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## **Determinants of Male Attractiveness: “Hotness” Ratings as a Function of Perceived Resources**

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### **ABSTRACT**

*Evolutionary theories have been used in numerous studies to successfully predict the mate selection preferences of both sexes. These studies have consistently shown that men throughout the world place a greater degree of emphasis on physical beauty while women place greater emphasis on financial prospects. Previous studies have also demonstrated that symbols designating resource accrument can be manipulated experimentally to enhance or diminish the attractiveness of a male in a controlled environment. Our study seeks to build upon this research by seeking to establish a linear, positive relationship between a male’s attractiveness as perceived by the opposite sex and resource accrument. We utilize the popular online dating/rating website HotOrNot.com whereby users rate the “hotness” of strangers. The website offers a platform to obtain high N values from a naturalistic setting that should confer high external reliability. We manipulated the resources of a target male by placing him in an identical position next to three cars of vastly different monetary values that implies ownership of each car. Our results generally support the hypothesis of a positive linear relationship between a male’s attractiveness and the value of his resources.*

*Keywords:* Sexual selection theory, male attractiveness, resource acquisition, attractiveness manipulation, female mate preferences

## INTRODUCTION

There is a vast and growing literature examining the mate selection criteria of the two sexes that has documented many shared preferences, but many key differences as well. While both of the sexes place a relatively equal value on love, kindness, intelligence and good health in prospective mates (Buss, 2003), males and females predictably rate characteristics such as attractiveness and financial prospects differently (Buss, 1989). The different valuation of these two particular traits is consistent throughout the world with men placing a higher value on physical attractiveness and women placing a higher value on financial prospects (Buss, Shackelford, Kirkpatrick, & Larsen, 2001).

The discrepancies in the appraisal of these characteristics can be accounted for by considering the intrinsic peculiarities of each sex inculcated by the process of natural selection. Although these characteristics evolved in the environment of evolutionary adaptiveness (EEA), the adaptations still influence the behavior of humans today (Tooby & Cosmides, 1990). Familiarity with some basic premises of evolution can help elucidate the evolutionary logic behind human mate preferences. Women produce a finite and relatively small amount of gametes compared to men who produce 12 million sperm per hour (Buss, 2004). In economic terms, women hold a very valuable resource and as such are predicted to exchange it for a very high price in reproductive currencies. Based upon parental investment theory (Trivers, 1972), the sex which is obliged to more minimum investment will exercise a greater degree of discrimination when choosing a mate. A single act of insemination leading to fertilization requires an obligatory investment of nine months by the female whereas the cost for the male could be as little as a few minutes. However, an infant couldn't possibly survive in isolation and the period of infancy is unusually prolonged in humans. The task of rearing a child alone in the EEA would have proven quite arduous and more importantly less adaptive than coupling with a mate.

For a female, selecting a mate that will stick around to assist in child rearing is good, but finding one that can also provide is better. A potential mate's willingness to commit and provide resources can be easily feigned (Tooke & Camire, 1991), so women have also evolved mechanisms to evaluate and affiliate attractiveness with actual resource accrument (Dunn & Searle, in press). The degree of emphasis women afford the characteristic of financial prospects has been well documented (Buss, 1989; Buss & Schmitt, 1993; Buss. et al, 2001; Feingold, 1992; Hickling, Noel, & Yutzler, 1979; Townsend & Levy, 1990a), and has allowed researchers to manipulate the attractiveness of male models in various situations (Dunn & Searle, in press; Townsend & Levy, 1990b).

