Not Just for Girls: Encouraging Cross-Gender Role Play and Reducing Gender Stereotypes with a Strategy Game

Geoff Kaufman

Carnegie Mellon University
Pittsburgh, PA, USA
gfk@cs.cmu.edu

Mary Flanagan

Dartmouth College
Hanover, NH, USA
mary.flanagan@dartmouth.edu

Gili Freedman

St. Mary's College of Maryland
St. Mary's City, MD, USA
gfreedman@smcm.edu

ABSTRACT

Harsher socio-cultural sanctions against cross-gender role play amongst boys versus girls create comparatively greater pressure for boys to adhere to traditional gender roles [29]. At the same time, strategically orchestrated play experiences may offer a potential means of counteracting this pressure. In the present research, a pair of randomized experiments, involving a strategy game that puts players in the role of princesses, revealed a positive impact of delaying the timing of the revelation of the characters' gender (Study 1) and reducing the degree of femininity of the illustrated representation of the characters (Study 2) on boys' evaluations of the game, level of *experience-taking* (identification and role assumption) with the princess characters, and shift in both gender perceptions and self-perceptions. Together, these findings illustrate that strategic design choices can facilitate boys' adoption of cross-gender personae and open the door to malleability in adherence to rigid gender roles and norms.

CCS CONCEPTS

• Human-centered computing~Empirical studies in interaction design

Author Keywords

Transformative game design; gender norms; gender roles; gender swapping; role-play.

INTRODUCTION

In April 2011, an ad for clothing retailer J. Crew featured Jenna Lyons, the company's creative director, and her young son in a candid moment, and caused an eruption of online furor and controversy for one simple fact: in the photo, Lyons is shown painting her son's toenails pink. The ad immediately went viral and the resulting uproar, dubbed by comedian and commentator Jon Stewart as "Toemageddon," centered on the common assumption voiced by many that allowing a young boy to experience an activity traditionally deemed to be "for girls," like nail painting, would somehow be psychologically damaging and threaten his future masculinity.

This incident, and many others that have emerged in the time since (including multiple reported cases of young boys being banned from public schools and places of worship for wearing clothing or carrying toys or accessories that have been labeled to be "for girls"), reflect a long-standing and persistent societal norm, particularly but not exclusively in Western cultures, of greater disapproval of cross-gender activities and displays among boys than among girls [22, 23, 29, 35, 36, 45]. Not surprisingly, the harsher sanctions against cross-gender role behavior among boys in these cultural contexts create greater pressure for boys to adhere to traditional gender roles perceived to be acceptable by their parents, peers, and society at large. Indeed, research conducted in the United States over the past several decades has shown that boys in particular display a greater conformity to gender stereotypes, with the most common metric of such conformity being the activity of children during play, where the impact of current and future social roles, as well as the rewards and punishments for role nonconformity, may be experienced most keenly [6, 8, 9, 10, 11, 17, 21, 47, 58]. To this day, gender stereotypes remain pervasive and persistent forces in children's play contexts, and play choices, activities, or behaviors that defy traditional gender norms, such as boys' engagement with traditionally feminine play objects and roles (e.g., dolls or princesses), continue to have immediate, and often punitive, consequences [7, 12, 16, 34, 43].

The present work aimed to tackle these barriers to cross-gender role play for boys head-on by investigating the impact of two design decisions incorporated into a tabletop strategy game that puts all players into the role of a sibling princess character. Specifically, a pair of randomized experiments tested the impact of varying the timing of the revelation of the characters' gender (Study 1) and the degree of femininity of the illustrated representation of the characters (Study 2) on adolescent boys' experience of the game, their levels of *experience-taking* (i.e., connection with and assumption of their roles as princesses in the game), and, consequently, their shifts in both gender perceptions and self-perceptions. Study 1 showed that slightly delaying the revelation of players' roles as princesses significantly encouraged higher levels of *experience-taking*, which mediated a reversal in the stereotypical association of communal or emotional traits with "female," and, moreover, enhanced boys' evaluations of the game. Study 2 revealed that participants who were

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given a less feminine illustration versus a more feminine illustration of the characters reported greater experience-taking, exhibited higher levels of self-ascribed androgyny, and evaluated the game more favorably. Together, these findings illustrate that strategic design choices can facilitate boys' adoption of cross-gender personae, and that such role-play experiences open the door to shifting traditional gender norms and roles.

PRIOR WORK

Gender Norms and Conformity Pressure

Gender-based stereotypes and social norms, which have been shown to have a particularly persistent power in the United States and other Western cultures, create strict expectations about what behaviors are acceptable for adolescent boys. For example, boys are discouraged from displaying emotion or showing a need or desire for close others and are encouraged to exhibit their physical strength [38, 54]. These gender norms are enforced in a number of ways, including through socialization with peers. Peers, particularly those of high social status [37], tend to police other boys' behaviors to keep them from exhibiting overtly "feminine" actions or preferences [1, 42]. Individuals who show resistance to the stereotypes (e.g., by expressing vulnerability) are demoted in social standing and subject to social repercussions such as teasing and bullying [20, 38, 42].

