

# **On Your Marks, Get Stereotyped, Go! Novice Coaches and Black Stereotypes in Sprinting**

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### ***Abstract:***

This study evaluated novice coaches' use of Black stereotypes, using pictures of supposed sprinters. It was hypothesised that the success of White individuals would be attributed to hard work/socio-economic factors. Whereas; the success of Black individuals, would be attributed to innate genetic factors. Thirty-six undergraduate coaching students volunteered to participate. Participants rated eight items on a 1 –7 likert scale, in relation to sprinting success for four pictured individuals (1 White male and female, 1 Black male and female). A two-way within subjects design was employed. Statistical analysis indicated a significant interaction between Black and White photos and Black and White stereotypical survey items, consistent with the hypothesis.

## Introduction

Although the latter part of the twentieth century has seen a marked growth of interest in the study of sport, race, and ethnicity (e.g. see Jarvie, 1991), racial stereotypes in sport remain among the least challenged stereotypes in today's society. In general, people seem to reflect that Black individuals of African ancestry are inherently superior in physical ability as evident through their large representation in some high profile sports.

For example, Kenyans dominate distance running (Entine, 2000), and a random African American is about 15 times more likely to reach the NFL and 28 times more likely to reach the NBA than a random non-black individual (Sailer, 1996). This trend is also reflected in British society, where although Blacks only represent less than 2% of the total population, they correspond to at least 50% of First Division basketball players, boxing champions, the British athletic squad, and one in five professional soccer players (Jarvie, 1991; Cashmore, 1998; Owen, 1994).

Black representation is even more noticeable in sprinting in athletics. Until the 1960s, almost all sprint champions were White (Coakley, 1998). Today, however, Black men absolutely dominate sprinting, holding 95% of the top times throughout the world (Entine, 2000). At the Atlanta games of 1996, Black men monopolised gold in all seven events between 100 and 400 metres (Sailer, 1996). In the last five Olympics, up to and including Sydney, all forty finalists in the men's 100 metres have been Black (Sailer, 1997). The only runners ever to break the 10-second barrier for 100 metres have all been Black men, and they have done so more than 200 times (Entine, 2000). In contrast, the same population has no such achievement in

swimming, apart from one single gold medal in the 100-metre butterfly during the 1988 Olympics (Entine, 2000). Inevitably, people draw conclusions from what they see, since this serves as a kind of powerful commonsense evidence, resulting in stereotypical views (Harrison, 2001) and popular mythology (Hoberman, 2000) about Black's as a supposed race.

The term race refers to a category of people regarded as distinct because they share certain genetic traits in terms of geographical ancestry. Thus, Black sporting success is commonly viewed as the result of a racially biased biological advantage. In physiological terms, it has been speculated that running superiority in those of African descent is due to less subcutaneous fat and larger muscle mass, which according to the theory also should explain their lacking success in swimming due to buoyancy (Campbell, 1991; Burfoot, 1992). However, if the theory of buoyancy were valid, then women would be superior to men, and endomorphs to ectomorphs, leaving slim white men as a large non-swimming group (Mael, 1995). Clearly, that is not the case.

Although one can understand why it may seem interesting to scientifically study Black athletic success, it does seem rather puzzling why scientists at the same time do not want to use biology to explain White sporting successes (Davis, 1990). Is it not equally interesting to search for a skiing gene among the White Swiss people for instance (Coakley, 1998)?

In past research into individual or group differences, much of the controversy has been concentrated around the issue of nature versus nurture. That is, to what extent are differences between groups due to biological influences such as genes or to

environmental conditions such as access and opportunity. When environmental factors are emphasised, the assumption is that differences can be modified. Whereas when biological factors are emphasised, much of the assumption is that group differences are fairly stable and unchangeable (Martin & Parker, 1995).

The problem with the latter belief is that individuals who believe that group differences are caused mainly by biological factors, may overestimate the magnitude of small differences between groups more than those who believe that differences are caused mainly by the environment (Martin & Parker, 1995). Although most scientists generally agree that both nature and nurture contribute to group differences, it is not known what the layperson or indeed the coaches' beliefs are about supposed racial differences in terms of athletic ability. For instance, do they acknowledge the contribution of both biological and social factors, or do they see one factor as more prominent than the other?

