

The Daedalus Project

VOL. 2-3

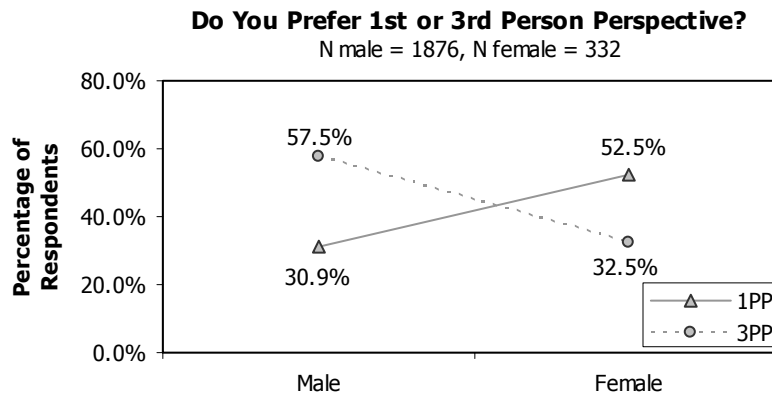
(07/14/2004)

BY NICHOLAS YEE

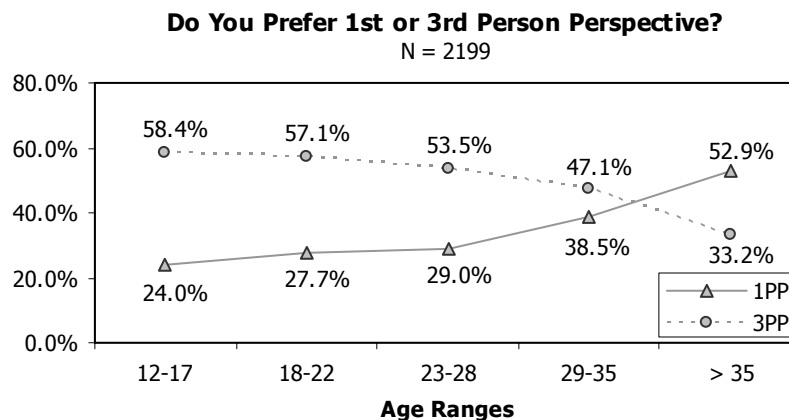
([HTTP://WWW.NICKYEE.COM/DAEDALUS](http://www.nickyee.com/daedalus))

It's a Matter of Perspective

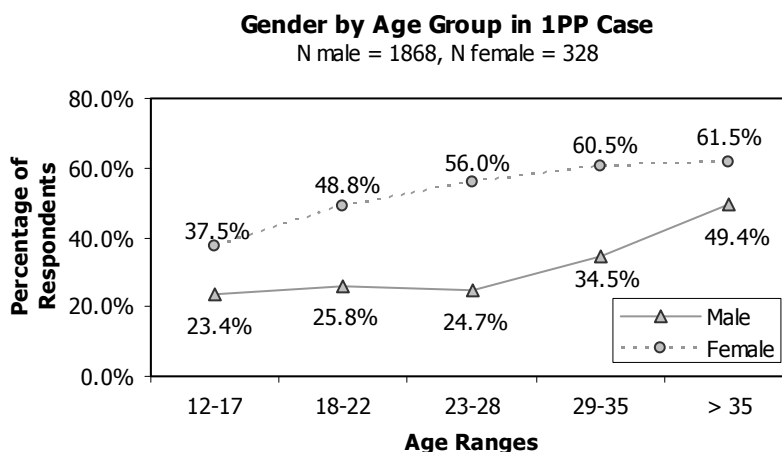
In a sample of 2200 respondents across several MMORPGs (29% EQ, 23% SWG, 12% DAOC), the following gender difference emerged as to preference for 1st or 3rd person perspective. The answer choice "prefer both equally" is excluded from this brief presentation for clarity.



While there were differences between games (i.e. more EQ players preferred 1PP, and more DAOC players preferred 3PP), the gender difference was always present in every game. Exploring the data by age groups also revealed a similar pattern.



Because female players tend to be older than male players, it is possible that the above two graphs may be showing the same underlying factor. To show that age and gender are in fact impacting preference for perspective independently, the 1PP case is shown below split by gender and age groups. Women always prefer 1PP across all age groups.