Research that has examined patterns of resistance to gender norms across time has found that younger boys (e.g., those in their pre-teen and early teen years) are more likely to engage in resistance than older boys (e.g., late teens), and that most resistance tends to be implicit (e.g., talking about emotionally close friendships) rather than explicit (e.g., openly criticizing gender norms [54]). Similarly, young children are less likely to engage in gender stereotyping than older children. For example, older children tend to be more critical of other kids playing with toys or engaging in activities that are perceived to be inappropriate for boys or girls [13]. Interestingly, boys who express resistance to gender norms show more positive psychological adjustment, including greater well-being, than do those who avoid showing forms of resistance and non-conformity.

In line with the research on resistance and well-being, socialized conformity to masculine gender roles likely limits boys' inclination and ability to foster a high degree of psychological androgyny (i.e., the possession of both masculine and feminine personality traits, as defined by [4]), which prior work has shown to promote a number of personal and interpersonal benefits, such as increased adaptability and flexibility in social interaction [4, 40, 50, 56] and enhanced creativity [18]. At the same time, the widespread taboo prohibiting cross-gender activity among boys has pervaded the gender roles literature as well: to our knowledge, there have been few, if any, empirical investigations of the positive impact of cross-gender experimentation or play for boys. Despite (or, indeed, because of) the social norms that discourage cross-gender

play activities among boys, effective efforts to facilitate gender-swapping role-play could play a pivotal role in challenging traditional gender roles and facilitating a higher degree of psychological androgyny.

Role-playing in Games and Stories

Ironically, while games and play represent contexts in which traditional masculine gender roles for boys may be the most rigidly and consistently enforced, they also may hold the key to undoing the dynamics of role conformity pressure. Games and play offer high levels of freedom to experiment with different roles and modes of self-presentation. Indeed, by presenting diverse arrays of characters for individuals to play within the fictional worlds they create, games afford players the unique and powerful opportunity to experience life through the lens of another person whose identity and perspective can often be quite different from their own.

Perhaps the most dramatic example of this identity experimentation is the phenomenon of gender-swapping: inhabiting the role of a character whose gender is different from the one with which a player self-identifies [17]. This phenomenon has been studied in a growing body of work in the domains of digital games and virtual reality. To take one example: Freeman and colleagues observed that players of an online game focused on the simulation of marriage between characters would frequently engage in cross-gender play, in the process "resisting and subverting the traditional gender roles inscribed in the game" [25]. Similarly, studies of online role-playing games, such as *World of Warcraft*, have demonstrated that gender-swapping behavior can occur with some frequency among both men and women [5] and often triggers changes in player behavior in line with the perceived norms or expectations associated with the character's gender identity (e.g., greater rates of healing behavior for men embodying female characters [48, 57]). Gender swapping in online and virtual worlds has been found to be particularly likely for players who wish to experience an identity they cannot experience in their offline lives and in gaming contexts where the features and norms provide implicit or explicit freedoms (e.g., anonymity of player identity and avatar customization tools that promote gender swapping [28]).

This prior work shows the promise of games to facilitate cross-gender role-playing in a digital context. However, one can argue that these results were themselves aided by the freedom of anonymity – as well as the potential for solo play experiences – that are part and parcel to the online or digital game experience. The social pressure of non-anonymous, face-to-face interactions that are key elements of non-digital, tabletop games likely creates a higher barrier to overcome salient gender norms or conformity pressures, which is the key question we aimed to address in the current work: how could a tabletop play experience be designed to scaffold higher rates of gender-swapping among boys, particularly given the established rigidity of sex role conformity among boys in face-to-face contexts?

To date, few interventions have focused on increasing gender role flexibility for adolescent boys [39], and existing efforts have relied on story-based interventions that have been designed as solitary, rather than social, experiences. For example, one narrative intervention presented three- to five-year old children with a story featuring either an egalitarian or traditional portrayal of men and women. In the egalitarian version, both the man and woman featured in the story had careers and contributed to the household, whereas in the traditional version, the woman stayed home and the man pursued a career. Children presented with the egalitarian version were less likely to show gender role stereotypes when they were asked to describe activities in which boy and girl versions of dolls would engage [24]. Similarly, a study in which participants read books with non-stereotypical portrayal of gender roles found that children who read those books saw a higher number of occupations as suitable for both men and women [52]. Furthermore, when children are presented with stories in which girls perform traditionally masculine activities, they are more likely to think that all girls can engage in those activities. Importantly, children enjoy the stories equally whether the characters are identified as male or female [46].

Continuing the tradition of story- and role model-based interventions, the present research examines how a game with a strong narrative about powerful women may influence gender role stereotyping. However, unlike prior interventions, the present work moved away from more passive influences (e.g., having a story read to a child or having a child learn about a role model) into a more active and more social domain: multiplayer gameplay with character embodiment. That is, previous interventions have often relied on participants absorbing new information or new ways of thinking about the world rather than actively engaging with gender roles. Prior research on games has indicated that games are differentiated from other forms of media (e.g., watching a television show) through the high degree of agency afforded to the players [44]. In other words, games allow for active participation beyond what a story alone would allow. A particular focus of the present work was to investigate how design elements selected to facilitate higher *experience-taking* – that is higher adoption and immersion in a cross-gender role – would consequently impact male players' endorsement versus rejection of gender norms and stereotypes.

