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Paranormal beliefs of preservice teachers'

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Abstract

The purpose of this study was to investigate pre-service teachers' attitudes towards paranormal beliefs. In this study whether pre-service teachers' attitudes towards paranormal beliefs changed in terms of their programme and gender was examined. The data was collected during the fall semester of the 2010-2011 academic year. The research sample was 236 pre-service teachers in a four year teacher preparation programme at Mersin University in Turkey. Data related to pre-service teachers' attitudes towards paranormal beliefs was collected through the "Revised Paranormal Scale". Pre-service teachers' responses to the scale were the major data for this study. The statistical analysis of the data was carried out by means of SPSS 11 for Windows.

Keywords: Education; Paranormal Beliefs; Preservice teachers;

1. Introduction

Surveys show that nowadays, paranormal beliefs are widely held by many people. Tobacyk (2004) indicated that psychokinetic phenomena could be classified as paranormal. Typical examples of paranormal beliefs are unidentified flying objects, ghosts, the Bermuda Triangle, Pyramid Power, astrology, communicating with the dead, faith healing, telekinesis, extrasensory perception, out of body experiences and monsters (Farha & Stewart, 2006; Lewis, 2002; Priest, 1995; Williams, et al., 2007).

Considerable research concerning paranormal beliefs has employed the assessment of the participants' paranormal beliefs. In these pieces of research, paranormal belief scales were used to measure the participants' beliefs. One of the scales was generated by Tobacyk and Milford in 1983, and many researchers have used this scale for their studies. This scale reflects major dimensions of paranormal beliefs and includes Traditional Religious Beliefs, Psi, Witchcraft, Superstition, Spiritualism, Extraordinary Life Forms and Precognition subscales. Although this scale has satisfactory reliability and validity, it was revised to lessen the restriction with regard to the range, and to improve the subscale reliability and validity, particularly cross -cultural validity in the measurement of paranormal beliefs in different cultures. Thus the original 25 item, five point Paranormal Belief Scale was modified into a 26-item, seven point Revised Paranormal Belief Scale. This scale allows the researcher to examine the nature of paranormal beliefs and their implications for spiritually.

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Irwin (2004) also used the 26-item Revised Paranormal Belief Scale that was the amended form of the scale originally developed by Tobacyk and Milford (1983). In this study, the researchers sought to extent their previous work by considering the formation of paranormal beliefs in relation to people's habitual inclination to test the logical plausibility of their beliefs. For this study adults who were residents of several cities or major towns in the states of New South Wales and Queensland were selected as participants.

Another paranormal belief scale (Farha & Stewart, 2006) was patterned after the 2001 Gallup poll and administered to 439 college students from metropolitan universities in the southwest central region of the United States. This instrument including thirteen paranormal dimensions: psychic or spiritual healing, ESP, haunted, demonic possession, ghosts, telepathy, extraterrestrial visitation, clairvoyance, communication with the dead, astrology, witches, reincarnation, and channelling. This scale was used to assess college students' paranormal beliefs. Therefore, for each of the dimensions, participants were asked to circle either "believe", "not sure", "don't believe". In this study, the researchers investigated if college students' paranormal beliefs changed in terms of their age, area of study and education level.

Some of the researchers used questionnaires to investigate students' belief in the paranormal. Lewis (2002) developed a questionnaire through the analysis of journal and research publications, and designed his study to investigate the relationship between personal experience with a phenomenon, age, gender, interest in paranormal phenomena, spirituality and the students' beliefs. Unlike other studies, in this questionnaire the researcher focused on: aliens, angels, Bigfoot, cattle mutilations, crop circles, extrasensory perception (ESP), ghosts, the Loch Ness Monster, near-death experience (NDE), out of body experiences (OBE), and unidentified flying objects (UFOs).

Bridgstock (2003) also administered a questionnaire about beliefs in the paranormal and asked students about a range of paranormal beliefs. To compare students' beliefs with scientific ones, he included six other items; four of which were established scientific beliefs, and two of which were scientifically undecided items.

