

Effects of Instructor Attractiveness on Learning

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ABSTRACT

Although a considerable body of research has examined the impact of student attractiveness on instructors, little attention has been given to the influence of instructor attractiveness on students. This study tested the hypothesis that persons would perform significantly better on a learning task when they perceived their instructor to be high in physical attractiveness. To test the hypothesis, participants listened to an audio lecture while viewing a photograph of instructor. The photograph depicted either a physically attractive instructor or a less attractive instructor. Following the lecture, participants completed a forced choice recognition task covering material from the lecture. Consistent with the predictions; attractive instructors were associated with more learning. Finally, we replicated previous findings demonstrating the role attractiveness plays in person perception.

ARTICLE HISTORY

Received 23 August 2015
Accepted 13 March 2016

KEYWORDS

Attribution theory; learning;
skill acquisition

MANY STUDIES HAVE SHOWN THAT PEOPLE tend to attribute positive characteristics to relatively attractive people, an effect known as the attractiveness stereotype (Dion, Berscheid, & Walster, 1972; Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992; Langlois et al., 2000). For example, Webster and Driskell (1983) showed participants pairs of photographs consisting of one attractive and one unattractive person. When the participants were asked to compare the persons on such characteristics as intelligence and reading ability, the attractive person was judged more favorably. Other studies have shown that attractive people are judged to be more competent (Jackson, Hunter, & Hodge, 1995), more intelligent (Eagly et al., 1991; Langlois et al., 2000), more persuasive (Khan & Sutcliffe, 2014), and more socially skilled (Montoya, 2014).

If viewing a beautiful person often leads people to infer other positive traits about the individual, then it is not surprising that an individual's physical appearance has a profound impact on how a person is treated. For example, various studies have suggested advantages for attractive job applicants during the hiring process (Dipboye, Arvey, & Terpstra, 1977; Hosoda, Stone-Romero, & Coats, 2003; Mobius & Rosenblat, 2006; Przygodzki-Lionet, Olivier, & Desrumaux, 2010; Rooth, 2009). In addition, even something as crucial as guilt or innocence in a criminal trial may be

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affected by physical attractiveness. Research suggests that jurors are influenced by the physical attractiveness of the accused (see Mazzella and Feingold (1994) for a meta-analysis) as well as the attractiveness of the victim (Angira, 1987; Wuensch, Chia, Castellow, & Chuang, 1993).

Physical appearance and learning

The benefits held by attractive students have been explored extensively in the research, with attractive students judged as more intelligent, having greater academic potential, and possessing greater social skills than their less-attractive peers (Parks & Kennedy, 2007; Ritts, Paterson, & Tubbs, 1992; Tompkins & Boor, 1980). Research has also demonstrated that teachers judge attractive students to be more confident and to have greater leadership abilities (Clifford & Walster, 1973; Kenealy, Frude, & Shaw, 1988), and there is a considerable body of evidence that teacher expectations do impact student behavior (e.g., Jussim, 1986; Keller, 2007; Smith, Jussim, & Eccles, 1999; Zahr, 1985).

Instructor attractiveness

A question that has received considerably less attention focuses on how the physical attractiveness of an instructor influences teaching effectiveness—i.e., are attractive instructors more effective teachers than unattractive instructors? There are a couple of ways that attractiveness might impact teaching effectiveness. First, it is possible that the attractiveness of the instructor produces a self-fulfilling prophecy effect, where student expectations influence teacher behavior. Perhaps the positive expectations students have about attractive instructors (Aleamoni, 1999; Stehle, Spinath, & Kadmon, 2012) influence attractive instructors to engage in behavior that increases teaching effectiveness (e.g., devote more time to preparation), and the negative expectations influence unattractive instructors to engage in behavior that decreases effectiveness.

