

Beliefs concerning human nature among university students and high school teachers twenty-four years ago and today

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ABSTRACT: Beliefs concerning human nature are widely examined in a series of past studies (1945, 1956, 1988, 1989). This study aimed to investigate Greek (high school and university) students' and teachers' current beliefs about human nature. A total of 307 participants: 83 beginning Greek undergraduate psychology and 94 medical students, 100 high school students and 30 high school teachers completed a 20-item questionnaire about superstitious beliefs. These data were compared with previous data from psychology first-year university students and high school teachers. The mean percentage of superstition per item for the undergraduate psychology students group was similar to the medical students, showing no statistically significant differences between the two groups. A dramatic drop was found in comparison to results on a similar first year undergraduate group of psychology students 24 years before. The same questionnaire showed a similar spectacular decline in superstitions concerning a group of high school teachers in the present study and 21 years before. The fourth study group of high school students gave a similar general disbelief in superstitions. The radical change in the way that young adults perceive human nature highlights the importance of direct or indirect time-changing cultural, scientific, and mainly educational influences. Future research should elucidate the factors influencing beliefs about human nature.

KEYWORDS: Superstitions, education, science, adults, adolescents.

1 INTRODUCTION

The interest in knowledge, beliefs and superstitions of students in social science classes has a relatively long history during the twentieth century. Strange beliefs about human nature of young adult university students, also known as superstitions, were first examined with the use of a True-False questionnaire, in a class of first year psychology students in America in 1925 [1]. Twenty-five years later, the same questionnaire was re-used in a male sample in the same country, with a profound drop in the average wrong answers [2]. A similar study 30 years later in Australia [3] found that instead of a steady decline, superstitious non-scientific beliefs were moderately stable in comparison to Nixon's data [1] and increased in comparison to Levitt's data [2].

Following the previous attempts, Ralya devised a 53-item questionnaire and found that in a group of 141 prospective pre-medical students in the U.S.A. there was a moderate incorrect belief in superstitions (see Table 1) [4]. In Britain, eleven years later a group of psychology students examined before and after a year long psychology course, showed a slight decrease on these beliefs (the mean percentage of incorrect responses fell from 29 to 23 per cent) [5]. Thirty-two years later students attending interviews for the psychology university program showed that they came with fewer 'incorrect' ideas at the beginning of their studies [6].

The purpose of this study was to examine the beliefs that young Greek students (undergraduate university students following psychology and medicine courses and high school students) and their high school teachers share about human nature in comparison to previous data. At the same time an attempt is made to examine these data in the light of possible advancement of educational theory and practices in the Greek educational system.

2 METHOD

2.1 PARTICIPANTS

The sample consisted of a total of 307 participants from Greece. The first group included 83 first year undergraduate psychology students (73 girls and 10 boys), all of whom were admitted to three psychology departments after attending an obligatory high school secondary educational program (focusing on ancient Greek, Latin, literature and optional science courses) and after passing state examinations on these subjects. This school was chosen because of previous findings on a similar first year psychology class with educational and age equivalence (in 1989, who also entered tertiary education, Aristotle University of Thessaloniki, School of Psychology on the basis of the attendance and examination of the same lessons) [7]. The ages of the students in both studies (1989 and 2012) ranged from 17 to 25 ($M = 18.26$, $SD = 0.95$), the geographic location of origin (place of birth and primary and high school attainment) and socio-economic status (according to the students' family income) were also similar for both studies. The students completed the questionnaire anonymously.

The second group of participants were 94 first year undergraduate medical students (64 girls and 30 boys, 17 to 25 years of age, $M = 18.08$, $SD = 0.81$), all of whom were admitted to three Medical Schools in Northern Greece, after attending an obligatory high school educational program (focusing on mathematics, physics, biology, chemistry and optional literature courses) and after passing state examinations on these subjects.

Similar to the Houssiadas' study [8], the third group of participants consisted of 30 working high school literature teachers (all women, $M = 57.16$, $SD = 4.79$). The teachers were examined at the beginning of an educational seminar. They had an average of 15 years of educational experience and were recruited from the same geographical district as in the 1991 study.