Priest (1995) emphasized that paranormal belief is the irrational thinking behind the belief, and he indicated that paranormal resort to the use of force, or entities that are not supported by evidence, to support their belief in the existence of such phenomena as psychic forces, thought waves, and a soul that survives death. However, understanding science prepares people to lead personally fulfilling and responsible lives. Therefore teachers' scientific literacy is very important for every person, since it is known that children at a very young can be easily influenced by their teachers' views and opinions.

2. Method

2.1. Sample

This study was conducted during the fall semester of 2010-2011 academic years. The research sample consisted of 236 pre-service teachers in four year teacher education programmes (pre-school education, primary education, mathematics education and science education) at Mersin University in Turkey. All of the participants were third year and fourth year pre-service teachers.

2.2. Research Instrument

Data related to pre-service teachers' attitudes towards paranormal issues was collected through the "Paranormal Belief Scale" (Tobayck, 2004). The scale consists of 26 items and provides a measure of belief in each of seven dimensions: Traditional Religious Belief, Psi, Witchcraft, Superstition, Spiritualism, Extraordinary Life Forms and Precognition.

To adapt Tobacyk's Paranormal Belief Scale into a Turkish version, a translation procedure was done with three researchers and thirty five pre-service English teachers. Correlation analysis was undertaken to find the relationship

between Turkish and English versions of the scale (r: 0,6; p<0,01). After that, a pilot study was performed with pre-service Turkish teachers and then reliability analyses were performed.

The reliability of the full scale was .83, and reliabilities of the Psi, Witchcraft, Supersition, Precognition, Traditional Religious Beliefs dimensions were .70, .85, .77, .70, .74 respectively. However the reliability of Spiritualism and Extraordinary Life Forms was found to be lower than acceptable level used in this study (.70). Due to these results, items related to Spiritualism and Extraordinary Life Forms were not used for this study.

Students' age, gender and departments were also obtained.

2.3. Analysis

Statistical analysis of the data was carried out by means of SPSS 11 for Windows. For data analysis, descriptive statistics, and the ANOVA test for independent groups were utilized. Significance levels of .05 were accepted for all analysis.

In this study, to check the distribution of this sample, a Kolmogorov-Smirnov test was undertaken. The results of this test indicated a deviation from normality (Z: 1,21; p>.05) which means that the distribution is not significantly different from a normal distribution (Field, 2000, p.46-47). In the light of this result, parametric analyses were used for the data analysis.

3. Results

Table. 1. Sample characteristics

	F	%	Valid %	Cumulative
Gender				
Male	98	41,5.	41.5	41.5
Female	138	58.5	58.5	100.0
Department				
Pre-school education	58	24.6	24.6	24.6
Primary school education	73	30.9	30.9	55.5
Mathematics education	63	17.8	17.8	73.3
Science education	42	26.7	26.7	100.0

The sample consisted of 236 pre-service teachers of whom 98 were males and 138 were females; 58 were pre-school education students, 73 were primary school education students, 42 were mathematics education students and 63 were science education students.

Table.2. The Results of the ANOVA Test to Identify the Differences in terms of the Department Variable

N, X,SD				Results of ANOVA Testing				
Department	**N**	$\bar{X}$	**SD**	**Source of variance**	**Sum of squares**	**Df**	**Mean square**	**F**	**p**
Preschool education	58	66.706	13.6998	Between groups	400.36	3	133.45		
Primary school education	73	63.534	11.6262	Within groups	36287.80	23	156.41		
Mathematics education	63	66.142	12.1028	Total	36688.16	235		.85	.46
Science education	42	65.952	12.8555						
Total	236	65.440	12.4947						

As seen in Table 2, an ANOVA test was conducted to determine pre-service teachers' beliefs in paranormal phenomena in terms of their departments at a the significance level of .05. The results revealed that no statistically significant differences were found among departments (F: 0.85; p> 0.05).

