

Effect of Different Professions' Clothing on Children's Height Perception

Mahmoud Rashidi¹, Katayoun Keshtkaran², Sahar Zabihidan²,
Masoud Hosseinchari², and Farid Pazhoohi²

¹University of Isfahan (Iran)

²Shiraz University (Iran)

Height is a biological factor that can affect how others perceive and behave toward an individual. Clothing, as a non-biological factor, can affect these perceptions of height. In this study we investigated the effect of different professions' clothing on children's perceptions of height. One hundred and eighty primary school students participated in this study and estimated the height of an actor in the clothing of four different professions which differed in terms of prestige. The results of study showed that the difference between the perceived and actual height was larger when participants estimated the height of socially esteemed professions. Also there was no difference between girls' and boys' estimation of different professions' height. The implications of these findings are discussed.

Keywords: clothing, height, children, perception, authority.

La talla de un individuo como factor biológico, tiene diferentes efectos sobre cómo otros perciben y se comportan con dicho individuo. La indumentaria como factor no biológico puede alterar las percepciones de la talla. En este estudio, investigamos el efecto de la indumentaria de diferentes profesiones sobre la estimación de la talla percibida por los niños. Participaron en el estudio 180 niños de primaria, quienes estimaron la talla de un actor vestido con la indumentaria correspondiente a cuatro profesiones diferentes. Los resultados mostraron que la diferencia entre la talla real y la percibida era mayor cuando los participantes estimaban la talla de profesiones socialmente valoradas. No hubo diferencias de sexo en la estimación de las tallas de diferentes profesiones.

Palabras clave: indumentaria, talla, niños, percepción, autoridad.

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Correspondence concerning this article should be addressed to Farid Pazhoohi, Department of Animal Science, Shiraz University.
E-mail: pazhoohi@gmail.com

Social values can affect the way we perceive environmental and social phenomena. In a classical experiment in perception, Bruner and Goodman (1947), using coins and cardboard discs, showed that the socially valued objects were perceived as larger. The more the subjects valued the object, the greater was the difference between the perceived and actual size. Also, Dukes and Bevan (1952) investigated the effect of value of objects on the perception of size, and Stapel and Koomen (1997) demonstrated that social categorization of stimuli affects the perception of physical magnitude. It seems that the social value of a stimulus can affect one's perception of its size.

A related topic is the effect of the perceived social value of an individual on observers' perceptions of—and behaviors toward—that individual. Bushman (1984) investigated the effect of uniforms on compliance behavior. He showed that authorized dresses increased the likelihood of compliance and also decreased the latency between request and compliance. These results were later replicated when a female was used as the subject (Bushman, 1988). Different clothing can communicate the social status of the wearer and can affect compliance (Guéguen, 2002). Judge and Cable (2004) proposed a theoretical model for the relationship between physical height and career success. They showed that height does have an influence in the context of workplace success. Also, a recent study showed that firefighter uniforms increased the social and physical attractiveness of men, as well as the compliance of women toward the men (Guéguen, 2009). However, these results of compliance contradict the findings of Damon et al. (2010), in which students were more compliant toward a casually-dressed experimenter than one dressed professionally.

The empirical literature is rife with examples of the positive impact of professional clothing on observers' perceptions. Customers have been found to judge service employees and the quality of a service firm based on their dress, with appropriately dressed personnel resulting in an increased purchasing intent (Shao, Baker, & Wagner, 2004). Also, there was more positive deferential behavior toward wearers of formal clothes than the wearers of casual clothes (Fortenberry, MacLean, Morris, & O'Connell, 1978). Besides the effect of clothing on the perceptions of observers, clothing can also affect the self perception of the wearer. Workplace clothing can affect employees' self-perceptions of productivity, competence, friendliness, trustworthiness, and creativity (Peluchette, Karl, & Rust, 2006; Peluchette & Karl, 2007).

Few studies have investigated the relationship between clothing, height, and the authority status of the wearer. Brase and Richmond (2004), using undergraduate students, showed that a doctor's casual dress, in comparison with the traditional white lab coat, decreased perceptions of authority, regardless of the doctor's or patient's gender. Gawley, Perks, and Curtis (2009) investigated the relationship between height and authority of both males

and females, and found a significant relationship between authority status and height of male workers, but not of females.

Another subject which needs more investigation is the effect of professions' uniforms on children's perceptions of height. As Stapel and Koomen (1997) showed that social knowledge affects the perception of object size, the current study hypothesizes that children's knowledge of different social professions might influence their perceptions of height. To our knowledge, children's height perception has not been previously investigated. Therefore, this study investigated (a) the effect of different professions' uniforms on children's perception of height, and (b) the influence of children's gender in the perception of height of people in different professions. More specifically, we hypothesized that children's perception of height would be higher when viewing individuals in the uniforms of highly esteemed professions uniforms.