Overall, the concept of race is uncertain and ill-defined, racial theories are frequently superficial and usually more reflective of a social agenda rather than a biological. Biologically, the concept of race has no genetic validity since there often are more differences between individual members of any one supposedly racial group, than between any two different groups as a whole (Wiggins, 1997). Essentially, we are one human race, leaving the concept of biologically defined races meaningless (Hallinan, 1994).

Nevertheless, the notion of race based on certain stereotypes remains a commonly used concept in society (Long, Carrington & Spracklen, 1997); with its

most frequent categorisation taking a Black/White image, via a generalised assessment of skin colour, hair type, and stature, as well as, certain aptitudes such as intelligence and physical ability (Montagu, 1964; Birrell, 1989).

Socially, stereotypes have long been thought to create problems because they are inherently inaccurate and exert powerful influence on person perception (Madon *et al*, 1998). Stereotypes fail to consider wide variations of physical, mental, psychological, emotional, and cultural differences displayed within any population group, e.g. the assumption of natural athleticism, associated with Black individuals.

One consequence of the Black sports stereotype may be that Black individuals favour a particular way of life and existence as a result of over exposure to this stereotype as presented by the media. For example in America, it appears that self-schemas in early adolescent individuals of African American descent conform to sport stereotypes associated with this group, e.g. basketball, boxing and sprinting (Harrison, Lee, & Belcher, 1999). Also, Edwards (1986) reported that Black families were four times more likely to push their children towards careers in sport, and that this was often at the neglect of other areas of personal and cultural development.

Within sport dynamics itself, racial stereotypes are thought to be apparent through stacking, a phenomenon where the coach assigns athletes to certain playing positions in team sports based on supposed racial attributes such as speed and power rather than actual achieved performance (Loy & McElvogue, 1970; Leonard, 1987). Consequently, more often than not, Blacks are relegated to positions that emphasise physical rather than mental prowess; with the decision-making or leadership positions

tending to be filled by White athletes. Research indicates that stacking of Black players in certain positions in games such as soccer (Norris & Jones, 1998) and rugby (Jarvie, 1991; Long, Carrington, & Spracklen, 1997) has become common occurrence in Britain.

In the study of sociology, stereotyping emphasises group pressures on the individual for conformity whilst cognitive psychology highlight faults in cognition (Feagin & Feagin, 1999). Essentially, stereotypes have been suggested to be rooted in schema theory. Schema theory suggests people have a mental framework for categorisation of objects and individuals, which based on previous memories, enables us to process large amounts of information rapidly and economically by only remembering the most distinctive social features (Levy, 2000; Atkinson, Atkinson, Smith & Bem, 1993). In the absence of complete attributes, people may infer or construct characteristics from past memories (Hewstone, Hantzi, & Johnston, 1991). For example, if someone as a White person does not have much contact with Black persons on a daily basis, one may think that most Black people are good athletes similar to those watched on TV. Consequently, the price of this cognitive economy is distortion and overgeneralization of reality, resulting in stereotypes (Atkinson *et al*, 1993). Several schemata may be linked in semantic networks (Hewstone *et al*, 1996). The closer linked two schemata are, the more likely it is that they will be activated at the same time (Hewstone *et al*, 1996). Schematic processing models of stereotyping have gained considerable acceptance and increased application over the years as a common cognitive activity involving adaptive categorisation of social information into simple representational units (Levy, 2000; Hewstone *et al*, 1991).

The aim of this study was to evaluate novice coaches' use of the stereotype that dictate that Blacks have innate genetic ability in sprinting, using pictures of Black and White individuals posing as sprinters. A variety of studies have utilised photographs as a research tool for determining responses in the study of stereotypes (Snyder & Kane, 1990; Johnson *et al*, 1999). Photographs provide greatest leeway in evoking thoughts reactions and feelings from individuals about their perceptions of pictured others based on generalisations (Snyder & Kane, 1990). A study by Johnson *et al* (1999) made use of pictures in undergraduate students to evoke racial stereotypes to explain the success of African American men and White men in collegiate basketball. Based entirely on pictures showing only the head, this study indicated that students attributed the success of White men to hard work and socio-economic factors, whereas they attributed the success of African American men to innate genetic factors (Johnson *et al*, 1999).