Second, it is possible that instructor attractiveness has a more direct impact on learning by changing the students' responses to the instructor. It is conceivable that attractive instructors command more attention from students than less attractive instructors. There is considerable evidence that attractive persons receive more attention than unattractive persons and maybe are more persuasive (Davies, Goetz, & Shackelford, 2008). For example, both Sui and Liu (2009) and Aharon et al. (2001) found participants look longer at attractive faces than they do unattractive ones. Further, there is evidence that persons process information about attractive individuals in a manner that increases recall accuracy (Lorenzo, Biesanz, & Human, 2010). In the classroom environment, attention to the instructor is consistently associated with more learning, and attention to the instructor is related with greater short-term and long-term recall (Serbin, Geller, & Geller, 1977), and better overall academic performance (Lahaderne, 1968; Zimmerman, 2001). However, it should be noted that greater attention to the instructor does not necessarily indicate students

are paying attention to the information being presented. In fact, it is possible that attractive instructors distract students from attending to the material.

Current research

The purpose of this study was to investigate whether attractive instructors are more effective teachers than unattractive instructors because of some direct impact of attractiveness.

If highly attractive instructors elicit greater attention and higher levels of motivation, then we would expect students instructed by highly attractive instructors to learn more than students instructed by less attractive teachers. To examine this possibility, we presented participants with an audio lecture delivered via computer. A photograph that varied by both attractiveness and sex accompanied this lecture. Researchers then led the participants to believe that the person in the photograph was the instructor delivering the lecture. Following the lecture, participants completed a quiz over the lecture material and several questionnaires designed to measure how the instructor was perceived by the participants.

Methods

Participants

Eighty-six females and 45 males were recruited from a subject pool at a large urban university. Participants were recruited using the electronic sign-up procedure (SONA system) operated by the psychology department and were offered class credit in exchange for participation. Only participants who completed all tasks were included in the final analyses. The average age of the participants was 20, and the range of ages was 18 to 42. Thirty-nine percent of the participants were of European descent, 21% were of Asian descent, 18% were of Hispanic descent, 8% were of African descent, and 14% were from other ethnic groups. Participants on average had approximately 1 year of post-secondary education. Participants were randomly assigned to either the high attractiveness-instructor or low attractiveness-instructor conditions resulting in 62 participants in the low attractiveness condition and 69 participants in the high attractiveness condition.

Materials

Photographs of Caucasian male and female faces were taken from an online database. Photographs containing either facial hair or spectacles were omitted. A group of six students (4 female, 2 male) who were not participants in the actual experiment rated 44 photos on the dimension of physical attractiveness using a scale from 1 (*extremely unattractive*) to 10 (*extremely attractive*). Two photographs of males and two photographs of females of above-average physical attractiveness

($M = 8.0$), and two males and two females of below-average physical attractiveness ($M = 3.25$) were selected for use as exemplars in the study.

We obtained the male version of the audio lecture from the Massachusetts Institute of Technology (MIT) OpenCourseWare Web site. The audio lecture selected contains material from a college-level introductory physics course, and the first 20 minutes were used for experimental stimuli. All course materials on the Web site are under a Creative Commons License, permitting their use and distribution for non-commercial purposes. The particular physics lecture selected is close-captioned for the hearing impaired. This enabled a female assistant to easily create a replication that is identical in content. A female assistant, who first familiarized herself with the lecture and then recorded the identical version by speaking into a microphone, created the female version of the audio lecture. After recording the lecture, it was converted to an mp3 file for use on the lab computers.

Procedure

Upon arrival, participants were informed that the purpose of the study was to examine the impact that different lecture styles have on learning. According to the cover story, the study was an attempt to determine if students can learn as well from audio as from video lectures. Participants were then assured that their responses to all questionnaires would be completely anonymous. Thus, the primary task for participants was to listen to a 20-minute audio lecture from an introductory physics course. Participants were forbidden to take notes during the lecture portion of the experiment. The lecture was delivered via computer and was accompanied by a photograph that the participants were led to believe is the actual instructor. By random assignment, the lecture was spoken by either a male or female (which were identical in content), and the computer displayed a photograph of either a high-attractive individual or a low-attractive individual.

Following the audio lecture, participants completed a 25-item forced choice recognition task covering the material from the lecture. These items were written specifically for the current study. All items were in multiple-choice format with one correct option and three distracters. Items ranged in difficulty from extremely simple (“What subject was this lecture about?”) to ones that require greater attention by the participant (“Speed = Length/ _____”). Participants were each given a paper packet containing both the quiz items and the additional measures below. All participants were presented with the questions in the same order and participants were allowed to work at their own pace.