Past data had suggested that [gender differences](http://www.nickyee.com/eqt/menwomen.html) are driven by different motivations for participation. In very broad strokes, female players are more drawn to relationship-oriented activities while male players are more drawn to achievement-oriented activities.

The perception and use of an avatar - as the primary means of agency in online environments - might be expected to be shaped by the motivations for participating in the environment. In particular, goal-oriented users may be more likely to treat avatars as tools/pawns to achieve goals, thereby encouraging a preference for 3PP that objectifies and externalizes the avatar, whereas relationship-oriented users may be more likely to treat avatars as representations of themselves in a social environment, thereby encouraging identification and treating the avatar as the self through 1PP. This would also be supported by the age differences given that younger players tend to be [more achievement-driven](http://www.nickyee.com/facets/tying.html). In other words, I argue that more fundamental motivational differences are driving the gender and age differences.

To test this line of reasoning more directly, users who preferred 1PP vs 3PP were compared on their motivations for playing based on an assessment derived from [a previous study](http://www.nickyee.com/facets/home.html). Users who preferred 3PP scored higher on Achievement ($t = 5.5, p < .001$) and Grief ($t = 8.5, p < .001$), and lower on Relationship ($t = -8.0, p < .001$) than users who preferred 1PP, which supports the hypothesis.

To tease apart the relative importance of age, gender and the motivations, a logistic regression was performed using 1PP/3PP as the categorical predicted variable. The Relationship motivation emerged as the most significant predictor ($t = 7.7, p < .001$), followed by age ($t = 6.2, p < .001$), Grief ($t = -5.0, p < .001$) and then gender ($t = 2.38, p = .002$).

Thus, it appears that the observed gender difference is being driven by underlying motivational differences between users who play to form and sustain relationships and users who objectify the environment and other users for personal gain. In either way, what is clear is that motivational differences are linked with preferences for perspectives in these environments.

While causality can't be directly inferred from this data set, the opposite claim that default (or fixed) perspective shapes motivations for playing doesn't easily explain gender differences.

Thoughts? Comments? Other potential explanations for the gender difference?

Revision of Motivations Framework

A model of player motivations based on empirical data was first attempted in the Facets study (<http://www.nickyee.com/facets/home.html>). While it was clear that different players derived pleasure in very different ways (for example, gender differences <http://www.nickyee.com/facets/home.html>), it wasn't clear what those different pleasures were or how they should be grouped, assessed or related to other aspects of game-play.

A list of possible reasons players might be motivated was generated based on existing models, such as Bartle's Types (<http://www.mud.co.uk/richard/hclds.htm>), or anecdotal information from previous surveys. Respondents then rated their agreement to each of these statements. A factor analysis was then performed on this data to separate the statements into clusters where items within each cluster were as highly correlated as possible while clusters themselves were as uncorrelated as possible.

This methodology achieves three goals:

- 1) Ensure that components of each motivation are indeed related.
- 2) Ensure that different motivations are indeed different.
- 3) Provide a way to assess these motivations.

In a sense, this methodology was testing Bartle's Types for validity and correcting for inherent problems with a purely theoretical model:

- 1) Proposed components of each Type may not be related. For example, Bartle proposes that role-playing and socialization both fall under the same Type, but they may not be highly-correlated.
- 2) Proposed Types may overlap with each other. For example, aren't members of raid-oriented guilds both Achievers and Socializers? But in Bartle's Types, they are on opposite corners of the model.
- 3) The purely theoretical model provides no means to assess players as to what Type they are. But more importantly, without resolving the problem in (1), any attempted assessment of players based on this model might be creating player types rather than measuring them.

There were several problems with the Facets study however:

- 1) The statements in several factors did not have high enough reliability to be used as assessment tools. Reliability is a measure of whether a combination of statements are a good assessment of a common attitude or trait.

- 2) The lack of an Explorer Type was unsettling.
- 3) Perhaps a casual socializer (chatting, conversations) should be included in addition to the heavy socializer (relationships, support).
- 4) Perhaps a competitiveness factor should be included to contrast the Grievers who like to manipulate other players from the Competitors who enjoy competing with other players in a fair way.