Transformative Impact of Narrative Worlds

The present research was also directly informed by prior psychological research revealing that fictional narratives – and connection with or embodiment of the characters who inhabit fictional worlds – can have a dramatic transformative impact on individuals. Playing a central role in the present research is the aforementioned phenomenon of *experience-taking*, which refers to the spontaneous process of assuming the identity of a character in a fictional narrative and simulating that character's subjective experience (e.g., the character's thoughts, emotions,

behaviors, goals, and traits) while immersed in the world of the story [27, 32, 41, 55]. This research has shown how fictional and simulated worlds give individuals the chance to take on different identities and, as a result, dramatically affect the beliefs and behaviors of readers once they emerge from the narrative world. Related work has shown that the use of narratives to guide perspective-taking – by inviting individuals to step into the proverbial shoes of a character – can likewise yield a sweeping array of beneficial effects. These effects include increased empathy [14] and altruism [3], greater overlap in mental representations of self and other [19], and, importantly, greater appreciation for the impact of situational and ecological factors on personal behaviors and outcomes [53].

At the same time, however, there are a number of factors specific to both the individual reader or player and to the fictional or simulated world that facilitate (or, conversely, discourage) high levels of experience-taking with characters. Of particular relevance to the present research is the degree or perceived similarity or shared ingroup membership between an individual and a character. The more a character's dissimilarity or psychological distance from the self is put into focus (either by an individual being in a heightened state of self-awareness *or* by the fictional narrative spotlighting a distinction between the individual and a character), the larger the mental leap required to relinquish one's own identity and to imagine oneself as a character in the game or story. Thus, for example, one study found that learning early on in a story that a protagonist attended a rival university reduced readers' reported levels of experience-taking relative to levels reported when the protagonist shared a university affiliation with readers [32].

However, one effective technique for counteracting the hindering effects on experience-taking of a character's outgroup membership is to *delay* the revelation of that group membership until later in an unfolding plot (after a psychological merger between individual and character has had an opportunity to take root). For example, learning that a character was of a different race or sexual orientation than oneself *later* as opposed to earlier in a story prevented the outgroup membership from reducing experience-taking for readers (relative to levels reported by readers for whom the characters who were racial or sexual orientation *ingroup* members). Moreover, the greater connection between self and character facilitated by this delayed revelation also reduced stereotyping and prejudice toward the character and their social identity group [32].

In addition, prior work has also shown that introducing potentially distancing features of characters, such as a character's outgroup membership, *alongside* features that are shared between reader/player and character helped to render the former less threatening and to encourage greater connection with the character as a result. For example, learning simultaneously that a character in a fictional narrative belongs to a different racial identity group and, at the same time, shares an important ingroup affiliation (e.g.,

being a student at the same university) led to increased levels of experience-taking with the character [32].

This work provided the foundation for the two studies to be reported, which focused on encouraging high experience-taking among adolescent boys who played a strategy board game called *Monarch* (discussed in detail in the next section) that positions all players as characters who are women: specifically, sibling princesses competing to ascend to the throne as queen. Specifically, the pair of studies tested the impact of two key factors – the timing of the revelation of players' role as princesses (Study 1) and the degree of femininity of the illustrated representation of the princesses in the game, as operationalized by the use of an illustration that featured highly feminine visual elements versus one that featured a *combination* of feminine and masculine elements (Study 2). We investigated the impact of these design variations on adolescent boys' shifts in gender perceptions and self-concepts – and, further, verified whether these effects were mediated by experience-taking with the princess characters. Secondary analyses also tested whether these two game design variables impacted experiential factors, including boys' enjoyment of the game and the game's suitability as an alternative for boys.

OVERVIEW OF MONARCH GAMEPLAY

Monarch is a strategy board game that puts players in the role of competing sibling princesses (see Figure 1 for sample character depictions) vying for the throne soon to be vacated by their dying mother, the Queen. As the game rules reveal: "The time has come for you to demonstrate your intelligence, compassion, bravery and strength as leaders. Choose strategies that will bring prosperity to the land you share and glory to your court. Defend the kingdom from threats of invasion. There are many paths to choose from, but only the most worthy among you will be selected to become the heir to the throne." To win, each player aims to collect the best "Court Cards," depicting wise advisors, exotic animals, and symbolic regalia (see Figure 2), which must be purchased by the game's two main resources, gold and food. In addition, a number of "Event Cards" in the deck, which emerge as new cards are continually drawn to replenish the five-card Market, reveal occurrences that affect all players (such as the loss or gain of food or gold). By the end of the game, each Court Card purchased has a reward of a particular number of "crown points," and the player who has earned the highest number of crowns in their court at the end of the game wins the game and is awarded the throne.

STUDY DESIGN

In the pair of studies to be reported, pre- and early-adolescent male participants, between the ages of 10 and 15, were randomly assigned to play (in groups of four) a version of *Monarch* that varied either the timing of the revelation of character gender (Study 1) or the femininity of the depiction of the princesses (Study 2). Aside from the key factors studied, all game features (including the content and sequence of the Court Cards in the deck) were held

Figure 1. Sample character cards depicting the princess protagonists in *Monarch*.