Table.3.The Results of theANOVA Test to Identify the Differences in terms of the Psi Dimension

N, X,SD				Results of ANOVA Testing				
Department	**N**	$\bar{X}$	**SD**	**Source of variance**	**Sum of squares**	**Df**	**Mean square**	**F**	**p**
Preschool education	58	11.689	3.5054	Between groups	27.32	3	9.10		
Primary school education	73	11.465	3.6250	Within groups	2691.91	232	11.60		
Mathematics education	63	12.285	3.0818	Total	2719.23	235		.78	.50
Science education	42	11.476	3.3367						
Total	236	11.741	3.4016						

As can be seen in Table 3, no statistically significant differences were found related to the Psi dimension (F: 0.78; p>0.05).

Table.4. The Results of the ANOVA Test to Identify the Differences in terms of the Witchcraft Dimension

N, X,SD				Results of ANOVA Testing				
Department	**N**	$\bar{X}$	**SD**	**Source of variance**	**Sum of squares**	**Df**	**Mean square**	**F**	**p**
Preschool education	58	12.241	4.0232	Between groups	12.87	3	4.29		
Primary school education	73	12.054	4.4249	Within groups	4194.83	232	18.08		
Mathematics education	63	12.206	4.1858	Total	4207.71	235		.23	.87
Science education	42	12.738	4.3508						
Total	236	12.262	4.2314						

Table 4 indicates no statistically significant differences among pre-service teachers in relation to the Witchcraft dimension (F: 0.23; p>0.05).

Table.5. The Results of the ANOVA Test to Identify the Differences in terms of the Superstition Dimension

N, X,SD				Results of ANOVA Testing				
Department	**N**	$\bar{X}$	**SD**	**Source of variance**	**Sum of squares**	**Df**	**Mean square**	**F**	**p**
Preschool education	58	5.655	2.7115	Between groups	37.94	3	12.64		
Primary school education	73	4.780	2.0699	Within groups	1200.35	232	5.17		
Mathematics education	63	4.714	2.0433	Total	1238.30	235		2.44	.06
Science education	42	5.381	2.2841						
Total	236	5.084	2.2955						

Related to the Superstition dimension no statistically significant differences were found among pre-service teachers (F: 2.44; p>0.05).

Table.6. The Results of the ANOVA Test to Identify the Differences in terms of the Precognition Dimension

N, X,SD				Results of ANOVA Testing				
Department	**N**	$\bar{X}$	**SD**	**Source of variance**	**Sum of squares**	**Df**	**Mean square**	**F**	**p**
Preschool education	58	9.431	3.4187	Between groups	50.03	3	16.67		
Primary school education	73	8.328	2.9109	Within groups	2352.67	232	10.14		
Mathematics education	63	8.444	3.0309	Total	2402.71	235		1.64	.18
Science education	42	9.071	3.5157						
Total	236	8.762							

Related to the Precognition dimension no statistically significant differences were found among pre-service teachers (F: 1.64; p>0.05).

Table.7. The Results of the ANOVA Test to Identify the Differences in terms of the Traditional Religious Dimension

N, X,SD				Results of ANOVA Testing				
Department	**N**	$\bar{X}$	**SD**	**Source of variance**	**Sum of squares**	**Df**	**Mean square**	**F**	**p**
Preschool education	58	12.293	2.9080	Between groups	68.83	3	22.94		
Primary school education	73	12.684	2.3739	Within groups	1439.99	232	6.20		
Mathematics education	63	13.650	1.5979	Total	1508.82	235		3.69	.01
Science education	42	12.381	3.0995						
Total	236	12.792	2.5338						

Related to Traditional Religion, the ANOVA test was conducted to determine differences among different departments in terms of their paranormal beliefs at a significance level of .05. The results revealed that pre-service mathematics teachers showed higher belief scores compared with other pre-service teachers, and statistically significant differences were found among these groups (F: 3,69; $p<.05$). The homogeneity of variances was checked to decide which post hoc test would be chosen. Since the variances were not found to be homogeneous (Levene: 3.837; $p<.05$) Tamhane's testing was preferred. The results obtained are presented in Table 8.