Based on the study by Johnson *et al* (1999) and the literature, it was anticipated that novice coaches would conform to Black and White stereotypes in sprinting. More specifically, it was hypothesised that the success of White individuals posing as sprinters would be attributed to hard work and socio-economic factors. Whereas; the success of Black individuals posing as sprinters, would be attributed to innate genetic factors.

There are currently many studies that confirm the existence of racial stereotypes both in general and to a lesser degree in sport. Nevertheless, there are no studies to the researchers' knowledge, which specifically attempts to look at coaches' use of racial stereotypes in determining physical ability. This direction of the study

seems important since coaches significantly impact selection, shaping and ultimately the success of potential athletes.

## Method

### Participants

Thirty-six undergraduate students, 21 males with a mean age of 21.8 years ( $SD = 3.8$ ) and 15 females with mean age of 22.33 years ( $SD = 6.2$ ) volunteered to take part in the study as part of undergraduate coach education modules open to all degree pathways at the University of Luton. Participants indicated population group membership as: White  $N = 31$  (86.12%), Black African or Afro-Caribbean  $N = 3$  (8.33%), and Other  $N = 2$  (5.55%). Results were not analysed by respondent group membership, due to disproportionate sample sizes.

### Definitions

A novice coach is someone with limited but actual experience of coaching, qualified to a minimum of leaders award level (the first level of coaching qualification in the national governing body's coaching ladder) in any sport or physical activity. The term sprinting does not refer to anaerobic performance in general; rather, it relates to performance in the 100-metre track discipline in athletics.

### Design

A two-way within subjects design was employed. The two independent variables consisted of Black pictures and White pictures. The dependent variable consisted of eight survey items. A review of the literature and a study by Johnson et al (1999) identified four White and four Black factors stereotypically believed to contribute to success in sport for these two populations. The factors identified for White athletes were a) knowledge and intelligent use of training methods, b) access to better facilities, c) hard work and dedication, and d) access to better coaching. The factors

identified for Black athletes were: a) relaxation and movement economy, b) natural speed and quickness, c) longer limbs, and d) natural large muscle mass.

The eight factors were randomly assigned on the surveys and included a head and neck photo of one person to eliminate physical characteristics between the pictured individuals. Neither of the pictured individuals was actually involved in sprinting or indeed athletics, thus, they merely posed as sprinters. Consensus from each of the pictured persons was obtained prior to the study to confirm their belonging to either the White or Black population group. Persons on all four photographs did not wear spectacles or earrings.

### Procedure

Informed consent was obtained from all participants prior to the study (see Appendix 1 for consent form). Participants were informed that the intention of the study was to determine how novice coaches attribute success in athletes, and in this case sprinters. Participants were also informed that the pictured athletes all were of club standard.

Each subject was shown four different pictures, 1 White male, 1 White female, 1 Black male, and 1 Black female (see Appendix 4 for survey form). Presentation of picture and survey occurred one at a time in rotated order so that half of the participants saw the pictured White persons first, ensuring that stereotyped attributes for each population had an equal chance to appear first. After reading each of the eight factors on the survey, the subjects were asked to indicate the degree to which they felt each factor had contributed to the success of the pictured sprinter.

### Scoring

Responses were recorded on a seven point likert scale. Surveys were scored by adding the four attributes associated with White and Black sport stereotypes respectively for each picture. For example, the final score for a survey with Black picture and the eight survey items potentially ranged from 4 to 56 for both the four stereotypical and non-stereotypical items. Essentially therefore, each participant's four surveys resulted in four overall scores. Surveys with Black picture and higher final scores for the four items relating to innate ability compared to items associated with socio-economic status will indicate a stronger view toward Black stereotypes. Whereas, Surveys with White picture and higher final scores for the four items relating to socio-economic status compared to items associated with innate ability, will indicate a stronger view toward a White stereotype.

### Analysis

The results was analysed using descriptive statistics, a 2 x 2 within subjects ANOVA, and paired t-tests using SPSS. The level of significance was set at 0.05.