The fourth study group consisted of adolescents, who in comparison with the previous groups could be characterized as having a lower educational attainment: 100 high school students (60 girls and 40 boys, $M = 15.96$, $SD = 0.68$), with a range between 15 and 17.

2.2 PROCEDURE

All participants completed a 20-item questionnaire about human nature and relevant superstitions. The 20 questions were copied and translated exactly from Ralya's 53-item questionnaire [4]. The choice of the 20 questions was made on the basis of the possibility of classifying them as True or False according to modern scientific data, their cultural appropriateness for the Greek society and because the same information about superstitions from the extended questionnaire could be gathered using half the questions.

3 RESULTS

The results of previous studies from English-speaking countries on a time continuum showed an overall reduction of errors.

Table 1. The 20 questions and the incorrect answers from various studies showing changes over place and time

	True/ False	Ralya 1945	Warburton 1956	Furnham 1988	Houssiadas 1989 psychology students	Houssiadas 1991 high school teachers	Giannouli 2012 psychology students	Giannouli 2012 medical students	Giannouli 2012 high school students	Giannouli 2012 high school teachers
		N=141	N=143	N=98	N=95	N=30	N=83	N=94	N=100	N=30
1.The position of the stars at the time of a man's birth determines, in part, his character.	F	12.76 % (18)	4.19 % (6)	22.44 % (22)	54.73 % (52)	53.33 % (16)	6.02 % (5)	4.25 % (4)	5% (5)	0 % (0)
2.The ancient Greeks were born with better intellects than people are endowed with today.	F	14.89 % (21)	6.99 % (10)	4.08 % (4)	3.15 % (3)	10 % (3)	2.40 % (2)	1.06 % (1)	1% (1)	0 % (0)
3.Man is biologically descended from a species of existing apes.	F	43.26 % (61)	39.86 % (57)	56.12 % (55)	36.84 % (35)	50 % (15)	0 % (0)	0 % (0)	0 % (0)	0 % (0)
4.Some of the higher apes are as intelligent as the average man.	F	7.80 % (11)	6.99 % (10)	11.22 % (11)	18.94 % (18)	33.33 % (10)	0 % (0)	0 % (0)	0 % (0)	0 % (0)
5.Animals depend to a greater extent on inherited ways of doing things than does man.	T	7.09 % (10)	12.58 % (18)	28.57 % (28)	25.26 % (24)	23.33 % (7)	0 % (0)	0 % (0)	0 % (0)	6.66 % (2)
6.The conscience is part of man's natural equipment at birth.	F	25.53 % (36)	37.76 % (54)	46.93 % (46)	67.36 % (64)	46.66 % (14)	3.61 % (3)	2.12 % (2)	5 % (5)	10 % (3)
7.Mothers instinctively know the best ways of caring for their children.	F	32.62 % (46)	24.47 % (35)	46.93 % (46)	73.68 % (70)	66.66 % (20)	22.89 % (19)	14.89 % (14)	14 % (14)	23.33 % (7)
8.All people reach physical maturity by the age of eighteen.	F	7.09 % (10)	26.57 % (38)	16.32 % (16)	23.15 % (22)	46.66 % (14)	0 % (0)	0 % (0)	2 % (2)	0 % (0)
9.A person may be coward in one situation and not in another.	T	4.25 % (6)	1.39 % (2)	8.16 % (8)	9.47 % (9)	16.66 % (5)	0 % (0)	0 % (0)	2 % (2)	3.33 % (1)
10.If the tails are cut off of generation after generation the rats, there will eventually be born rats without tails.	F	29.78 % (42)	34.96 % (50)	25.51 % (25)	33.68 % (32)	36.66 % (11)	2.40 % (2)	1.06 % (1)	3 % (3)	3.33 % (1)
11.Human progress is due to increased native intelligence from age to age.	F	52.48 % (74)	30.06 % (43)	55.10 % (54)	40 % (38)	16.66 % (5)	0 % (0)	0 % (0)	2 % (2)	0 % (0)
12.All men are born with equal powers.	F	6.38 % (9)	1.39 % (2)	15.30 % (15)	28.42 % (27)	20 % (6)	18.07 % (15)	13.82 % (13)	14 % (14)	0 % (0)