Figure 2. Sample court cards that become part of a princess character's tableau in *Monarch*.

constant between the experimental conditions. In both studies, following gameplay, participants completed individually administered questionnaires containing the measures of the key outcome variables. Based on the foundational research discussed above, it was predicted that both delaying the revelation of the character's gender (Study 1) and presenting a less feminine illustrative depiction of the characters (Study 2) would promote a host of beneficial outcomes for boys, including increased experience-taking, lower levels of stereotypical gender role endorsement, greater self-attribution of communal or emotional traits, and, moreover, more positive experiences and more favorable evaluations of the game

STUDY 1

Study 1 investigated the impact of a delayed versus an early reveal of the game characters' identity as princesses on adolescent boys' perceptions of the game and perceptions of gender.

Participants

Forty-eight male youths (mean age = 12.60 years, age range = 10 to 15 years old) volunteered to participate in the study; written consent from both participants and a parent or legal guardian was required for participation. All participants self-identified as male and the majority (N=43) of

participants identified their race as Caucasian (four participants identified as Asian/Asian American and one participant identified as Black/African American). Study sessions took place in public and private schools in rural New Hampshire and Vermont. All study materials and procedures were approved by the institutional review board at the authors' institution.

Materials and Procedure

Participants were randomly assigned to playgroups that would experience one of two versions of the game: (1) an *early reveal* version, in which the revelation of the characters' identity as princess was made prior to play (in the game instructions) or (2) a *delayed reveal* version, in which the revelation occurred partway into the game. Specifically, in the delayed reveal condition, participants were told they were taking on the role of "siblings" in the game instructions, and an "Event Card" that was pre-positioned as the twelfth card in the deck disclosed to players that they were, in fact, sibling "princesses" in the game. Neither condition featured any other depiction of or allusion to the characters' gender (e.g., the character cards were not shown to players of either version of the game).

Experience-taking

A modified version of the experience-taking scale [32] was used to assess participants' degree of simulation of their character's identity and persona. This measure presented respondents with seven statements, each using a 7-point Likert scale anchored at 1 (*strongly disagree*) and 7 (*strongly agree*), that gauge the extent to which they adopted the psychological perspective of the character (e.g., "I felt like I could put myself in the shoes of my princess in the game") and experienced the same emotions and thoughts (e.g., "I found myself feeling what my princess in the game was feeling") as the character while playing.

Gender Role Perceptions

To assess participants' perceptions of gender roles in a more subtle and surreptitious fashion than is the case with standard self-report measures (such as the Attitudes toward Women Scale [49]), a new instrument was created for use in the study. This measure presents a set of ten sentences identified as the first line of a short work of fiction, each beginning with an individual (whose name is deliberately gender-ambiguous) engaging in a specific action, to which respondents are instructed a second line to continue the story in whatever manner they wish. The sentences are written in such a way that they invite the use of personal pronouns in the subsequent, participant-provided sentence (e.g., "Timar always put the needs of others first"). Three items depicting stereotypically feminine (i.e., nurturing or emotional) responses (e.g., "The tears ran down Arlu's face") and three depicting stereotypically masculine (i.e., agentic or powerful) responses (e.g., "Kai has always been a strong-minded person") were embedded among neutral items depicting actions that were neither overtly masculine nor feminine.

The extent to which respondents used personal pronouns *inconsistent* with the stereotypical gender evoked by the stem (i.e., masculine pronouns for stereotypically feminine stems and/or feminine pronouns for masculine stems) was used as an indication of the respondents' rejection of typical gender roles for agentic/powerful (masculine) or communal/emotional (feminine) responses. To reiterate, this measure was created specifically for use in the present research, and the findings reported here represent the initial steps toward validating this instrument as a measure of gender roles; further, more formal means of validation are currently underway.

Game Evaluations

Participants were asked to rate the game on a number of dimensions, each presented as individual items utilizing 9-point Likert scales. Specifically, participants evaluated the extent to which they perceived the game to be *complicated* (versus *easy*), *fast-paced* (versus *slow-paced*), *interesting* (versus *boring*), and *rewarding* (versus *not rewarding*). Next, participants rated the degree to which they believed the game was more suitable for girls or boys by responding to a single item using a 9-point Likert scale (1 = *much more suitable for boys*, 5 = *equally suitable for boys and girls*, 9 = *much more suitable for girls*). Finally, participants reported their level of interest in replaying the game by rating their agreement with the statement "I want to play this game again" on a 9-point scale (1 = *strongly disagree*, 9 = *strongly agree*).

Results

For analysis, we relied primarily on an analysis of variance (ANOVA) via SPSS, using the software package's built-in functionality to verify a priori that all assumptions required to conduct an ANOVA (independence, normality, and homogeneity of variance [26]) were met.

Experience-taking

Responses to the individual items of the experience-taking measure were summed and averaged to produce a mean experience-taking score for each participant. An ANOVA revealed a significant effect of condition on this composite measure: delayed reveal participants, on average, reported a higher level of experience-taking with their character ($M = 6.42$, $SD = 1.66$) than did early reveal participants ($M = 5.52$, $SD = 1.34$), $F(1, 47) = 4.22$, $p = .047$, Cohen's $d = .60$.