## Results

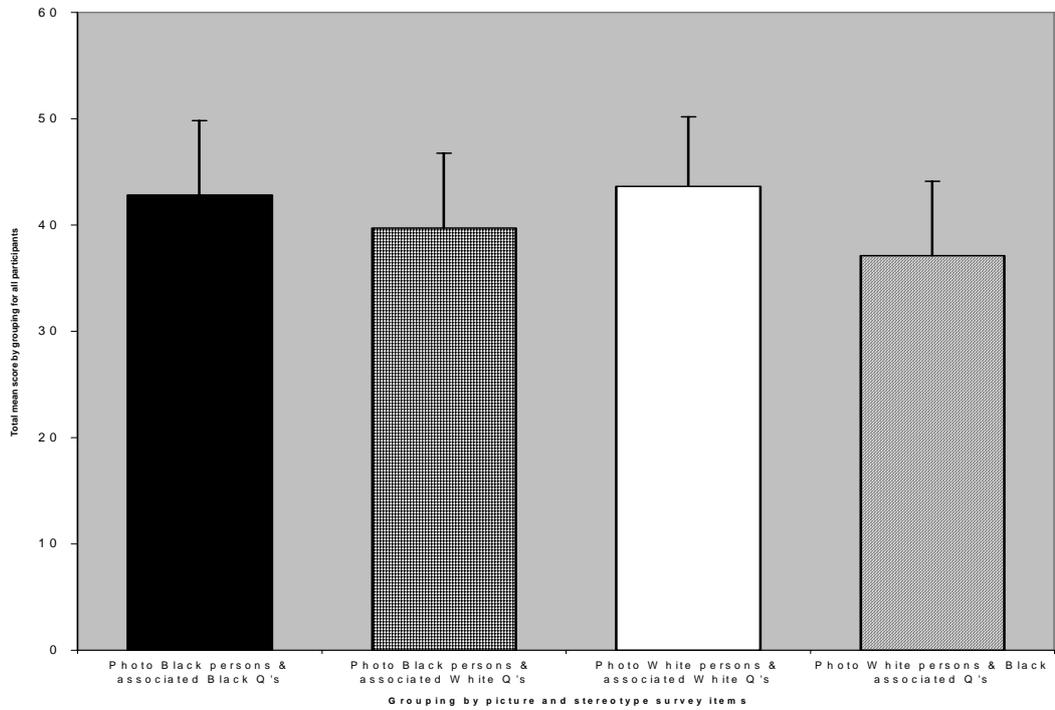
An examination of the descriptive statistics for surveys with pictured Black persons indicated a higher total mean for items relating to Black athletic stereotypes (innate genetic ability) ( $M = 42.83$ ,  $SD = 7$ ) compared to items associated with White stereotypes (dedication and socio-economic status) ( $M = 39.72$ ,  $SD = 6.99$ ). The descriptive statistics for surveys with photos of White persons, indicated a higher total mean for items associated with White athletic stereotypes in terms of dedication and socio-economic status, ( $M = 43.61$ ,  $SD = 6.57$ ) compared to those associated with innate genetic ability ( $M = 37.11$ ,  $SD = 6.98$ ). The means for all surveys is depicted in Figure 1 below.

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**Insert Figure 1 about here**

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**Figure 1. Total Mean Score by Pictures & Associated Stereotypical Questions**



The 2 x 2 within subjects analysis of variance (ANOVA) indicated no significant main effect for photos  $F(1,35) = 2.699, p = 0.109$ . However, there was a significant main effect for associated stereotypical items  $F(1,35) = 9.935, p < 0.003$  and a significant interaction between Black White photos and Black White stereotypical survey items  $F(1,35) = 16.906, p < 0.005$ . Further analysis using a paired t-test revealed a significant difference between Black photos with Black survey items compared to White photos with Black items ( $t = 4.646, d.f. = 35, p < 0.0025$ , one-tailed). A second t-test also revealed a significant difference between White photos with White items compared to Black photos with White items ( $t = 2.869, d.f. = 35, p < 0.007$ , one-tailed). In summary, the statistical analysis indicated that novice coaches use different stereotypes in attributing sprinting success in Black and White individuals.

