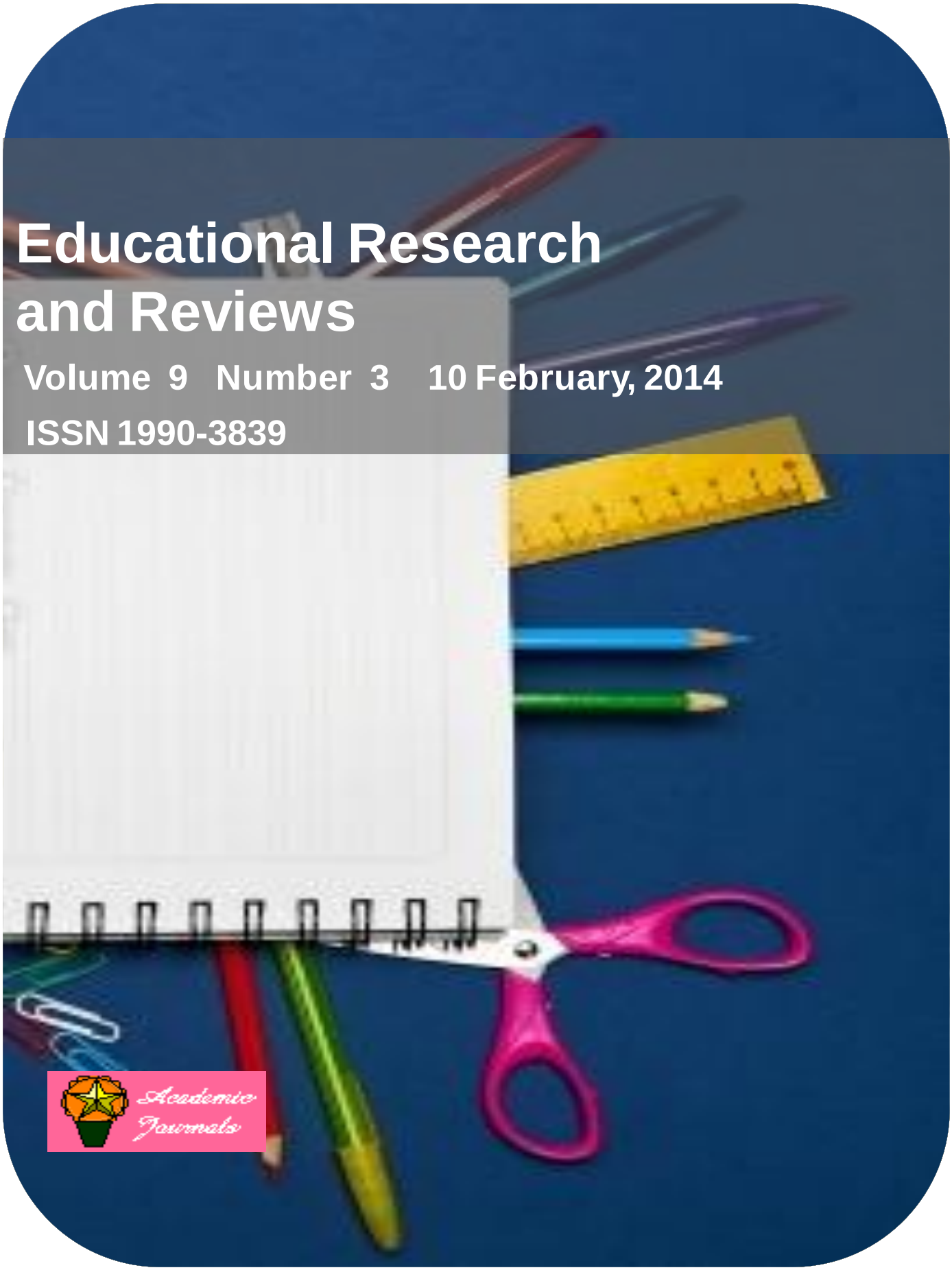

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Full Length Research Paper

Gender differences in school children's self-efficacy beliefs: Students' and teachers' perspectives

Jane Webb-Williams

School of Education, University of South Australia.

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This small scale study examined gender differences in self-efficacy. 24 girls and 28 boys aged between 10 and 12 years completed self-efficacy questionnaires and attainment tests. The study was conducted in two primary school classrooms in England and the results indicated that gender differences in self-efficacy were significant with boys holding a lower sense of self-efficacy than girls coupled with lower performance. Boys' self-efficacy scores were significantly correlated with performance but this relationship was lower than that of the girls. Interviews with the two teachers involved in this study showed a lack of understanding and awareness of the self-efficacy beliefs of their students and the impact it potentially had on their students' performance. Implications for teachers are discussed.

Key words: Primary classroom, self-efficacy, gender, correlation, attainment.

INTRODUCTION

This study examines gender differences in self-efficacy beliefs of children aged 10 to 12 years in the classroom context. Given that less research has been conducted in the classroom context with school aged children, this research aimed to offer self-efficacy findings with this age range and, through an exploration of teachers' understandings of self-efficacy, examined some of the implications for educational practitioners.

Self-efficacy is defined as "beliefs in one's capabilities to organise and execute the courses of action required to produce given attainments"(Bandura, 1997, p.3). Self-efficacy beliefs are self-perceptions of capability that can influence how people feel, think and act. Two decades of research in self-efficacy have shown that people with a high sense of self-efficacy tend to perform better than those with a low sense of self-efficacy (Usher and Pajares, 2008). In education previous self-efficacy research has demonstrated that self-efficacy beliefs are positively correlated with academic achievement (Jinks and Morgan, 1999; Pajares and Schunk, 2001; Usher, 2009) and linked to students' engagement (Schunk and Mullen, 2012).

Self-efficacy is part of Bandura's social cognitive theory which stresses the reciprocal interplay between personal factors, behavioural actions and environmental factors (Bandura, 2012a). In other words, a student's performance and motivation can be mediated by the interaction between self-efficacy beliefs, environmental factors such as classroom structures, and the influence of social interactions with peers. The development of self-efficacy beliefs therefore occurs through a process of selecting and interpreting thoughts, behaviours and environmental information (Bandura, 1997). Self-efficacy has unique features which distinguish it from other self-constructs.