Women's preference for a mate with financial prospects not only influences the sex's conception of attractiveness but also stimulates a variety of strategies in the game of mating. For instance, when entering a relationship women place a greater emphasis on the immediate access to resources in order to assess a potential mate's willingness and ability to invest in her (Buss & Schmitt, 1993; Townsend & Levy, 1990b); and if a man does show immediate investment in a relationship, the woman is typically more likely to engage in sex with him (Spreecher, Sullivan, & Hatfield, 1994). The two sexes often engage in this exchange of reproductive currencies with men looking to exchange investment for sex and women preferring to exchange sex for investment (Kruger, 2008). This inclination also permeates emotions. Women in relationships with men who are unwilling or unable to provide are less likely to love or feel loved (Townsend, 1987), and are also likely to site such circumstances as grounds for infidelity as well (Greiling & Buss, 2000).

Men, on the other hand, are generally indifferent to the financial prospects of women (Buss, 1989). In fact, many of the same experiments that effectively manipulated the perceived attractiveness of male models via altering the resources and status affiliated with them had no affect whatsoever in manipulating the attractiveness of a female model as rated by men (Dunn & Searle, in press; Townsend & Levy, 1990b). This is not surprising because men have been subject to different sexual selection pressures than women. Conception for women is a significant investment not only in time, physiological exertion, and increased mortality risk but also in opportunity costs as well. A pregnant or nursing woman will not attract the caliber of men she could otherwise. Men do not suffer the opportunity costs of conception that women do, and are primarily interested in the physical attractiveness of a potential mate (Buss, 1989; Feingold, 1990; Kenrick, Groth, Trost, & Sadalla, 1993). A woman's reproductive value can be accurately assessed as a correlate of her attractiveness, with traits such as physical appearance, behaviors, and waist-to-hip ratio serving as indicators of the quality of her genes (Symons, 1995; Singh, 1993).

Since women have a dispositional preference for men with resources, men have evolved many strategies for the purpose of accosting this characteristic of women. Some of the strategies men have evolved include boasting about one's own resources (Buss, 1988), derogation of a competitor's status, ambition, or resources (Buss & Dedden, 1990), and displaying "conspicuous consumption" when in potential mating scenarios (Griskevicius, Tybur, Sundie, Cialdini, Miller, & Kenrick, 2007). In these mating scenarios where men have the opportunity to attract a mate, men tend to increase spending on luxury items that indicate "costly-signaling" as a display of expendable income that could potentially be allocated to a mate.

Studies such as these suggest women have evolved sensitivities to personality traits that are conducive to resource accrument as well as the display of resources while men have evolved strategies to increase their attractiveness by capitalizing on such preferences. The result of this evolutionary arms race has generated mental faculties within both sexes that allow for the self-evaluation of one's own mate value. For instance, the online personals advertisements of physically attractive women and wealthy

men were less likely to include descriptions of the positive personality traits that both sexes find appealing; presumably because there is less need to advertise such traits when the critical ones are met (Dawson & McIntosh, 2006). Young women with higher mate value as measured by physical attractiveness, which is of itself a strong correlate of fecundity (Symons, 1995), are more likely to go on to marry men of higher reproductive value as indicated by wealth (Udry & Eckland, 1984).

As predicted by Sexual Strategies Theory (Buss & Schmitt, 1993), men have evolved many strategies to take advantage of this proclivity of women. Men use these strategies to “poach” women in committed relationships by boasting about and presenting material resources (Schmitt & Buss, 2001). These strategies do not necessarily require investment or even the potential of investment and can be effective by feigning the possession of resources altogether. Indeed, the perceived attractiveness of men can be an apparition induced by high-status items which are culturally significant symbols affiliated with wealth (Townsend & Levy, 1990b; Hill, Nocks, Elaine, & Gardner, 1987). In a study examining this relationship between perceived resource accrument and attractiveness, Dunn and Searle (in press) effectively manipulated the attractiveness of a male subject by placing him in two cars of vastly different value. As predicted, the more expensive car produced a significant increase in attractiveness appraisal.

In an altered replication of this study, we predict to find a linear positive correlation between a subject’s perceived attractiveness and the value of the “owned” car. The study conducted by Dunn and Searle featured the male subject seated in the passenger seat of a neutral-status Ford Festiva and a high-status Bentley, while our study featured the subject standing next to a decrepit Dodge Neon, a Ford Focus, and a Mercedes C Class C300 with his hand on each vehicle to imply ownership. We also included a photo of the subject standing alone to provide an unadulterated baseline for comparison.

