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## **Teaching Human Variation: Can Education Change Students' Attitudes Towards 'Race'?**

This paper examines the influence of education on students' attitudes towards the race concept. A questionnaire was distributed before and after a short teaching module on human variation. A significant shift in student position from undecided and racial towards non-racial was observed, thus confirming the importance of scientific education in shaping students' opinions.

**Key words:** race; education; attitudes; human variation

### **Introduction**

Different aspects of the race concept have been debated in biological anthropology for centuries.<sup>1</sup> Although the emphasis has frequently shifted, the major issues discussed were the number of races, their origin and equality. In the middle of the twentieth century, the debate took on a whole new dimension as the scientific validity of the concept itself was brought into question. A number of prominent anthropologists argued that there are numerous drawbacks to the concept and that it is useless in the study of human variation, as well as being burdened with negative so-

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<sup>1</sup> G. W. Jr. Stocking, *Race, Culture, and Evolution*, New York, Free Press 1968; E. Barkan, *The Retreat of Scientific Racism: Changing Concepts of Race in Britain and the United States Between the World Wars*, Cambridge, UK, Cambridge University Press 1992; J. Marks, *Human Biodiversity: Genes, Race, and History*, New York, Aldine de Gruyter 1995; M. H. Wolpoff and R. Caspari, *Race and Human Evolution: A Fatal Attraction*, New York, Simon and Schuster 1997; G. M. Fredrickson, *Racism: A Short History*, Princeton, Princeton University Press 2002; C. L. Brace, *Race is a Four-Letter Word: The Genesis of the Concept*, Oxford, Oxford University Press 2005.

cial and political implications.<sup>2</sup> Opponents of this viewpoint contended that these problems originated from the typological approach upon which the classification was based.<sup>3</sup> Instead, they proposed a modification of the race concept in terms of populational thinking. This led to a lengthy debate which, in some aspects, remains unresolved to this day.<sup>4</sup>

A number of surveys have been carried out to determine the status of the race concept in certain groups of scientists. Among anthropologists, who have been investigated most closely, it has been established that there is little agreement on the subject, although in some countries the concept seems to be falling out of favour (e.g., USA), while in others it is deeply entrenched (e.g., China).<sup>5</sup> It has been argued in these studies that the reasons for this disagreement are many and diverse. They include theoretical, ideological and professional factors as well as the influence of chance.<sup>6</sup>

Previous research has suggested that the way scientists are educated has an influence on how human variation is perceived.<sup>7</sup> In the USA, Hart and Ashmore have recently shown significant changes in students' understanding of race before and after a course on human variation. It seemed worthwhile, therefore, to look at the influence of education on students' attitudes towards the race concept in South

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<sup>2</sup> For example, F. B. Livingstone, *On the non-existence of human races*, *Current Anthropology*, 1962, 279-281; A. Montagu, *The Concept of Race*, New York, Free Press of Glencoe 1964.

<sup>3</sup> For a example, T. Dobzhansky, *Mankind Evolving*, New Haven, Yale University Press 1962; S. Garn, *Human Races*, 2<sup>nd</sup> ed, Springfield, C. C. Thomas 1962.

<sup>4</sup> For example, A. R. Templeton, *Human races: a genetic and evolutionary perspective*, *American Anthropologist*, 100 1998, 632-650; G. Štrkalj, *Form and race: terminological concepts for the study of human variation*, *Mankind Quarterly*, Vol 41, 2000a, 109-118; E. Mayr, *What Evolution is*, London, Weidenfeld and Nicolson 2002.

<sup>5</sup> M. Cartmill, *The status of the race concept in physical anthropology*, *American Anthropologist*, Vol 100, 1998, 651-660; A. Littlefield, L. Lieberman, L. T. Reynolds, *Redefining race: the potential demise of a concept in physical anthropology*, *Current Anthropology*, Vol 23, 1982, 641-655; L. Lieberman, B. W. Stevenson, L.T. Reynolds, *Race and anthropology: a core concept without consensus*, *Anthropology and Education Quarterly*, Vol 20, 1989, 67-73; K. A. Kaszycka & G. Štrkalj, *Anthropologists' attitudes towards the concept of race: the Polish sample*, *Current Anthropology*, Vol 43, 2002, 329-335; L. Lieberman, R. C. Kirk, A. Littlefield, *Perishing paradigm: race – 1931-1999*, *American Anthropologist*, Vol 105, 2003, 110-113; Q. Wang, G. Štrkalj, L. Sun, *The status of the race concept in Chinese biological anthropology*, *Anthropologie*, Vol 40, 2002, 95-98; Q. Wang, G. Štrkalj, L. Sun, *On the concept of race in Chinese biological anthropology: alive and well*, *Current Anthropology*, Vol 44, 2003, 403; L. Lieberman, A. J. M. Fuentes, K. A. Kaszycka, L. Yablonski, R. C. Kirk, G. Štrkalj, Q. Wang, L. Sun, *The race concept in five regions: variations without consensus*, *Collegium Antropologicum* Vol 28, 2004, 907-921.