E-mail: jane.webb-williams@unisa.edu.au. Tel: + 61 (8) 83024510.

One main difference is that self-efficacy is a judgement of capability to perform a task not a judgment of personal qualities or self-worth and it is domain-specific which means people can exhibit a high sense of self-efficacy in one domain such as science but low in another such as maths. Self-efficacy is an expectancy belief in that it is measured *before* the task is performed and is not about how a person feels about a task after they have completed it. People with a strong sense of self-efficacy tend to be more motivated to achieve their goals, they put more effort into achieving goals and they persist even when faced with the issue that they may fail. This resilience and motivation provides them with a higher chance of success in tasks they perform. For example children with a high self-efficacy are more likely to choose to continue with a task than children with low self-efficacy (Bandura and Schunk, 1981), they persist longer and are more successful on difficult tasks than children with low self-efficacy (Schunk, 1981) and they rework more problems than children of the same ability with low self-efficacy (Collins 1982; in Bandura, 1997).

Self-efficacy beliefs have also been shown to influence self-regulation (Zimmerman, 1995). Self-regulation is concerned with regulating one's own learning process and includes processes such as goal settling, self-evaluation, strategy use and planning. Zimmerman (2002) claims self-regulation is important to be successful in learning. Knowing self-regulatory strategies is part of effective self-regulation but self-efficacy for self-regulated learning is also needed (Usher and Pajares, 2008b). Research in this field has shown that self-efficacy beliefs influence the deliberate observation of one's behaviour, the perception of that behaviour and the amount of attention given to aspects of that behaviour. Thus, there is an importance difference between having the necessary meta-cognitive skills and using them effectively (Bandura, 1997). Poor performance can arise, not because of a lack of knowledge but from disuse or deficit use of skills. Self-efficacy for self-regulated learning is therefore a key indicator and as such was used in the current study.

Although there is a strong relationship between self-efficacy and performance, it cannot be said that a person with low skills and high sense of self-efficacy can perform well. It takes more than a high sense of self-efficacy to produce high achievements. What self-efficacy does is influence a person to try harder and be motivated to gain the skills and then to make the best use of these skills in their performance. Self-efficacy can therefore be applied to classroom teaching; however, the majority of studies have been conducted in relation to adolescents and young adults, with few studies (other than those conducted in the USA) investigating the younger age range. Moreover, research conducted in USA has shown some evidence for gender differences in self-efficacy and a recent meta-analysis (Huang, 2013) found small but significant gender effects across 187 studies with a small difference favouring males. However, in some studies girls, have been shown to exhibit higher self-efficacy beliefs. Britner and Pajares (2001) reported that girls had higher self-efficacy beliefs and attainment in science than boys and Pajares et al. (1999) investigated gender differences and self-efficacy for writing and reported that girls had a stronger self-efficacy for self-regulated learning together with higher attainment. This gain favouring females is not consistently reported; thus further researched is needed to clarify the direction of any observed difference. This study aimed to examine gender differences with children in the classroom and given the application to teaching including an exploration of teacher's perceptions of their students' self-efficacy. This aspect of the research should provide new insights of teachers' understanding of the self-efficacy beliefs of their students. It is argued here that self-efficacy is under-explored outside of the USA and yet potentially is a useful construct in school learning. Alerting educators to the merits of enhancing self-efficacy and providing them with the tools, knowledge and strategies would be of significant value particularly given the strong correlation between attainment and self-efficacy. The following research questions were examined:

1. What are the self-efficacy levels of children aged 10 to 12 years in a classroom context?
2. What is the strength of the correlations between self-efficacy and performance of children aged 10 to 12?
3. Do the self-efficacy levels of children aged 10 to 12 years show a difference according to gender?
4. What are teachers' understanding and awareness of the self-efficacy beliefs of their students?

MATERIALS AND METHODS

Students completed two Likert scale self-efficacy questionnaires and a performance test. The two self-efficacy measures employed in the study were "self-efficacy for general academic achievement" and "self-efficacy for self-regulated learning". Self-efficacy for general academic achievement measures self-efficacy for achievement in three core subjects: English, Maths and Science. This scale was a shortened version of self-efficacy for academic achievement in Bandura's Children's Self-Efficacy Scales (2006). The scale needs to be modified for the present study in order to make it appropriate to the age and culture of the participants. Thus, the questions most relevant to English 10 and 12 year olds children such as "How well can you learn science?" were selected from the nine questions on the original scale. As a result questions such as "How well can you learn social studies?" and "How well can you learn algebra?" were discarded due to the fact that these topics were not taught in the year group being examined. Self-efficacy for self-regulated learning which measures self-efficacy beliefs for self-regulatory processes such as time planning and management was taken from Bandura's Children's Self-Efficacy Scales (Bandura, 2006). The performance test was a shortened version of Key Stage 2, levels 3 to 5, Science SATs A and B developed in England by the Department for Education and Employment (DfEE) and the Qualifications Curriculum Authority (QCA). All children in England take Standard Attainment Tests (SATs) at 10- 11 years. Using questions from these tests ensured that all items were appropriate and reliable. The test was shortened to allow administration. The newly created shortened version of the test comprised 8 questions

Table 1. Overall mean scores for self-efficacy scales (N=50)

Self-Efficacy Scale	No items	M (SD)	Item M	Median	Mode	Range	Skewness	Kurtosis
Academic Achievement	3	15.12 (2.87)	5.04	15	17	12	-.358	-.628
Self-Regulated Learning	11	51.12 (12.32)	4.65	51	49	50	-.167	-.702

from Scientific Enquiry (Sc1), 4 questions from Life Processes and living things (SC2), 4 questions from Physical Processes (Sc 3) and 4 questions from Material and their Properties (sc4). This spilt insured that similar questions were represented in the same ratio as the original test. Science was the domain chosen rather than maths or English because children of this age are not statutory required to complete the above tests in science and thus children would not have received intensive revision work in this subject as they would in the other subjects.

Teacher interviews were conducted and examined understanding of self-efficacy beliefs as well as providing predictions of their pupils' self-efficacy and performance scores.

The study complied with the British Educational Research Associations Ethical Guidelines. All ethical approvals were sought and informed consents from parents, students and teachers gathered. Participants were free to withdraw at any time and all information was confidential.