To test this hypothesis, we utilized the popular online dating/rating website HotOrNot.com whereby users of the site rate the attractiveness of other users on an ordinal scale of 1 to 10. We felt this website to be an excellent platform from which to conduct attractiveness-oriented research because of the site’s impressively high traffic volume of users who frequent the website to rate the attractiveness of strangers. The website affords an excellent opportunity to gather large amounts of data contributed by anonymous participants in a relatively short amount of time which allows for the testing of hypotheses in a setting that may provide higher external validity than traditional laboratory experiments. The potential data pool of the website is also staggering; with 1.6 million registered users and 12 billion picture ratings as of November, 2007 (Lee, Loewenstein, Ariely, Hong, & Young, 2007).

The prospect of conducting research from such a platform is tantalizing and potentially quite fruitful, but it is certainly not without peril (Birnbaum, 2004; Reips, 2002; Skitka & Sargis, 2006). The list of concerns for conducting research via the internet includes many circumstances that could potentially serve to confound the data collected. The most pertinent concerns for our study where ethical constraints, validity

issues, presentation format interference, self-selection bias, multiple submissions, and the indifference with which participants may respond as a result of anonymity. Fortunately, these and other concerns have been extensively researched and addressed by psychologists, thus providing direction for conducting research via the internet.

For our study, ethical issues were of little concern due to the anonymity and confidentiality imposed upon users of HotOrNot.com by the website itself. Although the anonymous element of the website fostered ethical inquiry, it entailed other problems regarding the seriousness and fairness of the responses provided by the self-selected respondents. However there is research which suggests self-selected volunteers often provide better data than the undergraduates that are typically employed in most psychological experiments (Pettit, 2002; Walsh, Kiesler, Sproull, & Hesse, 1992). The use of anonymous internet participants also permits users to submit multiple response ratings of a single photo; however research on the validity of internet experiments has shown that this is usually not a problem (Birnbbaum, 2001; Musch & Reips, 2000; Krantz & Dalal, 2000). In fact, in a study regarding the issue, Reips (2002) found that the rate of repeat responders for most internet studies was only 3%.

HotOrNot.com is a commercial website designed primarily for the amusement of its visitors which presents the concern that the presentation format of the site itself may encourage non-serious responses. This is a legitimate concern. However in a study conducted by Gosling, Vazire, Srivastava, and John (2004), the bagatelle format of a website offering legitimate personality questionnaires for the purpose of scientific inquiry was no less valid than another more intellectually and soberly structured website, nor paper-and-pencil questionnaires utilizing the same instrument. Researchers such as Reips believe the “noise” induced by a website’s presentation format can be good for a study, making the results more generalizable (as cited in Buchanan et. al, 2005, p. 153). Indeed, much research, including a meta-analysis of 9 studies (Krantz & Dalal, 2000), has shown that internet experiments are of at least equal validity compared to their lab-administered counterparts (Gosling et. al, 2004; Meyerson & Tryon, 2003). According to Birnbaum (2004), evidence such as this has lead some researchers to proclaim that internet experiments are better than lab experiments despite the inherent lack of control the medium seems to inextricably exert on research.

According to Riva, Teruzzi, and Anolli (2003), the one of the first studies that utilized the internet for psychological research which was published in a scientific journal was in 1997. This study investigated the components of female attractiveness while simultaneously seeking to verify the validity of the medium by comparing the results of the experiment to laboratory results (Krantz, Ballard, & Scher, 1997). This shows that the validity of internet psychological experiments has been a foremost concern to psychologists since the inception of the method in 1997.