In light of these problems, a new set of statements were run, by including elements mentioned in (3) and (4), and by changing the response options to be construct-specific. Literature in survey methodologies has suggested that the “strongly disagree” to “strongly agree” type response choices yield lower reliability due to acquiescence and ambiguity. The suggested practice is to match response choices to the variable of interest in the question stem using extreme responses as anchors. For example,

It is very important to me to level up as fast as possible.

- Strongly Agree
- Agree
- Neither
- Disagree
- Strongly Disagree

How important is it you to level up as fast as possible?

- Not Important At All
- Slightly Important
- Moderately Important
- Very Important
- Tremendously Important

This change in response choice construction was made to improve the overall reliability of the statements used.

Here are the statements that were used:

How important are the following things to you?

- Leveling up your character as fast as possible.
- Acquiring rare items that most players will never have.
- Becoming powerful.
- Accumulating resources, items or money.
- Knowing as much about the game mechanics and rules as possible.
- Having a self-sufficient character.
- Being immersed in a fantasy world.
- Escaping from the real world.

How much do you enjoy the following things?

- Helping other players.
- Getting to know other players.
- Hanging out with good friends.
- Chatting with other players.
- Competing with other players.
- Dominating/killing other players.
- Exploring every map or zone in the world.
- Being part of a friendly, casual guild.
- Being part of a serious, raid/loot-oriented guild.
- Trying out new roles and personalities with your characters.
- Doing things to make other players angry.

How often do you do the following things?

- How often do you find yourself having meaningful conversations with other players?
- How often do you talk to your online friends about your personal issues?
- How often have your online friends offered you support when you had a real life problem?
- How often do you make up stories and histories for your characters?
- How often do you role-play your character?
- How often do you play so you can avoid thinking about some of your real-life problems or worries?
- How often do you play to relax from the day's work?
- How often do you purposefully try to annoy other players?

The resulting factors are shown here with their reliability score (Cronbach's Alpha) and the statements they are based on. A reliability of .7 or higher is typically sufficient in psychometrics:

Achievement (Reliability = .78)

Leveling up your character as fast as possible.
 Acquiring rare items that most players will never have.
 Becoming powerful.
 Accumulating resources, items or money.

Casual Socializer / Chatter (Reliability = .78)

Helping other players.
 Getting to know other players.
 Chatting with other players.
 Being part of a friendly, casual guild.
 How often do you find yourself having meaningful conversations with other players?

Immersion / Role-Playing (Reliability = .75)

Being immersed in a fantasy world.
 Trying out new roles and personalities with your characters.
 How often do you make up stories and histories for your characters?
 How often do you role-play your character?

Serious Socializer / Relationship (Reliability = .79)

How often do you find yourself having meaningful conversations with other players?

How often do you talk to your online friends about your personal issues?

How often have your online friends offered you support when you had a real life problem?

Competition / Grief (Reliability = .75)

Competing with other players.

Dominating/killing other players.

Doing things to make other players angry.

How often do you purposefully try to annoy other players?

Escapism (Reliability = .72)

Being immersed in a fantasy world.

Escaping from the real world.

The three statements used to test the Explorer type did not correlate highly with each other, and have low reliability:

Explorer (Reliability = .38)

Knowing as much about the game mechanics and rules as possible.

Exploring every map or zone in the world.

Having a self-sufficient character.

Earlier attempts also included the following statements, none of which correlate above $r = .20$:

- I like to think about class-balancing issues.
- I try out a lot of things to experiment with the game mechanics.
- I try to find bugs I can exploit.
- What fascinates me is finding out how stuff works in the game.
- I like numbers, charts and tables.

However, in the current data set, the Achievement factor is correlated with interest in game mechanics ($r=.46$) and self-sufficiency ($r=.29$). So perhaps all Explorers are in fact Achievers. They are interested in the game mechanics to become better Achievers.

The following maps out how the motivations differ by gender and how they are correlated with age and hours played per week. All gender differences noted below are significant at $p < .001$ in a t-test. For brevity, only the direction and effect size of each difference is noted.

**Gender and Age Differences in Motivations and
Correlations with Hours Played Per Week**

(N male = 2496, N female = 420)

	Gender Differences	r*	Age Correlation Coefficients	Hours Correlation Coefficients
Achievement	Male > Female	.26	-.30	.16
Casual Socializing	Female > Male	.10	-.10	--
Immersion / RP	--	--	--	--
Serious Socializing	Female > Male	.26	--	.12
Competition / Grief	Male > Female	.19	-.34	--
Escapism	--	--	--	.12

Note. All reported gender differences, and age and hours correlations are significant at the $p < .001$ level. r is a measure of the effect size of the gender differences, and thus an approximation of how much the overall difference can be explained by gender alone.