Participants

Fifty two students (24 girls, 28 boys) and 2 female teachers from one school located in the East of England participated in the study. Students were from two classes in the same school and ages of the students ranged from 10 years to 12 years. The researcher administered the self-efficacy and performance instruments for each of the two classes and then conducted individual interviews with each of the class teachers. It took approximately 45 min for the students to answer the self-efficacy measures and the performance test.

Procedure

In order to familiarise the children with the rating scale, practice items were presented on a white board and the rating scale explained to the whole class by the researcher. Pupils were then given the following guidelines regarding the completion of the questionnaires:

1. complete the questionnaire according to how you think, not your parents, your teacher or your friend
2. be as honest as you can, usually the first thing that pops into your head
3. this is not a test, there is no right or wrong answer
4. do not discuss your answers
5. give only one answer to each question
6. put up your hand if you are unclear of any items

Any child needing support to complete the questionnaires such as with writing of their answers or reading of the questions were helped promptly. On completion of the self-efficacy scales and attainment test for both classes the researcher left the school and returned three weeks later to conduct the teacher interviews, having analysed the data from the children.

The individual interviews with each of the class teachers were conducted in a private space and were audio taped. The interview protocol for the teachers consisted of a semi-structured interview in which teachers were asked a series of questions about the self-beliefs and confidence levels of the children in their class. The conversations were free flowing and explored the responses of each of the teachers. Three main questions were the focus of the interviews which relate to the research questions outlined in the introduction:

1. What are your understanding of your student's academic self-beliefs and confidence levels?
2. Do you think these self-beliefs are related to attainment and if so how and why?
3. Do you think the self-beliefs and confidence levels of the students in your class are different for boys and girls?

On completion of the main interview teachers were given some feedback about the data collected from their students and asked to comment. Teachers were then given a debriefing about self-efficacy and asked to comment about its usefulness or relevance to their classroom practice. Each interview lasted approximately 50 min.

RESULTS

The data were analysed using standard descriptive statistics, Pearson correlations and t tests with the assistance of statistical software SPSS. The self-efficacy measures, which differed in length from 3 questions on the academic achievement scale to 11 questions on the self-regulated learning scale, were scored using a 7 point Likert scale ranging from 1= not very well to 7= very well. Cronbach's alpha was used to assess the internal consistency of the self-efficacy instruments. The academic achievement scale coefficient was 0.51 less and the self-regulated learning scale was 0.90.

The shapes of the distribution of the scores on the self-efficacy instruments were examined. Looking at the data presented in Table 1 one can see that distributions were negatively skewed, indicating that there exists low frequency, extremely low scores but not corresponding low frequency high scores. The skewness co-efficients reported here are between -1.0 and +1.0 and therefore not considered to be extreme. The kurtosis value also gives an indication of the shape in terms of the peak of the distribution. The kurtosis values are greater than -1.00 and therefore considered normal. Variability of the data was considered by examining the range and the standard deviation (SD) reported in Table 1. The range determines how far the lowest score is from the highest score. The self-efficacy for academic achievement has the lowest range of 12 (8-20); however, this measure involves only 3 items and therefore the maximum range

Table 2. Self-Efficacy Items

	Self-efficacy for general academic achievement	M	SD
How well can you:		4.90	1.40
1	learn general mathematics	4.80	1.18
2	learn science	5.42	1.44
3	learn reading, writing and literacy skills		
	Self-efficacy for self-regulated learning		
How well can you:			
1	finish your homework assignments by deadlines	4.60	1.85
2	study when there are other interesting things to do	3.64	1.82
3	concentrate on school subjects	4.98	1.52
4	take class notes of class instruction	4.56	1.70
5	use the library to get information for class assignments	5.28	1.44
6	plan your school work	4.84	1.46
7	organise your school work	4.86	1.56
8	remember information presented in class and textbooks	4.32	1.61
9	arrange a place to study without distractions	4.26	1.43
10	motivate yourself to do school work	4.96	1.41
11	participate in class discussions	4.82	1.55

Table 3. Self-Efficacy scales: means for girls and boys

Self-Efficacy Scale	All Mean	Girls Mean (N =24)	Boys Mean (N=26)	T-test Sig.
Academic Achievement	15.12	16.54	13.81	P<0.001
Self-Regulated Learning	51.12	59.00	43.85	P<.001

is only 18 (3-21). Examination of the standard deviations of the self-efficacy measures indicates they contain a good amount of variability.

Means and standard deviations for each item across the self-efficacy measure are presented in Table 2. With regard self-efficacy for self-regulated learning, pupils rated their self-efficacy the lowest for being able to study when there are other interesting things to do (M=3.64) and highest for being able to use the library to get information for class assignments (M=5.28).

Analysis of the self-efficacy for academic achievement measure showed that pupils rated their self-efficacy highest for learning reading, writing and literacy skills (M=5.42) and lowest for learning science (M= 4.80). A paired samples t-test was used to establish statistical significance and self-efficacy for learning science was significantly different from learning English (t=-3.394, df=49, p<.01). Figure 1 shows the scores plotted as a maximum score and demonstrates the low sense of perceived capability to learn science.

Girls held a higher sense of self-efficacy then boys on both self-efficacy measures (Figure 2). The girls scored above the overall mean on the self-efficacy instruments whereas the boys' scores fell below the overall mean. An independent samples t-test was used to test the significance of these differences and Table 3 shows that the girls scored significantly higher than the boys. The difference between the girls and boys occurred on every question of the self-efficacy measures with girls having a higher sense of self-efficacy than boys across the measures.

Girls' higher sense of self-efficacy was coupled with higher performance, with girls scoring a mean of 9.58 (SD =3.51) and boys scoring a mean of 7.00 (SD = 3.48). This difference was significant (t =-2.612, df = 48, p =<0.05). Analysis of the scores on the performance test produced a good internal consistency reliability coefficient of 0.74 and showed that the students mean score was 8.24 (*SD* 3.69). Table 4 shows the distribution of the science test and the skewness coefficient and kurtosis coefficient are considered slight and the data contain a god amount of variability (SD =3.69, range =15).