	True/ False	Ralya 1945	Warburto n 1956	Furnham 1988	Houssiadas 1989 psychology students	Houssiadas 1991 high school teachers	Giannouli 2012 psychology students	Giannouli 2012 medical students	Giannouli 2012 high school students	Giannouli 2012 high school teachers
		N=141	N=143	N=98	N=95	N=30	N=83	N=94	N=100	N=30
13. People cannot be sharply differentiated into blondes and brunettes in many cases.	T	7.80 % (11)	6.99 % (10)	13.26 % (13)	35.78 % (34)	66.66 % (20)	0 % (0)	0 % (0)	2 % (2)	0 % (0)
14.If we knew all about a person's heredity we could predict his success in the world.	F	15.60 % (22)	6.29 % (9)	8.16 % (8)	16.84 % (16)	20 % (6)	4.81 % (4)	4.25 % (4)	5 % (5)	0 % (0)
15.On the average the strongest men are the weakest mentally.	F	12.76 % (18)	21.67 % (31)	10.20 % (10)	11.57 % (11)	20 % (6)	0 % (0)	0 % (0)	1 % (1)	0 % (0)
16.Homely women are born with more intelligence than beautiful women.	F	4.96 % (7)	8.39 % (12)	3.06 % (3)	5.26 % (5)	3.33 % (1)	0 % (0)	0 % (0)	2 % (2)	0 % (0)
17.Intelligence plays a larger role in human happiness than does emotion.	F	39.00 % (55)	35.66 % (51)	11.22 % (11)	23.15 % (22)	26.66 % (8)	6.02 % (5)	0 % (0)	3 % (3)	6.66 % (2)
18.Certain lines on a person's hand are indicative of his future.	F	14.18 % (20)	4.19 % (6)	8.16 % (8)	24.21 % (23)	30 % (9)	3.61 % (3)	0 % (0)	2 % (2)	0 % (0)
19.People with long fingers are likely to be artistic.	F	33.33 % (47)	20.27 % (29)	14.28 % (14)	43.15 % (41)	33.33 % (10)	0 % (0)	0 % (0)	2 % (2)	0 % (0)
20.All of man's actions are determined by his desire to seek pleasure and avoid pain.	F	36.87 % (52)	23.77 % (34)	27.55 % (27)	75.78 % (72)	63.33 % (19)	4.81 % (4)	2.12 % (2)	3 % (3)	10 % (3)

An independent samples T-test was conducted to compare the scores on each question for current and past psychology students. The current results from the Greek students, compared to the Houssiadas study [7], reveal an impressive decline in belief for statements about occult sciences $t(176) = 8.095, p < .001$ (Q1 astrology), $t(176) = 4.034, p < .001$ (Q18 palmistry), non-scientific views concerning heredity: $t(176) = 5.737, p < .001$ (Q10 Lamarckism), $t(176) = 1.625, p < .001$ (Q12 genetic profile and equality) and $t(176) = 2.566, p < .001$ (Q14 genetics). Statistical differences were found for views against evolutionary biology: $t(176) = 6.919, p < .001$ (Q3), $t(176) = 4.380, p < .001$ (Q4 Darwinism), $t(176) = 5.267, p < .001$ (Q5 animal instincts) and $t(176) = 1.625, p < .001$ (Q12). There were also less current distorted views on intelligence $t(176) = 7.397, p < .001$ (Q11) and $t(176) = 3.255, p < .001$ (Q17), old ideas-stereotypes concerning the relationship between physical and psychological characteristics: $t(176) = 3.278, p < .001$ (Q15), $t(176) = 2.135, p < .001$ (Q16) and $t(176) = 7.894, p < .001$ (Q19), women stereotypes $t(176) = 6.763, p < .001$ (Q13) and other ideas-scientifically proven as wrong-from the field of psychology: $t(176) = 11.545, p < .001$ (Q6), $t(176) = 4.973, p < .001$ (Q8), $t(176) = 2.931, p < .001$ (Q9) and $t(176) = 13.597, p < .001$ (Q20). There were no significant differences for scores of past students ($M = .316, SD = .1758$) and current students [$M = .241, SD = .1542, t(176) = .300, p = 5.49$] for Q2 and similarly old students ($M = .2368, SD = .44268$) and students of today [$M = .228, SD = .4226, t(176) = 7.799, p = .292$] did not show statistically significant differences in their responses on Q7.