<sup>6</sup> G. Štrkalj, *The status of the concept of race in contemporary biological anthropology: a review*, *Anthropologist*, Vol 9, 2007, 73-78.

<sup>7</sup> See, A. Littlefield, L. Lieberman, L. T. Reynolds, *op.cit.*; L. Lieberman & R. C. Kirk, *What should we teach about the concept of race?*, *Anthropology & Education Quarterly*, Vol 35, 2004, 137-145; D. Hart & P. Ashmore, *Changing students understanding of race*, *Anthropology News*, Vol 47 (7), 2006, 10-11.

Africa, a country that was officially racially segregated until 1994, and where the effects of this are still felt. One of the many consequences of the long period of apartheid is that racial classifications continue to be used in both the public and scientific domain. For example, recent studies have shown that racial taxonomy, often over-simplified, is still widely used in South African biomedical research.<sup>8</sup>

The importance of education in racial attitudes was demonstrated in South Africa as early as the 1930s.<sup>9</sup> A South African university therefore provides an ideal environment to investigate the role of education on students' attitudes towards the concept of race: how education relates to, and whether it may counteract, wider external influences.

## Materials and methods

Students who belonged to the University of the Witwatersrand (Wits), one of South Africa's leading tertiary institutions, were surveyed in two consecutive years. Both groups were in the second year of a Bachelor of Science degree. Their first year of study had included subjects such as physics, chemistry and mathematics, whereas subjects of the second year were channelled more towards their final specialisation, in this case one of the subdisciplines of biology (e.g., human biology, medical cell biology). Part of this curriculum included a year long course on human and comparative biology. Among other topics on this course, an introductory module on human variation lasting two weeks was taught. The module comprised an average of eight 45-minute lectures with one three-hour practical. It was based on chapters 3, 5 and 6 of John Relethford's *The Human Species: An Introduction to Biological Anthropology*,<sup>10</sup> and the recommendations of the American Anthropological Association.<sup>11</sup> Both sources (widely used in the USA and other parts of the world) advocate a non-racial stance. In the chapter on approaches to the study of human variation, for example, Relethford,<sup>12</sup> states: "The race concept has limited use in analyses of biological variation... [It] uses arbitrary classifications of predominantly continuous variation, ignores Mendel's work on independent assortment, does not account for differences in patterns of variation among different

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<sup>8</sup> G. T. H. Ellison & T. de Wet, *The use of 'racial' categories in contemporary South African health research*, South African Medical Journal, Vol 87, 1997, 1671-1679; A. G. Morris, *Using racial terms in anatomical research*, Plexus, Vol 2, 2003, 9-12; G. Štrkalj, S. Ramsey, A. T. Wilkinson, *Anatomists' attitudes towards the concept of race*, South African Medical Journal, Vol 94, 2004, 90-91.

<sup>9</sup> I. D. MacCrone, *Race Attitudes in South Africa*, Johannesburg, Witwatersrand University Press 1937.

<sup>10</sup> J. H. Relethford, *The Human Species: An Introduction to Biological Anthropology*, 5<sup>th</sup> ed, New York, McGraw Hill 2003.

<sup>11</sup> L. Lieberman & P. C. Rice, *Races or Clines?* Revised edition, Arlington, American Anthropological Association 1997; L. Lieberman, "Race" 1997 and 2001: *A Race Odyssey*, Arlington, American Anthropological Association, 1997.

<sup>12</sup> H. Relethford, *op. cit.*

traits, and does not account for variation within groups... [It] is further limited because it offers no explanation of variation”.