Method

Participants

One hundred and eighty primary school students (72 boys and 108 girls) with the average age of $8.48 \pm .954$ with normal and corrected-to-normal vision participated in this study as observers. They were attending the Institute for the Intellectual Development of Children and Young Adults (IIDCYA) summer programs in Shiraz, Iran. At this institution cultural and artistic activities in the field of mental and cultural development of children and young adults are performed. They were randomly selected and divided into four groups according to four professions used in the experiment. Students attending these programs were mostly upper class of society because of the institute location in the city. Participants were not aware of the study's goal and also had not seen the experimenters before. Informed consents were obtained from parents of the children prior to the experiment.

An undergraduate student with experience in acting in theatre performances was invited as the actor. His actual height without shoes was 1.74 cm. Four different sets of clothing were prepared for the actor. The clothes were: military soldier, firefighter, medical doctor, and street sweeper clothes. These clothing were in accordance with ordinary criteria of clothing in the society. The soldier's clothes consisted of a red military beret, brownish yellow uniform and one pair of boots. The actor's height was 1.77 cm in this clothing. The firefighter clothes consisted of one firefighter helmet, uniform, trousers, boots and gloves; the actor's height was 1.79 cm in this clothing. The doctor's clothes consisted of a white coat, stethoscope and a pair of leather shoes, and the actor's height was 1.78 cm this time. The street sweeper's clothes were an orange uniform and

black boots. The actor's height was 1.78 cm in this clothing. The waistline of all the clothes was tight to ensure that the clothes appeared similar in shape. Four descriptions of similar length were written to introduce each profession. The content of the descriptions was based on the children's understanding of the professions. The actor performed standing in front of a white curtain with 2.10 cm height and 1.20 cm width.

Materials

For students to estimate the height of actor in his absence, a device using light emitting diodes on a printed circuit board was designed. One hundred and one light emitting diodes (LED) with 1 cm distance from each other were situated on a printed circuit board in a vertical row. Therefore range of device estimation was 100 cm with accuracy of one centimeter. LEDs could be turned on separately and consecutively. At any given moment just one LED could have been turned on which by moving upward or downward could create illusion of the movement. A white curtain of 208 cm height and 86 cm width was prepared. This apparatus was standing one meter above the ground and was behind the white curtain, so the light spot was reflected on the curtain. The diameter of the reflected spot on the curtain was 1 cm and its color was red. A controlling device was connected to the printed circuit board by a cable. This controlling device had three keys, i.e. upward key, downward key and reset key. By pressing the upward key it seemed the light spot was traveling upward, and by pressing the downward key it seemed the spot was going downward. Light movement had velocity of 0.16 s per LED, i.e. the light was moving from one meter above ground to two meters above the ground in 16 seconds. The reset key moved the spot instantly from any height down to the first LED. At any given moment just one red spot was observable in front of the curtain. The controlling device had also a screen which displayed the spot's height from ground with accuracy of one centimeter to the experimenter.

Design and procedure

Participants were first separated into two groups of boys and girls. Boys were divided randomly into four groups, and girls were randomly divided into four groups as well. First, one of these groups was led into a well-lit and well air-conditioned room, which contained two rows of chairs. Then two experimenters asked the children to sit in the chairs. After that the experimenters left the room, and the actor entered the room in one of the four attires. The actor stood two meters from the first row of chairs, in the middle, and read the description of the profession associated with the clothes he was wearing. Then he said goodbye and left the room.

In the actor's absence, the participants were asked to conduct estimates of the actor's height. Participants were

conducted to another room. Participants of the given group randomly entered the first room, one by one (individually). Each participant was sitting two meters away from the curtain and was tested individually. Another experimenter was sitting 2.5 m. away from the curtain and behind the participant on the left side and was asking the participant to show the actor's height on the curtain. Meantime the light spot was moving from one meter above the ground, upward using the controlling device. The participant was asked to say to stop the moving light when the light was at the point of the actor's height. Participants were allowed to fine-tune their responses after asking to stop the moving light. After the participant's estimate the light spot stopped, and the spot's height was read on the screen. The participant was then guided to another room that was separated from other participants who had not made their estimates yet.

The actor demonstrated each profession to boys and girls separately, so in total, there were eight performances (one per each of the four professions, performed for the boys and for the girls). The boys and girls were separated into groups because of the IDCYA summer program. Each participant took only one test of estimation, and observed the actor only once.