Perception of the instructor

Following the learning test, participants completed a number of questionnaires. First, participants were asked to complete a 16-item questionnaire designed to measure their opinion of the instructor’s performance. Participants were asked to respond to items such as “Rate the instructor’s ability to present the material clearly”

and “Rate the overall teaching ability of the instructor” on 5-point scales with endpoints of 1 (*excellent*) and 5 (*poor*). These items were taken from a standard instructor’s evaluation often administered in the university setting. After completing the teacher evaluation items, participants were asked to rate the physical attractiveness of the instructor. This item was intended to serve as a manipulation check. Next, participants were asked to indicate how easy it was to attend to the instructor on a 5-point scale with endpoints of 1 (*very easy*) and 5 (*very difficult*) and how motivated they felt on the task on a scale with endpoints of 1 (*very motivated*) and 5 (*very unmotivated*). Then participants were asked to rate the extent to which the instructor possessed three positive characteristics that should be influenced by the attractiveness stereotype (health, intelligence, competence,) on five-point scales with endpoints of 1 (*very*) and 5 (*not very*). Finally, participants were asked to provide demographic data consisting of their gender, age, level of education, and sexual orientation. These items were measured via pen and paper questionnaire.

Results

Manipulation check

To test whether the participants agreed with the attractiveness ratings of the stimulus materials, participants were asked to rate the attractiveness of the instructor. A one-way between-subjects ANOVA was conducted to compare the effect of condition on ratings of attractiveness. Instructors in the high attractiveness condition were rated as significantly more attractive than instructors in the unattractive condition, $F(1, 130) = 48.39, p < .00, \eta^2 = .28$ (see Table 1). Additionally, a Pearson product-moment correlation coefficient was computed to assess the relationship between the participant ratings of attractiveness and our internal ratings derived while selecting stimuli materials. The attractiveness ratings obtained from the participants were correlated with the attractiveness ratings obtained in the development of the materials. There was a positive correlation between the two variables, $r(130) = .51, p < .001$. Taken together, these results suggest there was agreement among the participants on the relative attractiveness of the pictures selected for use as stimuli.

Table 1. Means and standard deviations of participants’ responses to the attractive and unattractive instructors.

Variable	Attractive Instructor		Unattractive Instructor	
	Mean	SD	Mean	SD
Attractiveness Rating	2.67	.83	3.69	.89
Items Recalled	18.27	3.30	16.68	3.22
Instructor Ratings	2.58	1.05	3.05	1.20
Attention to Instructor	2.63	1.14	3.09	1.08
Motivated by Instructor	2.78	1.07	3.33	1.10
Positive Characteristics	2.05	.55	2.35	.60

Note. Smaller scores indicate a higher attractiveness rating, better instructor ratings, more attention to the instructor, more motivation, and more positive characteristics.

To test the primary hypothesis regarding recall, the number of correct responses on the multiple-choice quiz was summed to provide a score of participant performance (higher numbers indicate better performance). These test scores were compared using a 2(Male vs. Female participant) \times 2(Male vs. Female instructor) \times 2(Attractive vs. Unattractive instructor) between subjects analysis of variance (ANOVA). As predicted, there was a significant main effect of instructor attractiveness, $F(1, 123) = 8.34, p = .005, \eta^2 = .06$. Participants in the condition with a highly attractive instructor recalled more items on the quiz than those with a low attractive instructor (see Table 1). There were no main effects for either participant gender, $F(1, 123) = 3.16, p = .078, \eta^2 = .02$ or for instructor gender $F(1, 123) = 1.38, p = .242, \eta^2 = .0$, and instructor attractiveness did not interact with participants gender, $F(1, 123) = .26, p = .64, \eta^2 = .002$ or with the instructor gender, $F(1, 123) = .48, p = .49, \eta^2 = .004$.