Since that seminal study, the advantages of internet research have encouraged many psychologists to use the medium as a platform for conducting studies. Internet research proscribes experimenter effects of any kind, is efficient, cheap, circumvents the need to recruit participants, and has a high degree of external validity that can be easily

assessed with comparison to laboratory experiments. Research has shown that the model permits researchers to reach otherwise unattainable N sizes (Gosling et al., 2004; Riva et al., 2003; Meyerson & Tryon, 2003) with a sample diversity that is unprecedented in traditional psychological experiments using undergraduates (Gosling et al., 2004; Meyerson & Tryon, 2003). The data obtained from Quantcast.com, a website dedicated to the demographical quantification of website traffic, show the population of HotOrNot.com users to be remarkably diverse in comparison to traditional studies conducted in laboratories. In respect to traditional studies (Gosling et al., 2004), the data obtained for HotOrNot.com show that the demographic is comprised of an inordinate amount of people between the ages of 18 and 49, have no college education, and who are predominantly male.

The study conducted by Lee et al. (2007) utilizing HotOrNot.com examined the mating preferences of people in relation to their own self-evaluated mate value from a cognitive-dissonance perspective, and included a preliminary evaluation of the validity of the HotOrNot.com ratings. In their pilot study, the authors found that the “hotness” ratings obtained from the website were highly correlated ( $r = .93$ ) with the attractiveness ratings they obtained in the pre-test.

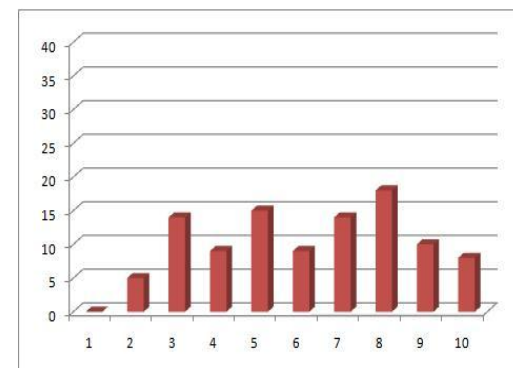
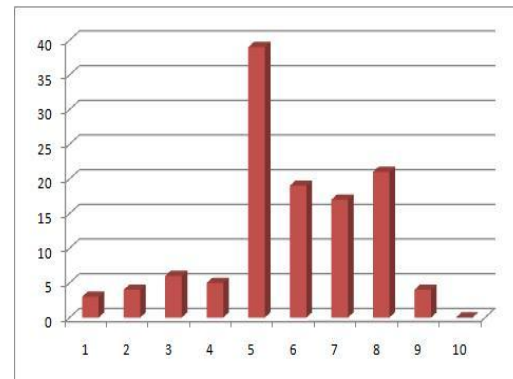
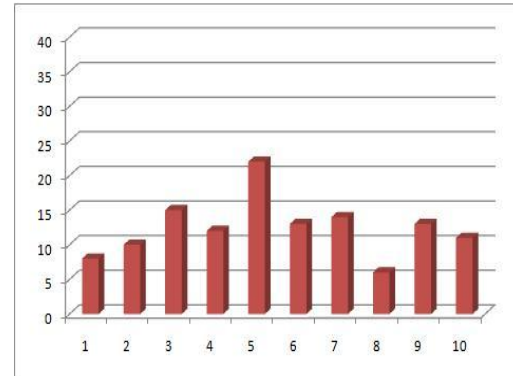
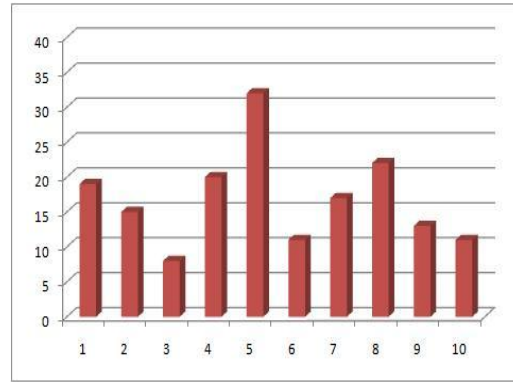
Results such as these enhance the validity of using the website as a platform of research. Coupled with the extensive literature examining the validity of internet research, we feel HotOrNot.com to be a viable medium for conducting scientific inquiry. A website whereby users rate the attractiveness of strangers fortuitously provides an excellent way of manipulating male attractiveness via implied resource acquisition while avoiding informing people they are participating in a study. Based on previous studies of this type (Buss, 1989; Dunn & Searle, in press; Townsend & Levy, 1990b), we predict to find a linear, positive correlation between attractiveness and the worth of the “owned” automobile.