## Discussion

The common belief that innate athletic ability gives the Black athlete a biological advantage in sprinting was supported by the statistical results. The 2 x 2 ANOVA indicated a significant interaction between the pictured persons phenotypical characteristics, i.e. Black or White individuals, and stereotypical associated survey items. Additionally, the paired t-tests further indicated a significant difference between pictured Black individuals with stereotypical items against pictured White individuals with non-stereotypical items and vice versa (see Figure 1 in Results). Thus, the present data support the concept that certain Black phenotypical characteristics evoke beliefs about innate athletic abilities on the one hand. Whilst White phenotypical characteristics induce beliefs about athletic success as a result of socio-economic factors.

The results of the present study are comparable to those of Johnson *et al* (1999) in regard to the stereotypical beliefs about innate Black physical ability. Similar to the present study, Johnson *et al* (1999) used photos to look at Black and White stereotypes in basketball, as opposed to, sprinting. Unlike the current study, Johnson and colleagues did not report a significant difference between Black and White athletes in terms of socio-economic factors as a function of stereotyping. Interestingly, Johnson *et al* (1999) did not limit their study to just Black and White individuals. Rather, they included a Hispanic and a composite person as well. Johnson *et al* (1999) concluded from their results that the Hispanic athlete reflected a lack of athletic identity and that the composite athlete was perceived as successful due to a combination of various Black and White stereotypical factors.

In the author's opinion, however, the results could have been interpreted as follows. First, the mixture of Black and White stereotype attribution in regard to the composite athlete may have been a result of participants' inability to determine group membership as belonging to either Black or White. Second, the lack scoring for the Hispanic athlete might not have reflected a lack of athletic identity. Rather, the low score probably reflects the fact that the questionnaire was based on Black and White stereotypes and not Hispanics. Similarly, if the present study had included a photo of a Chinese person, then one would not expect this to evoke a great deal of stereotyped associations with sprinting since one does not see many Chinese sprinters in general. In hindsight though, it could have served as an excellent control in the present study. That is, one could predict that Black and White sport stereotypes would not be associated with a Chinese person.

Methodologically the present study could be improved by improving reliability and validity of the survey. Johnson et al (1999) did not reveal any information concerning validation of the survey. Thus, future studies should attempt to validate and exclude weak items on the survey using factor analysis. Although the volunteers in the present study were free to score the different pictures equally, and it was made clear to them that they were free to withdraw at any time – there was an element of forced choice, and future similar studies might incorporate a *don't know* response option. A two way between subjects design, featuring an independent sample, would allow for greater randomisation and a post hoc test.

The results of the present study are interesting in that one might have speculated that participants in the present study would have been less inclined toward

racial sport stereotypes, given that most were sport & exercise science students. Perhaps the authors' own stereotypes are coming into play, portraying students as well-informed individuals! Although one may light-heartedly joke about it, one must of course recognise that potential coaches may act as a significant other. And although stereotypes are not automatically negative in construct, there can be a thin line between stereotyping and discriminative prejudice. As mentioned earlier, schema theory proposes a mental framework constructed from memory. The problem with this framework, however, is that it may create other associations due to semantic networks, thus adding more detail than was originally the case. For example, will a teacher attempt to academically encourage students being perceived as having innate superior physical ability when incidentally, the notion of being good at sport goes hand in hand with being less academically gifted (Jarvie, 1991)? Although most people occasionally fall victim of stereotyping, or subconsciously employing them, it is important that they be recognised and challenged.

The results of the current study and the existing sports literature infer that racial stereotypes are alive and well. Moreover, racial sports stereotypes are particularly apparent in the phenomenon of stacking where the effect of the belief in innate athletic ability have resulted in individuals being assigned to certain team positions based on attributed rather than achieved performance (Leonard, 1987). In conclusion, it is recommended that similar studies are carried out in more established coaching populations such as sports specific coaches in athletics, or at higher levels of performance coaching.

