The use of 3rd party apps to find raids was another area of significant difference between genders and may be informed by societal pressure and perceptions surrounding women gamers. In gaming environments, women are often asked to prove their legitimacy, hindering their gaming experience and progression (Lopez-Fernandez et al., 2019). While both genders had similar perceptions of the ethical use of third-party apps, men were more likely to have actually used them. This may be due to the need for women to prove themselves, as the use of such apps could be seen as cheating and de-legitimizing them in the eyes of their man counterparts.

The relationship between ethical perceptions and actions in video games can reveal how gender plays a role in ethical judgment, as there was a difference between the perceived deontological ethical system described by the game's rules and the behaviors exhibited within enacting a player's moral reasoning. Men tend to judge actions based on their game outcomes (Alexander & Moore, 2007; Mason, 2009), while women often behave as valuing social interaction and considering others' opinions (Jorgensen, 2006). This perspective aligns with the social aspect of location-based augmented reality (LBAR) games like *Pokémon GO*, which encourage players to interact and support each other. Men's behavior tended to be defined by a consequentialist ethical system, more adaptable in changing their behaviors in-game to achieve desired results, regardless of ethical beliefs (Tavinor, 2007). Women, facing societal issues and sexism, are perhaps limited in their actions and take a pragmatist approach, with practical interests such as safety and reputation dictating their decision-making (Kuss et al., 2022; Windleharth et al., 2020). This may explain a discrepancy between ethical perceptions and actions for women.

CONCLUSION AND FUTURE WORK

This study contributes to the broader discourse on the influence of individual characteristics on gameplay by investigating the impact of gender on ethical perception and behavior within the context of Location-Based Augmented Reality (LBAR) games. The findings of this study revealed that both male

and female players of Pokémon GO share a common perspective on deontological ethics, perceiving actions that violate the game's mechanics and design as morally questionable, such as the use of bots or spoofing. However, notable differences emerged in their views on consequentialism, highlighting distinct motivations for their actions. Male players displayed a stronger inclination towards adapting their behavior to achieve desired outcomes, driven by their priority to win and engage in group work. On the other hand, female players exhibited a greater adherence to helping others, considering their surrounding environments and personal safety. These results suggest that to some extent, Kohlberg's theory of justice-based morality for men and Gilligan's care-based morality for women are evident within location-based augmented reality (LBAR) games. However, these theories do not fully explain the reasons behind the observed differences in ethical perception and behaviors, particularly in the context of the consequentialist framework.

Additionally, this study highlights the complex interplay between the player's identity and ethics, emphasizing the importance of considering the player's identity beyond the confines of the game as a crucial factor in future research on ethical play in LBAR games. Players of LBAR games must balance multiple identities, both inside and outside the game world, which may not always align with the game's prescribed notions of right and wrong (i.e., rules) or societal expectations. Therefore, it is essential to continue investigating how a player's identity influences ethical perceptions in virtual worlds and how actions in the real world may diverge from the game's defined notion of "good".

Future research in this field should strive to adopt an intersectional perspective when examining player identity in gaming, moving beyond a binary understanding of gender and encompassing the identities constructed within the virtual world. It is crucial to acknowledge that games have consistently served as a safe haven for individuals with marginalized genders and experiences. Consequently, future research should explore the relationship between gender and an intersectional perspective that incorporates factors such as race, age, sexual orientation. Ultimately, a deeper understanding of how individual characteristics shape gameplay and moral decisions within the game can contribute to creating a more inclusive and ethical gaming environment for all players in the realm of LBAR games.

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Appendix

Relevant Game terms	Description
EX Raid	EX Raids are similar to Raid Battles except that they require a special pass to attend.
"Gotcha"	3rd party smart device that is not officially endorsed by the Pokémon company or Niantic
Raid Battle	Raid Battles occur when a Boss Pokémon takes over a Gym. Your goal is to defeat this powerful Pokémon. If you and your fellow Trainers ar successful, you'll be rewarded with special items and a chance at catching that Pokémon.
Gym Badge	In *Pokémon GO* gym badges are recognition of how much you've interacted with particular Gyms—through battling, defending, or feeding Pokémon treats, and there are four tiers for each gym.
3rd party apps	Unofficial downloadable applications that analyze data in *Pokémon GO*. Generally there are 3 primary types: auto-play, map display, and stat checker.