## METHOD

### *Materials*

Four photographs of the target male were posted on the website HotOrNot.com (see Fig. 1). The first photo served as a baseline and was a full-body shot depicting the male standing with his back against a wall facing directly toward the camera. The other three photos depict the male standing next to three cars of vastly different value. The cars are a decrepit Dodge Neon, a Ford Focus, and a Mercedes C Class C300. In each photo, the male has his hand comfortably placed on the hood of each car to denote ownership. The male is also looking slightly away from the camera to avoid making facial expressions that could have proven difficult to replicate in each photo. In each of these three photos, the male is wearing the same attire. Finally, in each condition the photo was taken from the same angle and distance in respect to the male and the car he is touching.

**Figure 1.** Photographs and their respective rating frequencies.



### *Participants*

The participants in this study were anonymous online users of the website HotOrNot.com. Because these users were anonymous, we had no way of securing any demographic information on the sample *per se*. However, the data provided by the website Quantcast.com – a site that specializes in analyzing the demographics of website traffic – may provide some insight as to the demographics of our sample. According to the Quantcast.com information retrieved on March 25, 2009: 78% of users are Caucasian, 8% are African American, 14% are Hispanic, and 1% are “other”; 61% of users are male; 1% of users are 3 - 11 years old, 14% are 12-17 years old, 43% are 18-34 years old, 30% are 35-49 years old, and 12% are 50 years old or older; and 58% have no college education.

### *Procedure*

The participants were quasi-self-selected in that they participated in the experiment without their knowledge. In this regard, the participants were essentially “viewed” naturalistically in an online environment interacting with a manipulated variable.

The rating aspect of HotOrNot.com offers two features to its users; an appraisal of one’s “hotness” as determined by others users who rate a submitted photograph and the ability to rate the “hotness” of other users. Users can decide what sex and age range they want to rate. Here, we assume the photo was rated predominantly by women between the ages of 18 and 35. The website works by displaying one photo per page. When a user chooses a rating between 1 and 10 for the photo, a new page opens depicting a different person for rating. This process can essentially continue indefinitely due to the large amount of photos available for rating.

The submission of the photos depicting the target male was not simultaneous, but instead was staggered to avoid flooding the site with various pictures of the same male next to different cars. We did this to decrease the possibility of a user running across two different pictures of the male implying ownership of two very different cars. We wanted to avoid this type of scenario because we did not want users to realize that another user was posting photos that appeared bogus or manipulative. If a user realizes the photo she is rating is fraudulent, we assume she would be more likely to give a non-serious response.

Each of the 3 photos including the cars was posted at 2:00 pm on successive Wednesdays of February and March, 2009. Each photo remained available for rating until the first value for N greater than 100 was provided by the website. However, it should be noted that the baseline photo of the male standing alone ran a few days longer than the other photos and thus obtained a much higher N value. This is because we preliminarily used the photo to assess the feasibility of conducting research with HotOrNot.com. At the end of each picture’s run, the webpage providing the information regarding the male’s “hotness” was saved to a computer’s browser and the photo deleted



to avoid any overlap with subsequent photos. This generally occurred on the subsequent Saturday following each picture’s submittal on Wednesday. The information the website provided contained both a fictitious inflated mean and a histogram representing real data. These histograms were manipulated using excel to extract the frequencies of each ordinal point to allow for statistical analyses.