Instructor evaluation

In order to examine whether the participants perceived the more attractive instructors as more effective teachers, the five ratings of teacher effectiveness were averaged to form a teacher evaluation index (Cronbach alpha = .87), with lower numbers indicating a more positive evaluation. This index was analyzed in the standard three factor 2(Male vs. Female participant) \times 2(Male vs. Female instructor) \times 2(Attractive vs. Unattractive instructor) ANOVA and a significant main effect to the attractiveness of the instructor was obtained, $F(1, 122) = 4.02, p = .05, \eta^2 = .03$. Attractive instructors were given better ratings than unattractive instructors (see Table 1). In addition, an unexpected main effect for the gender of the instructor was found, $F(1, 122) = 20.67, p < .01, \eta^2 = .14$, with male instructors receiving better ratings than female instructors (see Table 2).

The participants also completed two questions designed to assess their perception of how much the instructor influenced their attention and motivation. These ratings were analyzed in separate 2(Male vs. Female participant) \times 2(Male vs. Female instructor) \times 2(Attractive vs. Unattractive instructor) ANOVAs. Consistent with their general evaluations of the instructor, when asked “How easy was it to attend to the instructor?” participants indicated that they were more likely to attend to attractive instructors than unattractive instructors, $F(1, 122) = 6.08, p = .01, \eta^2 = .05$.

Table 2. Means and standard deviations of participants' responses to the male and female instructor.

Variable	Male Mean	Instructor SD	Female Mean	Instructor SD
Attractiveness Rating	3.14	.93	3.17	1.06
Items Recalled	17.93	3.19	17.07	3.46
Instructor Ratings	2.24	.95	3.26	1.09
Attention to Instructor	2.54	1.05	3.02	1.12
Motivated by Instructor	2.54	.95	3.37	1.03
Positive Characteristics	2.11	.57	2.22	.60

Note. Smaller scores indicate a higher attractiveness rating, better instructor ratings, more attention to the instructor, more motivation, and more positive characteristics.

Additionally, when asked, “If you were taking a course from this instructor do you think he/she would motivate you?” participants perceived that they were more motivated by attractive instructors than unattractive instructors, $F(1, 122) = 5.46, p = .02, \eta^2 = .04$, (see Table 1). Again, both of these analyses produced an unexpected main effect for gender of the instructors. Participants indicated that they attended more to male instructors than to female instructors, $F(1, 122) = 7.74, p = .006, \eta^2 = .06$, and were more motivated by female instructors than by male instructors, $F(1, 122) = 23.54, p < .01, \eta^2 = .16$, (see Table 2).

Further, the participants rated the instructor on three positive characteristics that are usually influenced by the attractiveness stereotype. These ratings averaged to form a single index (Cronbach alpha = .74) and were analyzed separately in the three-factor ANOVA used above. As expected, attractive instructors were rated as having more positive traits than unattractive instructors, $F(1, 122) = 7.82, p = .006, \eta^2 = .06$, (see Table 1).

Predicted performance

Finally, upon completion of the forced choice recognition task, participants were asked to indicate how well they felt they had performed. A Pearson product-moment correlation coefficient was computed to assess the relationship between the participants' predicted performance and their actual performance. There was a positive correlation between the two variables, $r(130) = .22, p < .01$, indicating that participants were able to accurately judge their performance on the task.

Discussion

This study was conducted to determine whether individual differences in physical attractiveness would have an effect on learning tasks. Based on previous research indicating effects of physical attractiveness in a wide variety of domains, we hypothesized that participants with a more attractive instructor would perform better at learning tasks. As expected, participants in the high physically attractive conditions outperformed participants in the low physically attractive conditions on a forced-choice recognition task. Additionally, we hypothesized that gender would not play a role in this relationship. Examination of gender could help to isolate whether this effect was driven by human sexual attraction or by other cognitive forces. Although gender may influence attention in certain human social interactions, it was not expected to influence performance on learning tasks. The failure of either instructor gender or participant gender to influence this performance suggests that this effect is driven by processes independent from human sexual attraction, such as attention and motivation as we suggested in this study.

These results also suggest that cognitive forces are the impetus for this effect, rather than the fulfillment of self-fulfilling prophecies, in which student expectations influence the teacher's behavior in a manner that increases his/her effectiveness. Student predictions may indeed be a factor in the actual classroom,

yet our experimental paradigm eliminated the opportunity for student feedback to influence the instructor. This further indicates that the effects pertaining to physical attractiveness found in this study are most likely due to cognitive factors.