Not only do girls and boys differ in terms of their self-efficacy and science performance, but also in terms of the relationship that exists between self-efficacy and performance. The correlational analysis detailed in Table 4 shows that both boys' and girls' self-efficacy scores are highly related to their performance in science; however, there do exist some differences in the magnitude of this relationship. As can be seen in Table 5a and b, all the

Table 4. Self-Efficacy Item means for Girls and Boys

	Self-efficacy for general academic achievement	**Girls**	**Boys**
How well can you:		5.21	4.62
1	learn general mathematics	5.21	4.42
2	learn science	6.13	4.77
3	learn reading, writing and literacy skills		
	Self-efficacy for self-regulated learning		
How well can you:			
1	finish your homework assignments by deadlines	5.63	3.65
2	study when there are other interesting things to do	4.33	3.00
3	concentrate on school subjects	5.75	4.27
4	take class notes of class instruction	5.38	3.81
5	use the library to get information for class assignments	5.62	4.96
6	plan your school work	5.67	4.08
7	organise your school work	5.50	4.27
8	remember information presented in class and textbooks	5.00	3.69
9	arrange a place to study without distractions	4.96	3.62
10	motivate yourself to do school work	5.54	4.42
11	participate in class discussions	5.62	4.08

Table 5a. Science Attainment Test

	M (SD)	**Girls M (SD)**	**Boys M (SD)**	**Median**	**Mode**	**Range**	**Skewness**	**Kurtosis**
Science Test	8.24 (3.69)	9.58 (3.51)	7.00 (3.48)	8	6	15	.317	-.737

Table 5b. Gender differences: Pearson's r correlation between self-efficacy and attainment in science

Self-Efficacy Scale	**Boys r**	**Girls r**
Academic Achievement	0.59**	0.58**
Self-Regulated Learning	0.49*	0.67**

*Significant to 0.05 level
** Significant to 0.01 level

correlations are significant at the 0.01 level, however, self-efficacy for self-regulated learning the girls self-efficacy/performance correlation is higher than the boys.

Teachers were asked to predict their students' scores on the performance test and self-efficacy measures. Corre-lations between actual and predicted scores showed that teachers were able to judge their students' academic performance better than the self-efficacy beliefs of their students, with Pearson correlations being r = .75 for performance and 0.45 for the self-efficacy for academic attainment measure and 0.39 for the self-efficacy for self-regulated learning scale. Teacher inter-view data regarding understandings of self-efficacy are examined in the discussion section of this paper. Self-efficacy was explained to teachers in terms of levels of confidence because the term "confidence" is a familiar every day term and it was felt that teachers would engage more with a better understanding of the concept.

DISCUSSION

This study examined performance on a science attain-ment test together with self-reported self-efficacy beliefs of children between 10 and 12 years within a UK class-room. The focus of the study was to investigate potential

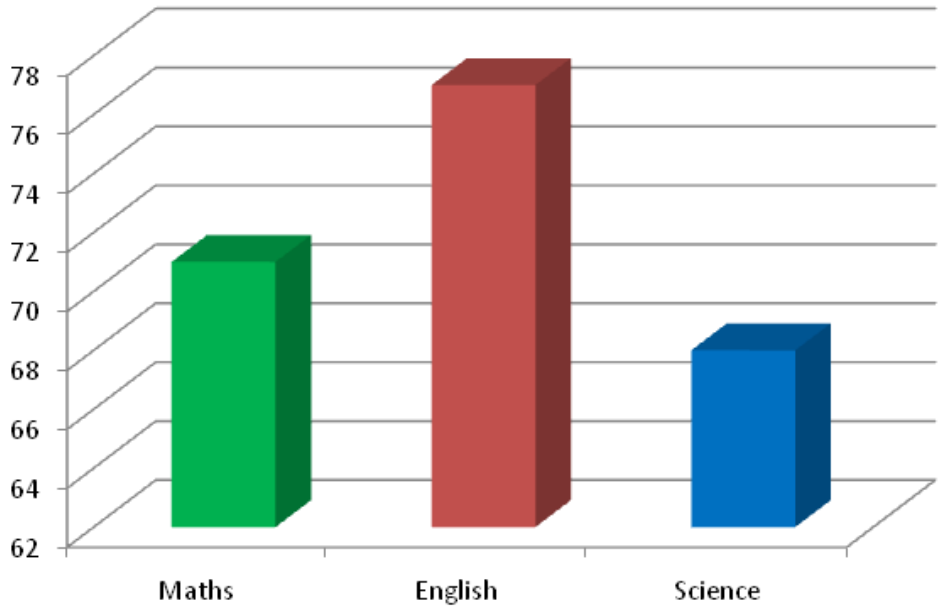

Figure 1. Self-efficacy for Academic Achievement (as a percentage of the maximum score)