## RESULTS

Analyses focused on mean differences in “hotness” ratings across the four groups. First, a one-way ANOVA was used to test the significance of mean differences across all groups. Results were marginally significant overall,  $F(3, 508) = 2.54, p = .056$ . Based on *a priori* predictions, post hoc tests (LSD) were conducted for each pair of means. Table 1 includes means and standard deviations for each group, as well as superscripts indicating differences between pairs of means. Group 1 ratings (target male with no car) were significantly lower than Group 4 (target male with Mercedes),  $p = .009$ . Similarly, Group 2 ratings (target male with old Neon) were significantly lower than Group 4 ratings,  $p = .042$ . Groups 1, 2, and 3 did not differ from each other, and Groups 3 and 4 did not differ from each other.

**Table 1**

Group means, standard deviations, and *post hoc* comparisons

| Group | n   | Mean (SD)                  | 95% CI       |
|-------|-----|----------------------------|--------------|
| 1     | 168 | 5.36 <sup>a</sup> (2.71)   | [4.95, 5.78] |
| 2     | 124 | 5.50 <sup>a</sup> (2.65)   | [5.03, 5.97] |
| 3.    | 118 | 5.77 <sup>a,b</sup> (1.81) | [5.44, 6.10] |
| 4     | 102 | 6.17 <sup>b</sup> (2.35)   | [5.70, 6.63] |

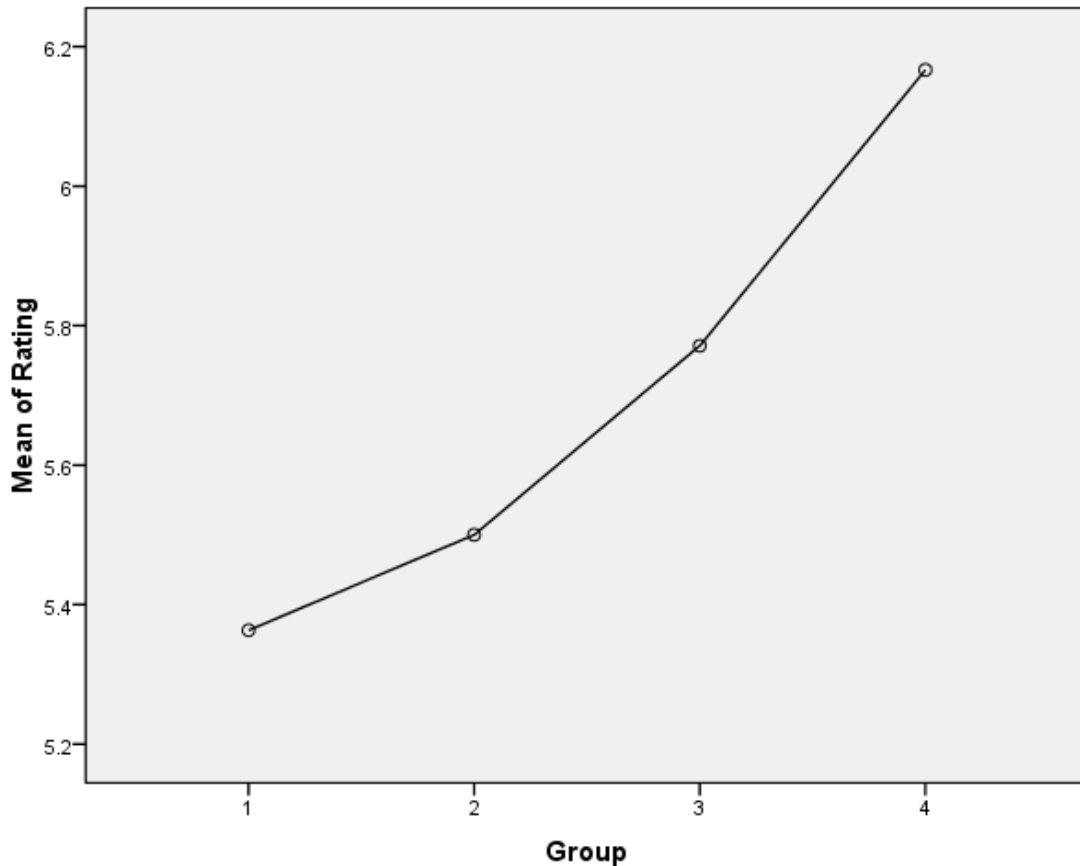
Note. Means sharing superscripts do not differ significantly from each other. CI = confidence interval.