In other words, male players tend to score higher on the Achievement and Competition factors, while female players tend to score higher on the Socialization factors. Younger players are more likely to prefer Achievement and Competition, and players who score high on Achievement, Serious Socialization or Escapism tend to spend the most number of hours per week in the environment.

The Blurring of Work and Play in MMORPGs

The boundaries between work and play have become increasingly blurred due to digital media technologies. Take web cookies for example. Companies such as DoubleClick.com use hidden cookies to build in-depth profiles of individual users as they surf the web:

Over a period of time DoubleClick compiles a list of which member sites the user has visited and revisited, using this information to create a profile of the user's tastes and interests. With this profile in hand the DoubleClick server can select advertising that is likely to be of interest to the user. (from <http://www.w3.org/Security/Faq/wwwsf2.html>)

In other words, as individuals browse the web, they become both content producers and consumers. More importantly, users are performing this work under the guise of entertainment, producing information with economic value but which they derive no profit from. Users are in fact performing free labor.

The same occurs with TiVo. As Andrejevic (2002) has pointed out, as TV watchers use TiVo, they reveal their tastes to the system which in turn caters more and more to them - a "commercial paradigm of interactive media as a means of inducing viewers to view more efficiently". This form of work benefits media companies at the expense of individuals. After all, in a strange way, consumers are paying TiVo while performing free labor.

The blurring of work and play in MMORPGs has three primary forces - economic profiteering from the sales of virtual goods, the growing resemblance of play to real work, and the embedding of real work into these environments.

Sale of Virtual Goods

As Dibble (2003) describes, virtual items and property in online environments such as Ultima Online have economic value, and users accumulate these items to sell for real money on Internet auction sites such as eBay. The transformation of gaming activity into economic activity is dramatized by the presence of companies that pay teenagers in developing countries to “play” these games for 40 hours a week and derive a profit from selling these virtual goods for real money (The Walrus, 2004). This transformation of play into work is driven by entrepreneurial users who see the opportunity for bringing economic activity into the game, but what is more intriguing is how the increasing complexity of play in these worlds is coming to resemble real work.

The Growing Resemblance of Play to Real Work

Most MMORPGs base their core mechanics on operant conditioning, a system of rewards that increases frequency of a behavior. The rewards cycle is a random ratio schedule (exactly like casino slot machines) where a reward is given every x times an action is performed, where x increases exponentially as the user progresses. Simple actions are gradually replaced by complex, time-consuming actions and typical users are essentially trained to spend on average 22 hours per week in these environments. This is striking given that the average MMORPG user is 26 years old and about 50% of MMORPG users work full-time. As some users note,

The game just seemed like an endless race to nothing ... in other words it was more work than fun. [EQ, M, 21]

I stopped playing because I just didn't want to commit to the crazy raid times (6+ hours in the evening?) [EQ, F, 27]

But for every user who has burned out from the treadmill, there are thousands of users who are still “playing” industriously. One user articulates the seduction of achievement in these environments.

Rewards in EQ are proportional to the amount of time and effort you put into it. This is what becomes addictive, because as we grow older, so much less of our "real lives" gives us back anything measurable (and I stress the term "measurable" as in "quantitative"). "Working" and "being bored" in EQ are byproducts of our pursuit of goals for which we KNOW we will receive measurable awards. [Anon]

In other words, these online environments are structured such that they reward and seduce you to perform complex, tedious tasks.

While early MMORPGs focused on combat-oriented advancement, recent MMORPGs have provided non-combat advancement options, so users can now choose to become chefs, hair-stylists, architects, pharmaceutical manufacturers, and yes, even politicians in certain MMORPGs. The example of pharmaceutical manufacturers (PMs) will be used to illustrate the seriousness of play in the MMORPG Star Wars Galaxies.