The students were surveyed six weeks before the module on human variation and again six weeks after it had finished. In order to investigate students' attitudes towards the concept of race, a questionnaire was used. The questionnaires were distributed in practical sessions during other modules in the same course by researchers not involved in the teaching of the module. It was hoped that this approach would reduce the likelihood of students answering according to their perception of the expectations of the human variation lecturer. Not all students were present when the questionnaire was distributed. Participation was anonymous and voluntary. The questionnaire asked for one of three responses: 'yes', 'no' or 'cannot answer' to the question, "Do you agree with the following statement: 'There are biological races within the species *Homo sapiens*'?" This question, or a variation of it, has been used in previous studies.<sup>13</sup>

The questionnaire also asked for gender and age, and gave respondents the opportunity to comment on the topic.

The chi-squared test was used to establish whether significant differences existed among the responses.

## Results

One hundred and forty-one (88 female, 52 male, 1 unknown) responses were received before the human variation module and 135 (84 female, 51 male,) after it. The mean age of the students was 20 years. Before the module, 'yes', 'no' and 'cannot answer' responses were 77 (54.6%), 27 (19.2%) and 37 (26.2%) respectively; after the module, they were 54 (40%), 64 (47.4%) and 17 (12.6%) (Figure 1). The chi-squared test showed that there was a significant difference between the responses received before and after the module ( $p < 0.05$ ).

There was no significant difference in the responses from males and females in either of the two surveys. Only a few respondents used the opportunity to offer a comment.

## Discussion

It is obvious from these results that even a short module may influence the attitudes of students towards the concept of race. Before the course, the majority of students answered 'yes' or 'cannot answer'. The fact that there were many 'yes' (54.6%) and relatively few 'no' (19.2%) answers was possibly a result of being raised in a society where people have historically been divided along racial lines.

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<sup>13</sup> L. Lieberman, B. W. Stevenson, L.T. Reynolds *op.cit.*; G. Štrkalj, *Still no consensus on race?* International Association of Human Biologists Newsletter, Vol 30, 2000b, 28-32; Kaszycka & Štrkalj, *op. cit.*; L. Lieberman, R. C. Kirk, A. Littlefield, *op. cit.*

Despite attending a traditionally liberal university,<sup>14</sup> the students are still today asked during registration to categorise themselves into one of the four ‘population groups’ used in the apartheid era – ‘Black’, ‘White’, ‘Coloured’, ‘Indian’ – albeit only for statistical purposes. The large number of ‘cannot answer’ responses before the module may indicate that the students were unwilling to commit themselves to answer due to a lack of knowledge of the subject. This interpretation was supported by a few respondents who made exactly this comment.

The most noticeable change after the module was a sharp increase in ‘no’ answers (from 19.2% to 47.4%). This, together with the fact that the ‘cannot answer’ group decreased in number, suggests that many of the original ‘cannot answer’ respondents moved into the ‘no’ group. (It is unlikely that they moved into the ‘yes’ group since this also decreased in number.) The increase in ‘no’ answers implies that many students had adopted the non-racial approach endorsed by the module textbook and lecturer. The decrease in ‘cannot answer’ responses after the module indicates that students obtained more information on human variation, which allowed them to commit to a positive or negative response. The ‘yes’ answers decreased in number, but not dramatically, which suggests that a short module of this nature was presumably not enough to change all the students’ opinions.

## Conclusion

As already noted, people’s racial attitudes, including those of scientists, are formed by a complicated network of influences. Although the social context has changed dramatically in the last decade in South Africa, racial thinking is still prevalent. Even in the new political climate, racial divisions are seen as necessary in the effort to counterbalance the injustices of the previous regime (affirmative action, for example). This study shows that even a minimal programme of education can dramatically change students’ attitudes towards the concept of race and can indeed counteract some external influences, even in a racially oriented society such as South Africa.

The process of education, therefore, seems to be a powerful tool in the acceptance of the non-racial paradigm.

## Acknowledgement

We dedicate this paper to Professor Leonard Lieberman who passed away earlier this year. We thank Len not just for his valuable comments on this paper but also for being a guide and inspiration in the study of human variation and the race concept.

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<sup>14</sup> B. K. Murray, *Wits: The Open Years*, Johannesburg, Witwatersrand University Press 1997.

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## Предавања о људској разноликости: може ли образовање променити став студената према схватању „расе“?

*Кључне речи:* раса, образовање, ставови, људска разноликост

Овај рад бави се утицајем образовања на ставове студената о концепту расе. Упитник је био подељен студентима пре и после кратког курса о људској разноликости. Приметили смо значајну промену: студенти који су били неопредељени или расистички оријентисани променили су своје ставове према расизму, чиме се потврђује значај научног образовања у формирању мишљења студената.