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# APPENDIX 1

## SPSS outputs

### Descriptives

#### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BB	36	31.00	56.00	42.8333	7.0569
BW	36	22.00	53.00	39.7222	6.9964
WW	36	32.00	54.00	43.6111	6.5782
WB	36	17.00	53.00	37.1111	6.9889
Valid N (listwise)	36				

### General Linear Model

#### Within-Subjects Factors

Measure: MEASURE\_1

PHOTO	QUESTION	Dependent Variable
1	1	BB
	2	BW
2	1	WW
	2	WB

#### Multivariate Tests<sup>a</sup>

Effect		Value	F	Hypothesis df	Error df	Sig.
PHOTO	Pillai's Trace	.072	2.699 <sup>a</sup>	1.000	35.000	.109
	Wilks' Lambda	.928	2.699 <sup>a</sup>	1.000	35.000	.109
	Hotelling's Trace	.077	2.699 <sup>a</sup>	1.000	35.000	.109
	Roy's Largest Root	.077	2.699 <sup>a</sup>	1.000	35.000	.109
QUESTION	Pillai's Trace	.326	16.906 <sup>a</sup>	1.000	35.000	.000
	Wilks' Lambda	.674	16.906 <sup>a</sup>	1.000	35.000	.000
	Hotelling's Trace	.483	16.906 <sup>a</sup>	1.000	35.000	.000
	Roy's Largest Root	.483	16.906 <sup>a</sup>	1.000	35.000	.000
PHOTO * QUESTION	Pillai's Trace	.221	9.935 <sup>a</sup>	1.000	35.000	.003
	Wilks' Lambda	.779	9.935 <sup>a</sup>	1.000	35.000	.003
	Hotelling's Trace	.284	9.935 <sup>a</sup>	1.000	35.000	.003
	Roy's Largest Root	.284	9.935 <sup>a</sup>	1.000	35.000	.003

a. Exact statistic

b.

Design: Intercept

Within Subjects Design: PHOTO+QUESTION+PHOTO\*QUESTION

**Mauchly's Test of Sphericity**

Measure: MEASURE\_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon <sup>a</sup>		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
PHOTO	1.000	.000	0	.	1.000	1.000	1.000
QUESTION	1.000	.000	0	.	1.000	1.000	1.000
PHOTO * QUESTION	1.000	.000	0	.	1.000	1.000	1.000

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.

b.

Design: Intercept

Within Subjects Design: PHOTO+QUESTION+PHOTO\*QUESTION

**Tests of Within-Subjects Effects**

Measure: MEASURE\_1

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	
PHOTO	Sphericity Assumed	30.250	1	30.250	2.699	.109
	Greenhouse-Geisser	30.250	1.000	30.250	2.699	.109
	Huynh-Feldt	30.250	1.000	30.250	2.699	.109
	Lower-bound	30.250	1.000	30.250	2.699	.109
Error(PHOTO)	Sphericity Assumed	392.250	35	11.207		
	Greenhouse-Geisser	392.250	35.000	11.207		
	Huynh-Feldt	392.250	35.000	11.207		
	Lower-bound	392.250	35.000	11.207		
QUESTION	Sphericity Assumed	831.361	1	831.361	16.906	.000
	Greenhouse-Geisser	831.361	1.000	831.361	16.906	.000
	Huynh-Feldt	831.361	1.000	831.361	16.906	.000
	Lower-bound	831.361	1.000	831.361	16.906	.000
Error(QUESTION)	Sphericity Assumed	1721.139	35	49.175		
	Greenhouse-Geisser	1721.139	35.000	49.175		
	Huynh-Feldt	1721.139	35.000	49.175		
	Lower-bound	1721.139	35.000	49.175		
PHOTO * QUESTION	Sphericity Assumed	103.361	1	103.361	9.935	.003
	Greenhouse-Geisser	103.361	1.000	103.361	9.935	.003
	Huynh-Feldt	103.361	1.000	103.361	9.935	.003
	Lower-bound	103.361	1.000	103.361	9.935	.003
Error(PHOTO*QUESTION)	Sphericity Assumed	364.139	35	10.404		
	Greenhouse-Geisser	364.139	35.000	10.404		
	Huynh-Feldt	364.139	35.000	10.404		
	Lower-bound	364.139	35.000	10.404		