To become a PM, a user must locate raw chemicals and minerals on the planet using geological surveying tools. Different resources have different attributes which contribute to the final quality of the product as described on each product schematic. To produce high-quality products, users must therefore find the best combination of resources through a time-consuming planet-hopping process. Resource gathering is only meaningfully performed using industrial harvesters bought from architects (other users). Even then, resource gathering is slow and users must check their harvesters on a daily basis. Raw resources are combined into sub-components in factories (also bought from architects), and then combined into the final product. Because each factory run takes a few hours of real time to complete and because most products require several sub-components, users have to plan out their production chain fairly well to ensure their machinery doesn't idle and drain their capital. To complicate matters, resources are randomly replaced on a weekly basis, so users have to constantly survey for new resources as well.

Finally, users must market and sell these goods on the open market, which means competing with other users who are selling similar products. The time required to acquire the expertise and capital to become a PM in Star Wars Galaxies is in the order of 4-6 weeks of normal game play, and thereafter requires sustained daily time investment to maintain the business. The irony is that users are paying to perform what increasingly resembles serious, complex work in these environments.

Embedding Real Work into MMORPGs

Given that MMORPGs are creating environments where complex work is becoming seductively fun, how difficult would it be for MMORPG developers to embed real work into these environments? In fact, this is already occurring in There.com – a virtual world in a contemporary setting. Fashion companies pay There.com to embed test products into the environment where they can track user purchases and how often they wear the garment. More importantly, because the social network of every user can be mapped, it is also easy to spot who the trendsetters are. The information of how likely trendsetters purchase and wear a test product provides highly valuable information to the fashion companies. Of course, the irony is that There.com users are paying to work for a third-party company, with both sources of profit going to There.com.

This can be taken one step further because we know that users are willing to perform complex, tedious tasks in these environments. In fact, they have been trained to have fun performing these tasks. Consider the fact that cancer screening is routinely out-sourced to India because it is relatively cheap to train a lay-person to identify suspicious patterns on a diagnostic scan, and it is cheaper for several dozen of these workers to look at a single scan than it is to have a doctor in the US look at the same scan. Moreover, the accuracy rates are actually better because the redundancy lowers the rate of misclassifications. MMORPG environments could easily tap into their free labor pool of dedicated users by embedding real world tasks into the “game”. What is clear is that there are many different ways in which real work can be embedded into MMORPGs – different ways in which game developers can seduce users to pay to perform free labor.

Conclusion

Considering all the things that happen in these worlds - weddings, political elections, sales of virtual real estate for real money, genocide, and teenage mafia gangs and prostitution rings - it seems strange that

some people, both gamers and non-gamers, still say that “it’s just a game”. Ironically, the most appropriate reply might be “No, it’s just work”.

References

Andrejevic, M (2002). The work of being watched: interactive media and the exploitation of self-disclosure. *Critical Studies in Media Communication*.

Dibbell, J. (2003). The Unreal Estate Boom. *Wired* 11.01, January, 2003. Available at: <http://www.wired.com/wired/archive/11.01/gaming.html>

The Walrus. (2004). Game Theories, from <http://www.walrusmagazine.com/04/05/06/1929205.shtml>

Applying Psychology To MMORPGs: Automatic Mimicry

Research in social and organizational psychology has consistently shown for many years that when people or groups interact, many of their verbal and non-verbal cues become synchronized. For example, the timing of gestures becomes synchronized (Kendon, 1970), and group members mirror each other’s posture and mannerisms (LaFrance, 1982; LaFrance & Broadbent, 1976), accents and speech patterns (Cappella & Panalp, 1981), and syntax (Levelt & Kelter, 1982). In fact, many human behaviors seem to be contagious, such as yawning (Provine, 1986), laughter (Provine, 1992), and even moods (Neumann & Strack, 2000). Several researchers (Kendon, 1970; LaFrance, 1982) have suggested that this synchronization is an automatic human behavior that functions as a regulator of trust and rapport in social interactions.

More recent research has demonstrated that when people interact, they in fact unconsciously mimic each other’s behavior. In one study (Chartrand & Bargh, 1999), subjects interacted with a confederate (a research assistant who pretends to be another subject) in a collaborative task. The confederate performed a series of movements (foot shaking and touching their face) and it was found that subjects would unintentionally match those behaviors themselves. More importantly, in a different part of that study, confederates were asked to either mimic or not mimic the subject’s behaviors and it was found that hat mimicry facilitates the smoothness of interactions and increases liking between interaction partners.