Gender Role Perceptions

For each of the items included in the measure, participants' contributed sentences were coded by a research assistant (who was blind to the study's design and hypotheses) for the gender of the pronoun used (or coded as "none" if no personal pronouns were indicated). Of note, the measure succeeded in eliciting pronouns from participants a vast majority of the time: of all of the sentences coded, 87.5% of them included either a masculine or feminine pronoun. Next, the coded pronouns for all of the communal/emotional, agentic/powerful, and neutral items were combined to compute an overall percentage of

Figure 3. Mediation analysis with character gender revelation condition as the independent variable, rate of assignment of masculine pronouns to communal/emotional items as the dependent variable, and experience-taking as the mediator. Note: * $p < .05$, ** $p < .01$.

pronouns that fell into the three coding categories (masculine, feminine, neither/none), and the overall percentage of masculine versus feminine pronoun assignments was compared across conditions.

Results revealed that, overall, there were no between-condition differences in the proportion of masculine and feminine pronouns for the neutral items (in both conditions, participants provided a slight majority of masculine pronouns in their sentences: 54.2% in the early reveal condition and 51.5% in the delayed reveal condition). Likewise, there was no difference in the overall percentage of masculine pronouns elicited by the agentic items in the early reveal condition (58.2%) and the delayed reveal condition (56.3%). In contrast, a stark difference emerged in the proportion of masculine pronouns given by participants for the communal/emotional items: whereas early reveal participants assigned feminine pronouns in their responses to these items a majority of the time (76.2%), delayed reveal participants assigned masculine pronouns to these same items a majority of the time (61.9%), $\chi^2 (N = 42) = 6.22, p = .019$, Cohen's $d = .78$.

To determine whether participants' reported levels of experience-taking could explain the differential rate of pronoun assignment for the communal/emotional items, we conducted a mediational analysis, following the procedure suggested by [2], with the dummy-coded gender revelation condition as the independent variable (early revelation = 0, late revelation = 1), experience-taking scores as the mediator, and assignment of masculine pronouns as the dependent variable (see Figure 3). Results indicated that gender revelation condition was a significant predictor of experience-taking, $b = .78, SE = .27, p = .047$, and that experience-taking was a significant predictor of masculine pronoun assignment, $b = .62, SE = .18, p = .049$. Moreover, gender revelation condition was no longer a significant predictor of pronoun assignment after controlling for experience-taking, $b = .43, SE = .32, ns$, consistent with full mediation. That is, the impact of delayed gender revelation

on associations of communalism and emotionality with masculine identity can fully be accounted for by players' increased levels of experience-taking with the princess characters.

Game Evaluations

Participants' responses to the individual game evaluation items were analyzed separately using a one-way ANOVA Bonferroni adjusted comparisons revealed a significant between-condition difference on two of these items. First, participants in the delayed reveal condition rated the game as significantly more rewarding ($M = 7.45, SD = 1.45$) than did participants in the early reveal condition ($M = 6.04, SD = 1.57$), $F(1, 47) = 14.79, p = .007$, Cohen's $d = .93$. Finally, participants in the two conditions diverged in their evaluation of the game's appropriateness for boys and girls. Whereas delayed reveal participants reported an average rating near the midpoint of the scale, indicating a perception of equal appropriateness for boys and girls ($M = 4.38, SD = 1.47$), early reveal participants reported an average rating that was significantly higher - and closer to the "more appropriate for girls" endpoint of the scale ($M = 6.00, SD = .84$), $F(1, 47) = 22.2, p = .004$, Cohen's $d = 1.35$. The other five evaluation items did not yield significant differences between conditions (p -values $> .20$).

Discussion

The results from Study 1 provide support for the positive impact of the "delayed revelation" technique both for encouraging higher levels of psychological connection with the princess characters and, consequently, shifting gender perceptions. Delayed reveal participants' higher experience-taking levels indicated that the later timing of the gender-swapping role of their character offset the possible psychological barrier (e.g., greater discomfort or reluctance) that the disclosure of character gender may have triggered among their male counterparts in the early reveal condition. Moreover, this higher level of psychological merger with their princess characters triggered a reversal in delayed reveal participants' association of communalism and emotionalism with "female," as evidenced by the

greater likelihood of attributing these traits to a *male* character in the pronoun measure devised for the present study. Moreover, despite the fact that the revelation of the players' roles as sibling princesses still came relatively early in the game (in the form of an Event Card that was positioned twelfth in the deck and, thus, revealed within the second or third round of play), this slight delay impacted players' experiences and responses to the game. In particular, participants in the delayed reveal condition deemed the game to be a more valuable experience, exhibited greater parity in their judgment of the game's suitability for boys and girls, and expressed more interest in playing again, compared to participants in the early reveal condition, who learned of their role as princesses at the start of the game.