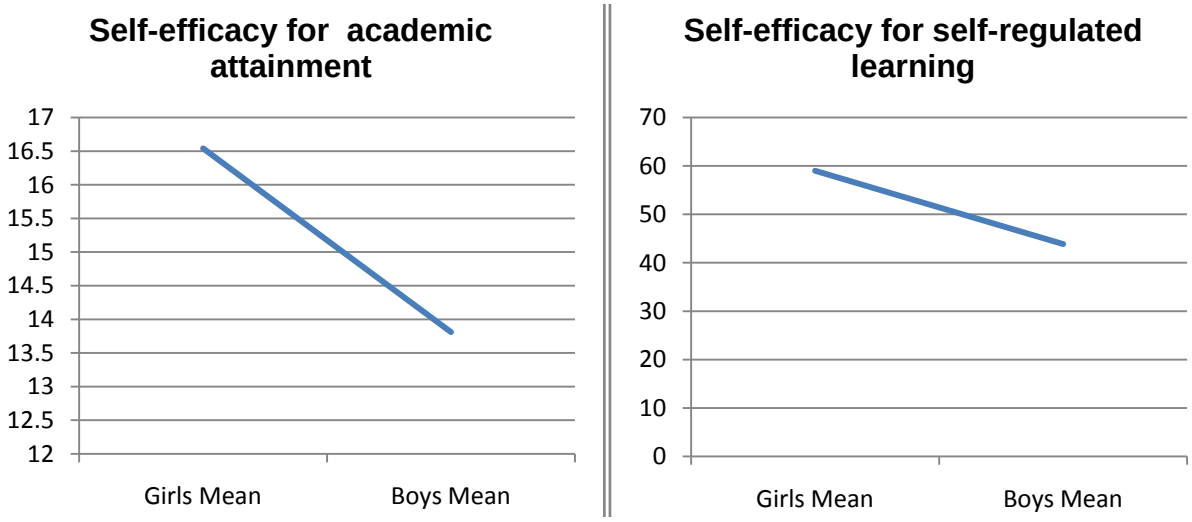

Figure 2. Self-efficacy beliefs: mean scores for girls and boys

gender differences that may exist in attainment and self-efficacy beliefs. The findings revealed gender differences, with boys scoring significantly lower than the girls on the attainment measure. This finding on its own is unsurprising given that gender gaps in academic performance have been reported internationally and much of the literature tends to focus on boys' underperformance compared with girls (Weiner 1995; Marks 2008). The more interesting finding with regard to attainment was the correlation between performance and self-efficacy beliefs. Previous research has tended to observe a strong positive correlation between attainment and self-efficacy. This study provided evidence that boys held weaker correlations than girls. In addition boys scored significantly lower than girls on both measures of self-efficacy. Boys held a lower sense of self-efficacy across all items and large differences were observed. With regard to self-efficacy for self-regulated learning the largest gender differences occurred in the self-reporting of how well students could finish their homework assignments by deadlines, take class notes of class instruction and plan their school work (with boys scoring significantly lower

than the girls); furthermore, the pattern of the responses where different between boys and girls. The girls' highest self-efficacy was for concentrating on school subjects and planning their school work. In contrast the boys' strongest self-efficacy was for how well they thought they could motivate themselves to do school work and use the library to get information for class assignments.

Gender differences in self-efficacy have been reported in previous research but the direction of the results varies with some studies reporting gains for females and some reporting gains for males (Huang, 2013). It is therefore difficult to ascertain the direction of the gender disparity. This study provides support for gender differences within this field in reporting higher self-efficacy beliefs for females. In addition, the interesting aspect of the findings of this research lies in the magnitude of the gender differences reported here. The gender differences of the children aged between10 and 12 years are of a greater magnitude than previous research. This finding could reflect a cultural difference due to the fact that much of the previous research has been conducted in the USA. Alternatively the large difference between boys and girls could reflect the age of the students since previous research tends to be conducted with older students. Another possibility is that the differences reflect class-room interaction and pedagogical approach used by the teachers involved in the study.

Teachers have great power and influence over the creation and development of their student's self-efficacy beliefs. Self-efficacy beliefs are developed through the four main sources of mastery experience, vicarious experience, verbal persuasion and physiological states (Bandura, 1997; Joet, Usher, and Bressoux, 2011). Thus most of what teachers do can influence a child's self-efficacy belief (LeFrancois, 2000). For example through classroom instruction, setting of tasks, how the children are responded to, how effort and achievement are rewarded, how feedback is given, how children are grouped are a few examples of how teachers can influence the development of a child's self-efficacy beliefs. It is possible that the school classrooms involved in this study have unknowingly impacted upon the children's self-beliefs such that polarisation according to gender occurs. Indeed, there is some evidence to support this hypothesis within this study.

The teachers interviewed in this study had limited understanding of self-efficacy beliefs and the influence of these self-perceptions on children's academic performance. This was evident in the correlations between teachers' predicted scores and the students' actual scores. The teachers were able to predict the attainment scores of the students in their class accurately with a high correlation of 0.75. In contrast the teachers were less able to accurately predict the self-efficacy beliefs of the children in their class with correlations of 0.49 and 0.39. This finding indicates that the teachers had less knowledge of their student's self-perceptions. This was also evident in the qualitative interview data which revealed that teachers were unaware of the self-perceptions of their students:

Teacher A: Ah yes him …not sure about him. He does well in maths and struggles a bit with his handwriting. His mum has come to see me a couple of times because she is concerned about his grades but overall he is sort of an average ability level for the class so really there is no problem.

This quote from Teacher A was in response to a question asking for the teacher to comment on a student's self-beliefs. The teacher responds in a way that reflects his understanding of the students' academic attainment but not self-beliefs.

Teacher B: Well I know that a couple of them, that is the boys, sort of think they can't do it and don't even bother looking at it, it makes me mad that they don't even have a go. I mean it is like crazy that they don't because they get a low mark anyway so they might as well have a go because they can't have done any worse on it. I don't get it really but it is only a couple the others are ok.

This quote shows the frustrations this teacher is having in engaging some of the boys in her class but also potentially indicates that the students with which she is referring have a low sense of self-efficacy and therefore are less motivated, less likely to sustain effort and more likely to expect failure of a task. Lack of teachers' understanding was further evident in discussions regarding gender where the teachers overestimate the confidence level of the boys in their class (confidence level was used to explain self-efficacy to the teachers):

Teacher B: well the boys I would say…yes the boys are more confident because well they sort of run it in the classroom, I mean they are loud and shout out the answers all the time which I don't like really but it is hard to stop them ..some say they can't do it but not many I mean they just sort of get on with it once they have stopped messing around ..yes the boys are really more confident the girls like to know they are getting it right so they ask lots of questions.

This quote provides an insight into how this teacher was judging the children's self-beliefs and it appears to be based on boys' more extrovert/difficult behaviour. Indeed the gender differences in self-efficacy beliefs revealed in this study came as a surprise to both teachers with both of them incorrectly suggesting that the boys held high stronger self-beliefs than the girls.

Many reasons have been suggested to explain gender differences such as bias in teacher classroom interaction, difference in learning styles, increase of 'laddish' behaviour' and that girls use a more social comparative method of evaluating their self-efficacy beliefs than boys (Pajares et al. 1999). Regardless of the reason behind

the gender differences the literature offers ways teachers can help to promote their students' self-efficacy which is especially important to examine given that the teachers in this study appeared to be largely unaware of the relationship between self-beliefs and performance.