Instead of merely influencing attitudes, automatic mimicry has been shown to influence observable behaviors as well. For example, waiters who verbally mimic their customers’ orders (by repeating the order) receive bigger tips than when they say something else instead (like ‘Coming right up’) (van Baaren, Holland, Steenaert, & van Knippenberg, 2003). In fact, when a person is mimicked, they become more generous not only towards the mimicker, but to everyone else in general (van Baaren, Holland, Kawakami, & van Knippenberg, 2004). This process also happens the other way. Affiliation goals increase the frequency of automatic mimicry in interactions (Lakin & Chartrand, 2003).

This has led researchers to hypothesize that automatic mimicry is an evolutionary adaptation to facilitate and express social affiliation and that the process is bi-directional - mimicry facilitates affiliation and prosocial behavior and affiliation goals increase mimicry (Lakin, Jefferis, Cheng, & Chartrand, 2003). This theory is also supported by studies that have shown that very young infants will mimic many facial

expressions they perceive, such as sticking their tongue out, smiling and opening their mouths (Meltzoff & Moore, 1977).

Virtual environments in fact provide a perfect setting for embedding subtle mimicry behaviors in NPCs because details in the environment can be rendered differently for each user. The goal of embedding mimicry would be to increase prosocial behavior in general in the community. Examples of this embedding range from the simple to the complex. Of course, the following are not meant to be employed with every single NPC interaction, but instead used intermittently to seed prosocial behavior.

- Align the NPCs appearance with the character's appearance. Match their hair color, their clothing style, or the weapon they are carrying.
- Match the first letter of the NPCs first name with the first letter of the character's first name.
- Store the user's style of greeting other users by matching with a small database of known greeting words, such as 'hi', 'hey', 'what's up', and so on, and have the NPC greet the user with the appropriate words.
- Store the verbosity of users' exchanges with other users. Laconic users prefer laconic NPCs and verbose users prefer verbose NPCs - it functions as an approximation for personality differences.

References:

- Cappella, J., & Panalp, A. (1981). Talk and Silence Sequences in Informal Conversations. Interspeaker Influence. *Human Communication Research*, 7, 117-132.
- Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: The perception-behavior link and social interaction. *Journal of Personality & Social Psychology*, 76(6), 893-910.
- Kendon, A. (1970). Movement Coordination in social interactions. *Acta Psychologica*, 32(2), 101-125.
- LaFrance, M. (1982). Posture Mirroring and Rapport. In M. Davis (Ed.), *Interaction Rhythms: Periodicity in Communicative Behavior* (pp. 279-298).
- LaFrance, M., & Broadbent, M. (1976). Group Rapport: Posture Sharing as a Nonverbal Indicator. *Group and Organizational Studies*, 1, 328-333.
- Lakin, J. L., & Chartrand, T. L. (2003). Using nonconscious behavioral mimicry to create affiliation and rapport. *Psychological Science*, 14(4), 334-339.
- Lakin, J. L., Jefferis, V. E., Cheng, C. M., & Chartrand, T. L. (2003). The chameleon effect as social glue: Evidence for the evolutionary significance of nonconscious mimicry. *Journal of Nonverbal Behavior*, 27(3), 145-162.
- Levelt, W., & Kelter, S. (1982). Surface form and memory in question answering. *Cognitive Psychology*, 14(78-106).
- Meltzoff, A., & Moore, A. (1977). Imitation of facial and manual gestures by human neonates. *Science*, 198(75-78).
- Neumann, R., & Strack, F. (2000). Mood Contagion: The automatic transfer of mood between persons. *Journal of Personality & Social Psychology*, 79, 211-223.
- Provine, R. (1986). Yawning as a stereotyped action pattern and releasing stimulus. *Ethology*, 72, 109-122.
- Provine, R. (1992). Contagious Laughter: Laughter is sufficient stimulus for laughs and smiles. *Bulletin of the Psychonomic Society*, 30(1-4).
- van Baaren, R. B., Holland, R. W., Kawakami, K., & van Knippenberg, A. (2004). Mimicry and Prosocial Behavior. *Psychological Science*, 15(1), 71-74.
- van Baaren, R. B., Holland, R. W., Steenaert, B., & van Knippenberg, A. (2003). Mimicry for money: Behavioral consequences of imitation. *Journal of Experimental Social Psychology*, 39(4), 393-398.