## DISCUSSION

The results of the experiment generally supported our hypothesis. Although the one-way ANOVA for all groups indicated a marginally significant effect, the “hotness” ratings for the photos were in line with predictions (see Table 1). As Figure 2 illustrates,

there does appear to be a positive linear relationship between the attractiveness of a male and the value of his resources.

**Figure 2.** Mean of “hotness” rating as a function of group.



This outcome is in line with the body of research conducted in this area over the past two decades. It would appear that men can indeed enhance their attractiveness as perceived by the opposite sex by the acquisition of more resources. As none of the automobiles in the photographs were actually owned by the target male, this study also demonstrates how deceptively manipulating potential mates’ perceptions of resource accrument can enhance attractiveness. We feel our results have documented the same interaction between wealth and attractiveness that the study Dunn and Searle (in press) conducted which also used photographs depicting a male implying ownership of two cars of different value. Although the study was conducted in Britain, used cars of extremely different values, and attractiveness ratings were obtained from the field, the results are quite similar to ours.

Although the results of this experiment fit within the established literature concerning male attractiveness, there are some issues concerning the internal validity of the experiment. Although we made attempts to control for spurious variables within the photographs themselves, the lighting and the target male’s posture are not identical in

every photo. Initially, we planned to manipulate the photos in a graphics editing program to ensure congruence, but found that editing the photos produced a suspiciously unnatural image that would stand out as fraudulent on the HotOrNot.com website.

Conducting research with a commercial website presented us with numerous difficulties. Sites such as these are oriented toward making money and are generally not interested in helping a researcher. This forced us to effectually “figure out” how HotOrNot.com was presenting its data by manipulating the graphs the site provided in an excel program. In considering research utilizing commercial websites, it is advantageous if the researcher first assesses the site’s willingness to provide assistance if it should become necessary.

The commercial nature of the website also precluded the possibility of obtaining real demographic information as well. Despite the difficulties intrinsic to internet research, the method did provide an avenue to instantaneously collect data from around the world. This aspect of the design promoted large N values and external validity, but these advantages came at the cost of control.

An emulation of this experiment in a more controlled setting would curb this concern. This would allow a researcher to explore whether the linear relationship in Figure 2 is replicable. It would be interesting to see if this relationship occurs in a predictable manner similar to the negative linear relationship between women’s attractiveness and differing waist-to-hip ratios (Singh, 1993). Singh found that the smaller a woman’s hip-to-waist ratio, the higher men rated her attractiveness. Perhaps such a linear relationship also exists between a man’s attractiveness and the amount of wealth he possesses, rather than a simple “hot or not” assessment based on the presence or absence of wealth. It seems that the more resources attained the better.

Although the relationship between attractiveness and wealth has been examined many times, we are unaware of any studies conducted to examine whether the possession of resources influence women’s perceptions of attractiveness consciously or unconsciously. It may be that women actively attribute greater attractiveness to men after consciously noting his wealth. Or, alternatively, the process could occur subliminally and be more entwined with instinctive emotion. A simple way of assessing this phenomenon would be to provide photographs such as the ones used in this study for rating, followed by a query as to why the participant rated the picture how she did. A statement referencing the man’s wealth could be taken to be a conscious appraisal, while a statement that only references the man’s attractiveness could be considered an unconscious appraisal.

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