It should be noted that the sample size of this study was small with only 52 students and 2 teachers involved in the study. Thus the findings of this research may not be generalisable to the wider population. That said, the findings of this study do have a significant practical importance in terms of classroom teaching practice. The teachers in the study were not aware of the self-efficacy beliefs of their students. The argument presented within this paper is that teachers need to have a better understanding of the pedagogical practices that can enhance student's self-efficacy beliefs. This would enable teachers to potentially increase a child's sense of self-efficacy and, given the strong correlation between self-efficacy and attainment, increasing self-efficacy would potentially increase any subsequent performance. Teacher based interventions are possible if teachers are given adequate training.

Self-efficacy research suggests that beliefs strengthen when teachers monitor the progress of their students on a daily basis rather than leaving a long gap between the task and the feedback, when goals are set by the students themselves and not imposed on them by others, when feedback is based on effort and shows that others can achieve the task (Schunk, 1981, 1983a). Moreover, peers are an influence on self-efficacy and teachers need to think about how they group children. Given the lower self-efficacy beliefs for self-regulated learning of the boys in this study, it implies that teachers should support boys to understand goal setting, strategy use, planning and time management, self-evaluation and self-monitoring. Indeed "The major goal of formal education should be to equip students with the intellectual tools, efficacy beliefs and intrinsic interests to educate themselves in a variety of pursuits throughout their lifetime." (Bandura, 1997 p. 214).

Conclusion

Self-efficacy has received much attention in the USA and two decades worth of research have shown that they influence persistence, effort, motivation and choice. Further international research is needed to validate this construct and provide strategies and practical activities that teachers can use in the classroom so that the impact of the research is fully realised. At present many schools in the UK know very little about self-efficacy and the lack of awareness of the teachers in this study indicates that teachers are failing to pay attention to the self-beliefs of their students. The gender differences observed within this study are a concern and indicate that boy's low perceptions of capability for school subjects and self-regulated learning skills contribute to low attainment. Teachers are therefore missing the opportunity to harness the power of self-efficacy for achievement outcomes and emotional well-being of their students.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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Development of universal values in School management Scale (UVISMS)

Mahmut Sağır

Department of Educational Sciences, Kahramanmaras Sutcu Imam University, Kahramanmaras, 46100 Turkey.

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Current study aims to develop a scale to identify the universal values of school administrators in school management. In order to develop the scale, academic resources were reviewed and a 40-item draft data collection instrument was created by taking the views and suggestions of 5 school administrators, 5 academicians and 5 education inspectors with the help of semi-structured interview form. The draft data collection instrument was scaled down to 34 items following the expert views and pilot implementation (N=52). The finalized data collection instrument was implemented on 304 teachers to obtain reliability and validity analyses and the obtained data were analyzed. Cronbach Alpha reliability coefficient of the data collection instrument was found to be 0.972. Rotation: Varimax analysis, one of the factor analysis methods, was utilized to identify statistically related items. According to the results, factor load values changed between 0.40 and 0.81 and were composed of three dimensions. Test-retest analysis of the study was undertaken with 65 teachers and Cronbach Alpha reliability coefficient was found to be 0.970. The scale was found applicable in identifying school administrators' commitment to universal values in school management.

Keywords: Universal values, school management, to develop the scale.

INTRODUCTION

Most probably the reason why civilizations struggle with each other is not economic or ideological ones but cultural ones (Huntington 1993). Although Huntington argues about the struggle between civilizations and explain its reason with cultural differences; today order to reach a sustainable world peace some common values have already emerged. There are six components for sustainable future 1) cosmological context, 2) ecological integrity, 3) social equity, 4) economic justice, 5) democracy, 6) non-violence and peace (Turker 2012). These six components are seen as essential to establish a sustainable world peace.

We are experiencing a period in which local values are replaced by universal ones as a consequence of the rapid globalization which has accelerated along with the recent advances in technology and communicating technologies. It is believed that the values in question affect not only individuals but also organizations since human beings are social and organized entities. Values develop not only in the individual but also in the organizational level (Aydin 2010: 15). One fundamental characteristic that both employees and organizations share is 'values'

Email: msagir@ksu.edu.tr. Phone: +90 344 280 1322.

(Finegan 2000). Hence it is believed that those emerging values do not only affect the individuals but also affect the organizations. Values determine the foundation which is required to understand human behavior and motivation along with our perceptions (Robbins and Judge 2012: 146). The concept of value which was first introduced to social sciences by Znaniecki is derived from the Latin root “valere” which means “be valuable” or “be strong” (Bilgin 1995: 83). “Values are basic ethical principles and beliefs accepted as true or necessary by the majority of the members of a social group or a community to provide and continue their existence, unity, operation and continuance and that reflect their common emotions, goals and interests (Kizilçelik and Erjem 1994: 99). Kluckhohn (1961) defined value as "a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable outcome which influences the selection from available modes, means and ends of action". Rokeach (1973) who had significant studies on the topic of values identified the concept of value as “an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence”. He defined a value system as “an enduring organization of beliefs concerning preferable modes of conduct or end-states of existence along a continuum of relative importance” (Rokeach 1973: 5). Feather (1975) explained the cognitive structures of value systems and defined values as the organized summaries of experiences and associative networks.

There is diversity in the world in terms of value. Diversity is a feature of most cultures in the world.

The practice of democracy that has won out in the modern West is largely a result of a consensus that has emerged since the Enlightenment and the Industrial Revolutions and not particularly in the last century or so (Sen 1999: 15).

Values are in both daily life and the whole life (Deveci and Ay, 2009). So that such an important part of life can be classified in many ways. However, values can be divided into two as traditional and universal ones prior to the expansivity of values on human beings. (Koca 2009). Traditional values are the ones that are special to one’s own society and let him to exist in his own society. Univerasal values, on the other hand, are the ones that are accepted by many other societies and based on human rights (Keskin at al. 2012, Altunay and Yalçınkaya 2011, Devrani 2010). Universal values based on the necessity to respect every human life and shaping life, itself, on this necessity (Altunay and Yalcınkaya 2011).