These findings extend prior work on experience-taking [32] showing that the delayed revelation strategy can be employed with equal effectiveness in the context of a game and with the previously unexplored phenomenon of gender-swapping. More broadly, these results suggest that building in an opportunity for male players to connect with the story or game world (as well as with aspects of their character's identity other than gender) can facilitate greater ease and inclination to accept the game's invitation to step into the shoes (or, in this case, to wear the crowns) of its princess characters.

STUDY 2

Study 2 investigated the impact of the femininity of character illustrations on adolescent boys' perceptions of the game and perceptions of gender.

Participants

Sixty-one male youths (mean age = 12.48 years, age range = 11 to 14 years old) volunteered to participate in the study; written consent from both participants and a parent or legal guardian was required for participation. All participants self-identified as male and the majority ($N=53$) of participants identified their race as Caucasian (five participants identified as Asian/Asian-American, two participants identified as Black/African-American, and one participant identified as Native American). Study sessions took place in public and private schools in rural New Hampshire and Vermont. All study materials and procedures were approved by the institutional review board at the authors' institution.

Materials and Procedure

Participants were randomly assigned to playgroups that would receive one of two types of character cards: (1) one employing the game's original, intentionally less stereotypical illustration style, which presented a combination of feminine features (such as flowers) with more masculine features (such as face paint or armor) or (2) one employing a more *feminine* illustration style, which presented a host of more stereotypically feminine features (such as wide eyes) that are common in many popular

Figure 4. Less stereotypically character illustration (left) and more stereotypically feminine character illustration (right) used in Study 2.

media representations of princesses (e.g., the depiction of princess heroines in animated Disney films). See Figure 4 for a side-by-side comparison of the two illustration styles.

To verify that the two art styles did indeed differ in their perceived level of femininity, a pilot study ($N = 51$) was conducted in which cis male and cis female youth (ranging in age from 11 to 15 years old) were randomly shown one of the two sets of character images and asked to write down three adjectives to describe them, simply based on their appearance. A research assistant coded each of the participant-provided adjectives (after they were collected and separated from their associated images) for their level of gender stereotypicality (assigning a different letter code to counterstereotypical/masculine traits such as those denoting power or agency, neutral, non-stereotype-related traits, and stereotypical/feminine traits such as those denoting communalism or emotionalism. Results indicated that, compared to participants shown the more “androgynous” illustrations, participants shown the more “feminine” illustrations provided significantly fewer masculine traits ($p < .05$) as well as a non-significantly higher number of feminine traits ($p < .12$).

In Study 2, character cards with the assigned illustration style were provided to participants prior to game play; moreover, unlike in Study 1, all participants were told prior to the game that they were taking on the role of the princesses depicted in the character cards. All features of game play (including the sequence of cards in the deck) aside from the character illustrations were held constant between the two conditions. Following gameplay, participants completed individual questionnaires including experience-taking and game evaluation measures utilized in Study 1 as well as one additional measure: the original, long form version of Bem's Sex Role Inventory [4], which measures the extent to which respondents characterize their own personality by presenting them with a set of masculine traits (e.g., assertive, independent, masculine) and feminine traits (e.g., tender, compassionate, feminine) to be rated for their perceived applicability to the self on a 7-point Likert scale (1 = never, 7 = always). Prior research has utilized the

Figure 5. Mediation analysis with character illustration condition as the independent variable, rate of assignment of masculine pronouns to communal/emotional items as the dependent variable, and experience-taking as the mediator. Note: * $p < .05$, ** $p < .01$.

Sex Role inventory to evaluate changes in respondents' level of psychological androgyny, as indicated by higher level of self-endorsement of both masculine and feminine traits [33].

Results

As in Study 1, we relied primarily on an analysis of variance (ANOVA), ensuring a priori that all assumptions required to conduct an ANOVA (independence, normality, and homogeneity of variance between conditions [26]) were met.

Experience-taking

A significant effect of condition also emerged on the composite measure of experience-taking, $F(1, 60) = 8.88, p = .008$. Specifically, participants in the less stereotypical character condition exhibited a higher average level of experience taking ($M = 4.33, SD = 1.49$) than did participants in the feminine character condition ($M = 3.47, SD = 1.12$), Cohen's $d = .65$. Thus, given the between-condition uniformity in all game elements save for the character cards given to players, the femininity of the illustration style alone impacted players' ability or inclination to take on the role of their princess character in the game.

Sex Roles

Participants' responses to all of the feminine, masculine, and neutral traits in the Bem Sex Role Inventory were summed and averaged to form a composite score for all participants on each trait dimension. Significant effects of condition emerged for both the femininity and masculinity composites. First, participants in the less stereotypical character condition rated themselves higher in femininity ($M = 3.41, SD = 2.04$) than did participants in the feminine character condition ($M = 2.18, SD = 1.60$), $F(1, 60) = 6.95, p = .015$, Cohen's $d = .67$.

To determine whether participants' reported levels of experience-taking could explain the difference in self-rated femininity between the two conditions, we conducted a mediational analysis, following the procedure suggested by [2], with the dummy-coded character illustration condition

as the independent variable (0 = more feminine, 1 = less feminine), experience-taking scores as the mediator, and femininity self-ratings as the dependent variable (see Figure 5). Results indicated that character condition was a significant predictor of experience-taking, $b = .56, SE = .27, p = .008$, and that experience-taking was a significant predictor of femininity ratings, $b = .47, SE = .18, p = .018$. Moreover, character condition was no longer a significant predictor of femininity ratings after controlling for experience-taking, $b = .33, SE = .32, ns$, consistent with full mediation (Sobel statistic = 1.62, $p = .051$).