**Tests of Within-Subjects Contrasts**

Measure: MEASURE\_1

Source	PHOTO QUESTION	Type III Sum of Squares	df	Mean Square	F	Sig.
PHOTO	Linear	30.250	1	30.250	2.699	.109
Error(PHOTO)	Linear	392.250	35	11.207		
QUESTION	Linear	831.361	1	831.361	16.906	.000
Error(QUESTION)	Linear	1721.139	35	49.175		
PHOTO * QUESTION	Linear Linear	103.361	1	103.361	9.935	.003
Error(PHOTO*QUESTION)	Linear Linear	364.139	35	10.404		

**Tests of Between-Subjects Effects**

Measure: MEASURE\_1

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	239936.7	1	239936.7	1998.138	.000
Error	4202.806	35	120.080		

**T-Test**

**Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 BB	42.8333	36	7.0569	1.1762
WB	37.1111	36	6.9889	1.1648
Pair 2 BW	39.7222	36	6.9964	1.1661
WW	43.6111	36	6.5782	1.0964

**Paired Samples Correlations**

	N	Correlation	Sig.
Pair 1 BB & WB	36	.446	.006
Pair 2 BW & WW	36	.283	.094

**Paired Samples Test**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 BB - WB	5.7222	7.3896	1.2316	3.2219	8.2225	4.646	35	.000
Pair 2 BW - WW	-3.8889	8.1338	1.3556	-6.6410	-1.1368	-2.869	35	.007

## APPENDIX 2

### *Raw Data*

<b>Bb</b>	<b>Bw</b>	<b>Ww</b>	<b>Wb</b>
40.00	41.00	42.00	30.00
37.00	45.00	36.00	40.00
52.00	45.00	48.00	44.00
46.00	50.00	46.00	40.00
39.00	32.00	34.00	30.00
42.00	43.00	38.00	37.00
33.00	32.00	32.00	31.00
41.00	42.00	34.00	32.00
39.00	25.00	43.00	32.00
50.00	39.00	51.00	43.00
54.00	53.00	50.00	51.00
37.00	41.00	46.00	37.00
44.00	22.00	46.00	17.00
56.00	51.00	54.00	50.00
49.00	39.00	37.00	34.00
52.00	40.00	52.00	40.00
48.00	34.00	45.00	32.00
45.00	38.00	52.00	40.00
33.00	26.00	32.00	29.00
37.00	40.00	48.00	39.00
47.00	34.00	46.00	38.00
36.00	38.00	44.00	36.00
35.00	37.00	34.00	33.00
47.00	36.00	48.00	35.00
50.00	45.00	48.00	45.00
48.00	39.00	48.00	38.00
47.00	36.00	47.00	36.00
33.00	38.00	33.00	35.00
42.00	42.00	40.00	34.00
44.00	52.00	48.00	53.00
33.00	43.00	42.00	34.00
39.00	43.00	45.00	33.00
49.00	40.00	50.00	38.00
53.00	39.00	54.00	40.00
31.00	42.00	37.00	32.00
34.00	48.00	40.00	48.00

**Bb = Black photo, Black stereotypical items.** a) relaxation and movement economy, b) natural speed and quickness, c) longer limbs, and d) natural large muscle mass.

**Bw = Black photo, White stereotypical items** a) knowledge and intelligent use of training methods, b) access to better facilities, c) hard work and dedication, and d) access to better coaching.

**Ww = White photo, White stereotypical items.** a) knowledge and intelligent use of training methods, b) access to better facilities, c) hard work and dedication, and d) access to better coaching.

**Wb = White photo, Black stereotypical items.** a) relaxation and movement economy, b) natural speed and quickness, c) longer limbs, and d) natural large muscle mass.

## APPENDIX 3

### *Sample Survey Form*

Below is a list of attributes and factors commonly used by many coaches in track and field to describe the success of 100-metre sprint athletes.

Look briefly at the pictured sprinter below who is a club standard athlete.

Then rate all the statements in terms of how probable they may seem in having been a contributing factor to the athlete's success on a scale from 1 - 7

With 1 being highly improbable and 7 being highly probable.



Highly improbable

Highly probable

	1	2	3	4	5	6	7
Knowledge and intelligent use of training methods							
Relaxation and movement economy							
Natural speed and quickness							
Longer limbs							
Access to better facilities							
Hard work and dedication							
Natural large muscle mass							
Access to better coaching							