One of the most comprehensive studies on values was undertaken by Rokeach in 1973 and he listed the values as instrumental and terminal values as shown in Table 1. Values influence institutional decision making as they contain a judgmental element in that they carry an attribute as to what is right, good or desirable. Values have both content and intensity (Prashar et al., 2004: 144). Hence, it is inevitable for school administrators’ existing values to affect the decisions they make regar-ding their organizations. Therefore, it is believed that school administrators’ existing values are crucial in school management. Commitment to universal values by school administrators is expected to help facilitate the generation of a common school management culture since universal values are common products of humanity.

School Management and Universal Values

Schools are environments in which educational services are generated and rendered and learning takes place (Unal 1996, Sisman and Turan 2004, Turan 2004). Educational services generated are the endeavors undertaken by the school to educate students according to educational programs provided to them (Basaran 1996: 32). As institutions that include highly qualified individuals with the capacity to educate, schools are obliged to take the responsibility to process and develop the human resources in the society (Aydin 2004: 173). The purpose of the schools is to educate individuals to be free, think multi directionally, have strong social characters, be mentally and physically healthy, have entrepreneurship skills and vision and internalize the social culture (Can 2004: 128). Therefore, schools are highly important educational organizations that can never be ignored by the society (Ataunal 2004).

School management is the implementation of educational management to a limited field; school management is composed of the implementation of educational management in the school (Bursalioglu 1994: 5). School management is an educational community that includes students, teachers and administrators and the educational institution in which various knowledge, skills and habits are taught or provided according to identified aims (Erdogan 2000: 79). School management is the process in which material and human resources in the school are mobilized and coordinated in such a manner to facilitate the acquisition of specified purposes (Bayrak 2001: 207).

A major part of our values are passed to us in our youth by parents, teachers and others (Robbins and Judge 2012:146). Several writers have tried to identify core or universal values. Their lists are typically created through informal search for recurrent themes found within major sacred books like the Bible or the Koran (Kinnier et al., 2000: 8). Both philosophers and social scientists agree that all men in society have some common values. These values are called “universal values” (Yilmaz 2008: 70). It can be argued that formation of universal values were accelerated as a result of the humanist movement that transpired due to understanding of the destructive effects of World War II for all humanity and as a result of the adoption of Universal Declaration of Human Rights.

Advances in communication and transportation technologies facilitated the spread of these universal values

Table 1.Comprehensive studies on values by Rokeach.

Instrumental Values	Terminal Values
Ambitious (Hard working, aspiring)	A comfortable life (A prosperous life)
Broad-minded (Open-minded)	An exciting life (A stimulating, active life)
Capable (Competent, effective)	A sense of accomplishment (Lasting contribution)
Cheerful (Lighthearted, joyful)	A world at peace (Free of war and conflict)
Clean (Neat, tidy)	A world of beauty (Beauty of nature and arts)
Courageous (Standing up for your belief)	Equality (Brotherhood, equal opportunity)
Forgiving (Willing to pardon others)	Family security (Taking care of loved ones)
Helpful (Working for others= welfare)	Freedom (Independence, free choice)
Honest (Sincere, truthful)	Happiness (Contentedness)
Imaginative (Daring, creative)	Inner harmony (Freedom from inner conflict)
Independent (Self reliant, self-sufficient)	Mature love (Sexual, spiritual intimacy)
Intellectual (Intelligent, reflective)	National security (Protection from attack)
Logical (Consistent, rational)	Pleasure (An enjoyable, leisurely life)
Loving (Affectionate, tender)	Salvation (Saved, eternal life)
Obedient (Dutiful, respectful)	Self-respect (Self esteem)
Polite (Courteous, well-mannered)	Social recognition (Respect, admiration)
Responsible (Dependable, reliable)	True friendship (Close companionship)
Self-Controlled (Restrained self disciplined)	Wisdom (A mature understanding of life)
	(Rokeach 1973: 28)

throughout the world in a rapid manner. Universal values have started to take shape around concepts such as human rights, democracy, transparency and professional ethics since the second half of the 20th century.

Schools are now organizations that educate individuals for the global world. Therefore schools target to educate individuals who internalize global values and can integrate with the global world and can take part in world labor force, in fact schools are trying to educate individuals to be citizens of the world. In order to be world citizens, individuals need to adopt universal values and reshape their behaviors in the direction of these values.

Universal values born with the process of globalization have affected educational organizations as well and caused changes in their functions to a large extent. Now educational organizations are teaching “learning to learn”, “learning to think” and “learning to unlearn” in order to minimize the resistance to change that accelerated with the help of globalization process rather than flowing their previous general function of teaching. In addition, today’s educational organizations have undertaken the role of educating individuals to be world citizens so that they can take part in the global labor market in the world which is now a global village.

Therefore, the previous role of educational organizations to educate individuals who internalize only local values has changed to educating individuals to be world citizens who have skills to integrate with the world community and have knowledge of universal values. In order for the schools to provide students with universal values, they themselves are expected to have some universal values.

Values provide a basis for organizational culture, but perceptions of an organization’s values may vary across hierarchical levels, functional departments and geographic locations (Quinn and Rohrbaugh 1983). Thus, governing people equipped with universal values will be done with the schools that are designed with universal values. Much values research has focused on how individuals, groups, organizations, and cultures differ in the values they hold, and how these differences affect behavior (Abbott et al. 2005). Current study aims to identify the universal values in school management.

METHOD

Participants

Study group of this research was composed of 304 teachers employed in Sanlıurfa Province of Turkey. Teachers who participated in the study were selected by using “Simple Random Sampling” method. There are many different teachers from 10 primary and 10 secondary schools with various backgrounds by terms of age, gender, degree and seniority in our sampling group. It was especially considered to choose different secondary schools running different programmes. Data collecting was carefully done with 304 out of 360 teachers who were eager and all the data collected was analysed. 42, 1% of the participants were females (N=128) and 57, 9% were males (N=176). The ratio of participants who

worked in primary and secondary schools are 50% in each category (N=152). 83, 2% of the teachers had undergraduate degrees (N=253) and 16, 8 % had graduate degrees (N=51). Professional seniority of the participating teachers were as follows: 1-5 years of seniority 44, 7 % (N=136); 6-10 years 28, 9% (N=88), 11-15 years 16, 8 (N=51)% and 16 years or more 9,6% (N=29). Moreover, in order to confirm data collected before, four weeks after the first collection, selected by "Simple Random Sampling" method; some 65 teachers' data out of 304 sampling group was collected again for test-retest study.