In addition, participants in the less stereotypical character condition rated themselves as marginally more masculine ($M = 5.30, SD = 1.51$) compared to their counterparts in the feminine character condition ($M = 4.38, SD = 2.17$), $F(1, 60) = 3.44, p = .057$, Cohen's $d = .49$. Participants' experience-taking level could not account for this difference, however, as experience-taking was not a significant predictor of masculinity self-ratings, $b = .24, SE = .27, p = .11$. Finally, there was no difference in neutral trait self-ratings between the two conditions ($F < 1$).

Game Evaluations

Participants' responses to the individual game evaluation items were analyzed separately using a one-way ANOVA. Results revealed a significant between-condition difference on two of these items. The first of these was participants' evaluation of the game's appropriateness for boys and girls. Conceptually replicating the finding from Study 1, participants in the less stereotypical character condition reported an average rating near the midpoint of the scale, indicating a perception of equal appropriateness for boys and girls ($M = 4.15, SD = 1.46$), whereas participants in the feminine character condition reported an average rating that was marginally higher - and closer to the "more appropriate for girls" endpoint of the scale ($M = 6.38, SD = 1.74$), $F(1, 60) = 6.90, p = .051$, Cohen's $d = 1.39$. The other item yielding a significant effect of condition was participants' self-reported desire to play the game again: participants in the less stereotypical character condition expressed a significantly higher desire to play the game again ($M =$

4.50, $SD = 1.71$) compared to their counterparts in the feminine character condition ($M = 3.29$, $SD = 1.98$), $F(1, 60) = 7.64$, $p = .044$, Cohen's $d = .65$.

Discussion

Overall, the results of Study 2 demonstrate the impact of the character illustration styles the game's efficacy at triggering shifts in players' self-concept. Building on prior work on experience-taking with fictional characters, the findings from the present study show that highlighting dissimilarity between players and characters (in this case, via a highly feminine character depiction) impedes the motivation and/or ability of individuals to immerse themselves in the identity of a character. Conversely, bridging the gap between players and dissimilar characters (in this case, via a less stereotypical character depiction) not only facilitates greater experience-taking but also sets the stage for players to take on the perceived traits of a character. Indeed, participants in the less stereotypical character condition exhibited higher levels of psychological androgyny in their elevated self-ratings on both masculine and feminine (but not neutral) traits and, in the latter case, these ratings were fully accounted for by participants' level of experience-taking with the character. Moreover, as with delayed character revelation in Study 1, the use of a less stereotypical character illustration in Study 2 enhanced boys' enjoyment of the game, as evidenced by their greater interest in replaying, and shifted their perceptions of the gender appropriateness of the game.

GENERAL DISCUSSION

The present research investigated the efficacy of two key factors in overcoming gender norm conformity and encouraging higher levels of gender-swapping role playing and 'experience-taking' among male youth players of a strategy board game. The results of Study 1 suggested that delaying - even just slightly - the revelation of players' roles as princess characters in the game facilitated higher levels of experience-taking and, as a result, higher rates of norm-reversing attributions of female-stereotypic actions (such as being nurturing and emotional) to *male* actors, as assessed by the story continuation measure devised for the present research. Thus, allowing players to connect with the context of the game world and to establish a sense of familiarity and connection with their role in the game *prior* to the revelation of character gender not only made boys more likely to accept their role as princesses for the duration of the game but also made them reconsider traditional gender roles outside of the game. The delayed revelation of character gender also strongly affected boys' response to the game, including how rewarding they viewed the game, their desire to play the game again, and their perception that the game was equally suitable for boys and girls. This suggests that participants in the delayed revelation condition viewed their gender swapping experience - and the shifts in mindset that it triggered - to be subjectively positive and worth repeating.

Study 2 revealed a similar pattern of outcomes resulting from the use of a less stereotypically feminine representation to depict players' characters. The employment of an art style combining both feminine and masculine elements, compared to a style that was more stereotypically feminine, proved to be much more effective for inviting boys to accept their princess role in the game - and for encouraging these players to internalize their character's higher level of androgyny by rating themselves as more feminine (and, to a lesser extent, more masculine) following gameplay. Thus, taken together, the results from the present pair of studies confirm that allowing boys the opportunity to bridge the psychological gap between themselves and their opposite-gender character—either by delaying the revelation of gender or by imbuing the character with less feminine features and accouterment—profoundly affected their likelihood of accepting (and benefiting from) their role of princess in the game.

These results speak to the potential value of facilitating such cross-gender play for (at least temporarily) reducing gender stereotypes and endorsement of traditional gender norms, confirming the rationale underlying the present research regarding the value of games and play as a context in which boys can safely experiment with roles and identities. This work builds on prior work demonstrating that passive exposure to stories or role model exemplars challenging gender stereotypes can reduce gender bias and gender norm endorsement by exhibiting that active role-playing and character embodiment in a tabletop game can achieve similar outcomes. Further, the results of the reported studies offer the first empirical evidence that cross-gender role play can promote shifts in boys' cognitive representations of gender (i.e., stronger associations between "male" and "emotional") and self (i.e., higher self-ratings of femininity), which prior work has established to have a plethora of positive social and cognitive effects. At the same time, both studies reinforce the importance of providing psychological entry points for cross-gender character embodiment to facilitate those shifts.