The manipulation of physical attractiveness did produce significant results in participant perception of instructor ability. This is consistent with the previous literature suggesting that attractive instructors receive more positive student evaluations (Felton, Koper, Mitchell, & Stinson, 2008; Riniolo, Johnson, Sherman, & Misso, 2006). In addition, an unexpected gender effect was obtained, with male instructors receiving better evaluations than female instructors. However, this effect should be interpreted cautiously because it may have been the result of our procedures. Recall that the male recording was made by an expert on the topic, whereas the female recording was made by a non-expert delivering the same lecture. Despite our efforts to make the recording identical, it is possible that they differed. For example, it is possible that the male expert conveyed more enthusiasm or fluency, and that this influenced the participants' perceptions of the instructors' ability.

Independent of actual ability, physical attractiveness appears to create the impression of improved ability in the minds of students, and that effect was replicated with the findings in this study. That said, participant evaluations of instructor ability failed to accurately predict participant performance on the learning task. This also replicates previous research by demonstrating that instructor evaluations are poor predictors of performance on multiple-choice examinations (Galbraith, Merril, & Kline, 2012; Stehle et al., 2012).

Although many variables factor into student learning in the classroom, this study is the first to demonstrate that teacher attractiveness could play a previously overlooked role. This should not be taken to imply that unattractive humans cannot excel at classroom teaching. Qualities such as a sense of humor or empathy can also benefit teacher effectiveness (Bryant, Comisky, Crane, & Zillmann, 1980). These data do suggest, however, that physical beauty is another element that plays a part in this common human interaction. Despite finding a relatively small effect size with this study, should future work replicate this effect, it would suggest significant practical ramifications. These data suggest the physical attractiveness of their instructor may influence student performance in addition to the student's intellectual abilities. This would indicate that ratings of instructor attractiveness appearing on popular Web sites might be far from frivolous.

Limitations and future directions

One concern that can arise when conducting a laboratory study such as this is the question of external validity. Specifically, can we generalize the effects of one lecture to the effects of an entire class that occurs over an entire semester? There are a number of important differences between our procedures and the classroom situation. In the classroom, students are exposed to an actual living moving person and have

the opportunity to study and practice recalling the material prior to being tested. Whereas, in our procedures the participant had only a picture of instructor to look at and was tested immediately after material presented. It is possible that our experimental procedures enhanced the roll of physical appearance. That is, over a longer period, one might be influenced by more subtle characteristics (such as IQ) that are not readily apparent from just one lecture. This does provide one direction for future research. Replication of this study utilizing time delays between the encoding task and the forced-recognition task would better replicate the type of learning employed in the classroom.

Conclusion

In summary, this study found further support for the power that physical attractiveness has over human person perception. Beyond replication of human biases, this study also found that physical attractiveness has the power to influence learning tasks. This indicates that physical attractiveness may actually play a previously overlooked role in classroom learning. Furthermore, the lack of significant gender effects in this study indicates that the effects of physical attractiveness are not driven by human attraction and mating behavior but is more global in origin. Multiple factors affect the outcome of any social interaction, and this is certainly true within the domain of teaching. Although there may be spurious factors at play, it is believed that multiple studies with differing methods can best isolate the role that attractiveness plays on classroom learning. Hopefully, future research will further explore this question and provide more definitive data regarding the effects of teacher attractiveness as well as the underlying processes.

Author notes

Richard Westfall is currently a Ph.D. student at University of Nevada, Las Vegas in the Experimental Psychology Ph.D. program with interests in stereotyping and evolutionary psychology. He received a Master's degree in Experimental Psychology from the University of Nevada, Las Vegas in 2014. His research interests include Attractiveness Stereotype, Mate Selection, and Stereotyping. **Murray Millar** is an Associate Professor of Psychology at the University of Nevada, Las Vegas. His interests include Evolutionary Psychology and Stereotyping. **Mandy Walsh** is currently a Ph.D. student at the University of Nevada, Las Vegas in the Experimental Psychology Ph.D. program. Her research interests include Mate Selection, Jealousy, and Stereotyping.

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