Result

A one-way analysis of variance (ANOVA) was used to test the effect of different professions (military soldier, firefighter, medical doctor and street sweeper) on children's perception of height. The mean Constant Error (estimation-real value) as is used by Cordovil & Barreiros (2010), for soldier was -7.93 cm, with a standard deviation of 12.33. This difference was the smallest among all the professions. Mean CEs for the firefighter, doctor and street sweeper were -12.85 cm, -15.40 cm and -17.48 cm, with standard deviations of 11.45 cm, 13.04 cm, and 14.80 cm, respectively. Between group differences were significant $F(3, 176) = 4.640, p = .004$. Tukey's honestly significant difference tests ($p < .05$) indicated significant differences between soldier and doctor estimated height ($p = .042$), and also between soldier and street sweeper estimated height ($p = .003$). The other differences were not significant (all $ps < .27$).

A two-tailed t test was used to test the effect of gender on height perception of professions. Boys and girls observed the soldier on average -6.56 and -8.67 cm lower than the actual height. Boys' height estimation for the firefighter was on average -9.94 cm and girls' estimation was on average -14.71 cm lower than the firefighter's measured height. Boys' and girls' estimation of height for the doctor were on average -13.78 and -16.73 cm lower than the actual height. Boy observed the street sweeper's height on average -18.35 cm and girls observed him -16.86 lower than his actual height. None of the differences between boys' and girls' estimations was significant (all $ps < .17$).

Discussion

The purpose of this study was to investigate the effect of different professions and effect of observer's gender on estimation of height. Data showed significant differences between four groups of participants who observed just one profession, i.e. military soldier, firefighter, doctor or street sweeper. Many studies demonstrated effect of culture and society on perception (Markus & Kitayama, 1991; Nisbett, Peng, Choi, & Norenzayan, 2001). The results of our experiment were consistent with results of Dannenmaier and Thumin (1964); Wilson (1968); Egolf and Corder (1991); Hensley and Angoli (1980); Lechelt (1975); and Judge and Cable (2004) showing that estimation of height is dependent on occupation's prestige.

The average difference between estimated and actual height of actor when he was dressed in the soldier uniform was smaller than the difference between the estimated and actual height of the actor in street sweeper's clothes. These results are consistent with Judge and Cable (2004) results about the effect of social esteem on estimation of height. In many countries such as Iran, military soldiers have more social esteem than the street sweepers. The interview with children who had participated in the experiment showed that none of them contemplated the street sweeper's profession as their future job. Also their families and the society were persuading them that being uneducated and not making enough effort would lead them to this occupation. Therefore all the children were avoiding such a future. On the other hand, the positive views in many countries including Iran about the soldier, has made the participants to think of the military soldier as an ideal job. Generally in children stories, soldiers and military forces are described as heroes. Also the social esteem of the soldier is more than the social esteem of the street sweeper profession in this society; therefore participants perceived the soldier taller than the street sweeper.

The results also showed that the difference between the perceived and actual height was smaller when participants estimated the soldier's height than the height of the doctor. Unlike the expectation, participants didn't estimate doctor's height very high. So after the experiment, an interview was conducted to investigate cause of this underestimation. We hypothesized that participants have mostly observed doctors sitting; therefore they had not seen them explicitly and standing. Every participant was interviewed individually. In the interview we asked if last time that they had visited doctor, they have seen doctors sitting, standing or can't remember. About 80 percent of participants admitted that they had seen the doctors sitting, $\chi^2(2, N = 180) = 181.2, p = .001$. Therefore there might have been another factor interfering with the height estimation of the doctor.

The next question was if there is a significant difference between boys and girls estimations of different profession's height. The results showed no significant differences for

any of four professions. Our data were also consistent with Lechelt (1975) experiment. The remarkable finding in this study was the underestimation of height in all the four groups, and the probable reasons for this could be: (a) Participants might have considered the height of the actor equal to the height of his eyes. The average difference of the perceived height and actual height for soldier, firefighter, doctor and street sweeper was not far from the distance between top of the head and the eyes. (b) The light spot was traveling from one meter above the ground upward and this may have affected participants' perception. Perhaps if the spot was traveling from the ground upward, results might have been different.

It should be also noted that since this method of height estimation has not been practiced before, there should be caution in comparison of current results with the results of previous height estimation experiments. There is a need for more experiments using this new method to increase its reliability. Since the velocity of the light spot might have been a stressful factor for the participants, and also distracting them from the precise estimation of the height, it is suggested that the effect of the light spot velocity on estimation of height also be tested.

Since the socioeconomic status of the participants of this experiment was near upper class, we suggest that the effect of socioeconomic status on the height perception to be tested in future experiments. Another suggestion for future studies is to also use a female actor. Finally we suggest investigation of different age groups' perception of height of people in different professions. In conclusion our findings showed that clothes of different professions affect children's perception of height and social esteem plays an important role in this kind of perception.

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