In sum, the present work directly tested the efficacy and impact of two mechanisms predicted to facilitate gender-swapping role play among boys by reducing the psychological gap between cis male players and their princess characters. These two mechanisms - (1) allowing an initial connection to form between player and character before the revelation of gender occurred and (2) imbuing the graphical depiction of the princess with a mix of masculine and feminine elements - were not only successful at overcoming male youths' reluctance to engage in gender-swapping (in an all-male play context, no less) but also inspired shifts in players' privately reported gender- and self-related perceptions following play.

DESIGN IMPLICATIONS

The present work utilized two design strategies derived from prior work from psychology on narrative persuasion and employed traditional quantitative methods from social

psychology in order to evaluate the impact of those strategies on players' experiences, evaluations, and post-game shifts in attitudes and perceptions. At one level, the two focal strategies of delaying the revelation of a character's outgroup membership and utilizing less stereotypical representations of a character's appearance, are ones that we believe could be easily utilized and implemented by designers who wish to encourage players to connect with characters who possess some salient feature that is dissimilar or potentially distancing to players. At a broader level, we position these techniques as two examples of a burgeoning framework of "embedded design" that we have begun to articulate and demonstrate through our work in the space of game design and research [30, 31]. This model demonstrates the importance of discovering ways to integrate or interweave potentially threatening or off-putting content (typically content related to the persuasive intention of the game) within a game's design in order to render players more likely to be receptive to that content and, as a result, open the door to greater immersion impact. In addition to the strategies investigated here, prior work has employed techniques such as "intermixing," counterbalancing on-topic content (e.g., scenarios in a social game about stereotypes that depict experiences with bias and prejudice) with off-topic content (e.g., analogous scenarios that do not pertain directly to bias and prejudice), and "obfuscation," concealing or delaying the revelation of a game's underlying persuasive intent. Empirical work testing the impact of these embedding strategies have shown their promise to increase a game's transformative impact on players beyond that achieved by versions of a game that do not utilize these strategies [30, 31].

LIMITATIONS

One primary limitation of the present work is its reliance on a fairly homogeneous sample of participants, focused on cis male youth who were primarily Caucasians residing in the same geographic region. This homogeneity provided a high level of experimental control – allowing us to isolate the impact of our design decisions on experiences and responses related to cross-gender play – but, at the same time, puts in question the generalizability of our findings to participants of other demographic groups or socio-cultural backgrounds. Future work building on these studies' results will ideally investigate the viability and impact of the techniques we introduced here both for players (and play groups) of different identity groups (including samples with more diverse gender identity representations) as well as their applicability to characters of different "cross-group" characteristics relative to players (e.g., characters of different races, sexual orientations, ages, cultures, etc.). Moreover, varying the size and composition of play groups (to investigate factors such as the apparent local norms of the group, to contrast solo play experiences with multiplayer experiences, etc.) will be an important next step in this line of work.

In the same vein, our utilization of a focal game with strong themes related to historical monarchies and kingdom-building requires us to reflect on the extent to which our findings were influenced by the game's context and setting. For example, were the levels of experience-taking exhibited by participants in our study affected at a baseline by pre-existing associations between power and patriarchy? That is, might the cis male participants have projected their stereotypically masculine notions of rulership and strength onto the game's characters, making the princess characters more accessible and easier to identify with compared to female characters encountered in a non-patriarchal narrative context? To address this potential confound, it will be crucial for future work to seek to replicate the findings from the present work with narratives and settings that diverge in their associations with traditional or historical gender roles and norms. Doing so will help establish both the internal validity of the design strategies introduced in this work, as well as the external and ecological validity of these strategies in producing similar patterns of response in vastly different game contexts.

CONCLUSION

As the real-life examples provided in the introduction illustrate, despite the empirically established benefits of cross-gender role play, strong societal barriers to gender role non-conformity for boys in Western culture persist, requiring new approaches to support gender-swapping play. Institutional and structural changes will likely be necessary for shifting norms and supporting efforts such as those outlined above. For example, a popular children's department store in Sweden recently dissolved its "boys" and "girls" sections in favor of a single, inclusive "children's" section in which all toys and clothing items are displayed together. Furthermore, Sweden recently added a third, genderless pronoun ("*hen*") to its National Encyclopedia, reflecting the growing acceptance of (and, indeed, popular demand for) non-binary representations of gender [51]. In addition to these institutional and policy-level changes, we argue that the continued popularity and growing ubiquity of tabletop games as a playtime activity worldwide position games as a force to contribute to this growing cultural momentum. The present work makes a modest first step in this regard by illustrating a set of design and evaluation methods for creating games that aim to counteract rigid adherence to gender roles and norms and for assessing the impact of those games on the mindsets and perceptions of players.

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