Similarly, past and current high school teachers demonstrate differences in all items of the questionnaire ($p < .001$), except for Q7 [$t(58) = 3.333, p = .273$]. Current psychology and medicine students do not differentiate in any item of the questionnaire, showing the same disbelief in different forms of superstitions. Finally, high school students do not believe in any sort of superstitions, which is also the case for young university students (regardless of academic discipline).

4 DISCUSSION-CONCLUSIONS

Although there are no current studies about superstitions and the nature and origin of strange beliefs regarding human nature in the Greek population, two initial Greek studies [7], [8] showed surprisingly similar (and even stronger persistence on wrong beliefs about human nature) in comparison with the latest British study [6].

In contrast with the previous data, the current results show a radical change in the way that young adults and their teachers perceive human nature. The fact that medical students reject unscientific beliefs in the same way as the psychology students and slightly younger high school students, shows the general change on these issues not only in society as a whole, but especially in educational settings before and during university studies. The only possible disadvantage is the prevalence of female participants in the sample (an essential element in order to have comparable data with the Houssiadas' 1989 and 1991 studies) is the fact that we cannot impose these findings on the general population by examining mainly university educated individuals (students and teachers).

Teachers' views as explored through additional semi-structured interviews indicate the factors that they consider to better explain the change as time passes on superstitious beliefs. The majority of current women high school teachers (26/30) believe that there are three reasons for this spectacular change: 1) foremost, the primary school teachers' and high school teachers' active efforts to talk to their classes about wrong and out of date superstitions, 2) new school books, which clearly imply critical thinking and subsequent disbelief on superstitions, and 3) the passive contact with ideas of disbelief that students of all ages have through mass media exposure. According to them the current low (nearly 0% of disbelief in superstitions in high school and university students alike) could continue to exist if society as a whole could maintain the influence that these three factors have on students' thought from an early age.

According to semi-structured interview findings, students of all three groups seem to have similar views with the teachers'. For which factor they considered that shaped the most their beliefs, the majority of participants indicated their primary-high school teachers' and parents' behavior (in the form of extra curricular activities and in class discussions on these issues) and not the broader social changes and scientific progress.

These data can be interpreted as the result of advancement of the educational process in Greece. The wider significance these data might carry and the meaning of the present findings for other countries is that various educational theories and corresponding practices were explicitly used, during the past two decades, by teachers and parents alike, in order to achieve the attainment and the goals of the system. Although the main aim of the educational process is not only changing or minimizing everyday superstitious beliefs, it seems that teachers' efforts have succeeded in this. The teachers' views of the present sample (as explored in short semi-structured interviews) indicate that they are aware of different educational theories and practices, which they consciously and unconsciously use (as does the majority of their colleagues) in order to achieve one of their main goals; the diffusion of new scientific ideas.

The fact that almost all of the participants in this study showed a clear disbelief in strange ideas concerning the human nature implies the end of erroneous superstitions, which could also be explained on the basis of radical social changes, scientific advances, and educational reforms. Given that a plethora of factors influence the students of today in Greece, the best explanation for this spectacular drop in superstitious beliefs is that they seem to receive more official systematic information about the above questions through the educational system (mainly teachers and books). Although the sample consisted mainly by women, the finding that the new generation of students and teachers have ceased to believe in anachronistic non-scientific ideas, may depict the wider change in the modern Greek society towards human nature. Future research should focus on the ideas that less educated individuals and/or young students and their teachers have about superstitions not only in Greece, but also in other countries. This comparative data may shed light to the factors that contribute to possible cross-cultural changes.

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