Table.8. The Results of the Tamhane Tests

Department (I)	**Department (J)**	**(I-J) Mean Difference**	**Std. Error**	**p**
Preschool education	Primary school education	-.391	.4722	.95
	Mathematics education	-1.357	.4316	.01*
	Science education	-.087	.6120	1.00
Primary school education	Preschool education	.391	.4722	.95
	Mathematics education	-.965	.3431	.03*
	Science education	.304	.5531	.99
Mathematics education	Preschool education	1.357	.4316	.01*
	Primary school education	.965	.3431	.03*
	Science education	1.269	.5189	.10
Science education	Preschool education	.087	.6120	1.00
	Primary school education	-.304	.5531	.99
	Mathematics education	-1269	.5189	.10

The results of the Tamhane test revealed statistically significant differences ($p<.05$) between pre-service mathematics teachers and pre-service preschool teachers in favour of the pre-service mathematics teachers in addition, there was a significant difference between pre-service mathematics teachers and pre-service primary teachers favour of the pre-service mathematics teachers.

Conclusion and Recommendations

The results of this study indicated that almost all of the pre-service teachers' beliefs tend to be at the same level in relation to paranormal dimensions. Except for traditional religious beliefs, in the dimension of psi, witchcraft, superstition and precognition, the mean scores of the different subject areas of pre-service teachers' did not show a strong difference.

In this study we expected that pre-service science teachers, with high levels of scientific knowledge, would have lower paranormal beliefs because, as mentioned by Brigstock (2003), skepticism about the paranormal is much more powerful among science students than in the general community. Diaz-Vilela & Gonzalez-Alvarez (2004) confirmed this expectation in their study, in that they found that physics students were especially prone to disbelief in every dimension of the paranormal belief scale. However the findings of this study also determined that there were no differences between pre-service science teachers and other pre-service teachers in relation to their paranormal beliefs. As Priest (1995) indicated in his study, students may have formed their paranormal beliefs in the absence of critical analysis, and these beliefs may result from the formation of naïve explanations in the same way that mythological beliefs are formed. Researchers also indicated that science education increases the acquisition of

factual, scientific knowledge, but does not necessarily reduce credulity with regard to pseudoscientific claims. In their study, they found that although science majors have a larger knowledge base about physics, chemistry and biology, this knowledge did not influence their credulity about concepts associated with the afterlife, ESP, alien abduction, and broken mirrors (Ryan et al., 2004).

The results of this study showed that pre-school pre-service teachers have stronger beliefs compared with other pre-service teachers in terms of the superstition and precognition dimensions of paranormal beliefs. This result is supported by the study of Farha and Stewart (2006) because, in their research, students in the social sciences showed a stronger belief than students in all other areas of study. Another study also showed that tourism students tend to believe in every dimension of paranormal belief (Diaz-Vilela & Gonzalez-Alvarez, 2004).

Interestingly, this study determined that pre-service mathematics teachers have greater beliefs in terms of traditional religious dimensions. In addition, statistically significant differences were found between pre-service mathematics teachers' beliefs and other pre-service teachers' beliefs.

In this study, as spiritualism and extra-ordinary life forms of the paranormal belief scale dimensions could not be used due to their poor reliability, pre-service teachers' beliefs about these aspects could not be demonstrated. The fact that not well understood belief items are not well understood might cause this result.

In summary, firstly, to measure pre-service teachers' paranormal beliefs more effectively and accurately, we need to develop our paranormal belief scale by considering our cultural values. Secondly, we need to know why paranormal beliefs fit into pre-service teachers' lives and which factors affect the beliefs of these students. We also need to make comparisons between different areas of study. Finally, we need to emphasize the importance of science education in our teacher preparation programmes.

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