Scale Development Process

Teacher views regarding school administrators' commitment levels to universal values were collected with the help of "Universal Values in School Management Scale (UVISMS)". 6-phase process proposed by Lester and Bishop (2000) was taken into account during the development of the scale. The first step involved the review of academic literature (Yilmaz 2008; Schwartz 1994; Schwartz and Bilsky 1987; Rokeach 1973; Kluckhohn 1962) and a data collection instrument item pool was generated by identifying the universal values. 5 school head teachers, 5 lecturer and 5 inspectors were asked to confirm whether the universal values in our survey items are suitable for the values that are in school management or not. Later 10 school administrators were given semi-structured interview forms to gather their ideas about universal values in school management. The questions below were included in the interview form:

1. In your opinion, what universal value accompanies the globalization process?
2. What do you think of the universal values that accompany the globalization process?
3. In your opinion, what reasons require commitment to universal values in school management?

Answers to interview form were used in the item pool as well. The first item pool included 45 items but the items were reduced to 40 after first assessment by eliminating similar items and reviewing the statements. These items were implemented on 52 teachers to ensure intelligibility. Teachers provided feedback with an interview about the intelligibility of the items and the period of implementation and their suggestions were taken into account to make adjustments. In this phase (pilot implementation) Cronbach Alpha reliability coefficient of the scale was found to be 0, 88. The 40-item scale was represented to 5 school administrators, 5 academicians and 5 education inspectors to get feedback for content validity. These individuals assessed intelligibility and shared their ideas about the sub dimensions which the scale items belong to as well as providing feedback about the items that needed to be eliminated or added. 6 items were eliminated from the scale in line with expert views. The finalized scale used for reliability and validity assessment included 34 items.

Draft data collection instrument was implemented on 304 teachers employed in Sanlıurfa Province. The 5 Likert type (never, hardly, partially, usually and completely) data collection instrument of containing 34 statements was then finalized. The lowest score that can be obtained from the scale is 34 and the highest total score is 170. Low scores indicate incompetence in universal values in school management and high scores show competence in the area. The scale can be implemented individually or in a group and takes about 20 minutes to complete.

In order to obtain UVISMS validity values, construct validity was examined. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were undertaken to present construct validity of the scale. While CFA is used to evaluate the extent of overlap between the factors composed of different variables based on a theoretical foundation and the actual data, EFA is used to create a limited number of meaningful constructs from many items (variables) which can define the created constructs (Buyukozturk, 2007).

Reliability Analysis

In order to undertake reliability analysis, internal consistency and test-retest methods were used and the Cronbach Alpha value for the total scale was found to be 0,972; Spearman-Brown split half reliability coefficient was calculated to be 0,943 and test-retest reliability value was found to be 0,970.

R matrix was examined to observe the adequacy of data for factor analysis and data was found to be adequate for factor analysis due to meaningful relationships that were detected. Later, sample adequacy (Kaiser-Meyer-Olkin Sample Adequacy Analysis) and Barlett Sphericity analyses were undertaken and KMO Sample Adequacy Coefficient 0,962; and Barlett Sphericity test χ^2 value 8379,655 (p=0,000) were obtained. In order for data to be adequate for factor analysis, KMO value should be higher than 0, 60 and Barlett test should be significant (Buyukozturk, 2007). The fact that KMO value was higher than 0, 90 shows perfect fit for factor analysis (Hutcheson and Sofroniou 1999).

Construct Validity

Varimax, an exploratory factor analysis method, was implemented to present the construct validity of UVISMS and the obtained load values are presented in Table 2.

Examination of Rotated Component Matrix table shows that factor load values change between 0,462 and 0,812.

Table 2. Rotated component matrix.

Factor 1 Human Relations		Factor 2 Job Discipline		Factor 3 Social Responsibility	
Item	**Load Value**	**Item**	**Load Value**	**Item**	**Load Value**
4	,812	24	,716	17	,773
7	,779	31	,699	16	,753
2	,735	33	,694	20	,752
3	,708	34	,675	15	,700
10	,703	25	,655	19	,601
6	,670	28	,639	18	,580
9	,669	14	,605	23	,557
1	,648	32	,601	22	,542
8	,609	30	,582	21	,531
27	,580	29	,490		
11	,578	26	,462		
12	,537				
13	,537				
5	,533				

Table 3. Goodness-of-fit indices for UVISMS.

Chi-Square	Df	p	CFI	TLI	RMSEA	χ^2/df
1691,914	524	0,000	0,857	0,847	0,086	3,229

Table 4. Human relations in school management.

	Item	Statement	M	SD
Human Relations	1	School Administrator is democratic in school management	3,29	0,97
	2	School Administrator values human relations in school management	3,45	1,00
	3	School Administrator values the ideas of others in school management	3,16	1,05
	4	School Administrator provides morale for stakeholders at the school	3,06	1,04
	5	School Administrator does not discriminate among teachers	3,24	1,13
	6	School Administrator values kindness	3,02	1,15
	7	School Administrator motivates the teachers	3,03	1,10
	8	School Administrator respects different ideas at school.	3,26	1,07
	9	School administrator is fair to stakeholders at the school	3,07	1,07
	10	School Administrator instills trust in the stakeholders at the school	3,21	1,06
	11	School Administrator helps in problems school employees and students face	3,28	1,07
	12	School Administrator speaks privately with the individual when there is an unfavorable situation	3,59	1,11
	13	School Administrator is honest to stakeholders at the school.	3,51	0,99
	14	School Administrator approaches students and other stakeholders at the school with love	3,38	1,14
		TOTAL	3,25	0,85

A 3-factor structure with eigenvalues of 17,979, 1,850 and 1, 55 was obtained as a result of factor analysis. These factors are titled as 1st factor Human Relations, 2nd factor Professional Discipline and 3rd factor Social Responsibility (Table 4 to 6). These three factors explain 62,602% of the total variance about the scale. Therefore, the 3-factor structure obtained at the end of the analysis explains a major part of the total variance in the items

Table 5. Job discipline in school management.

	Item	Statement	M	SD
Job Discipline	15	School Administrator is faithful	3,91	0,94
	16	School Administrator comes to school on time and does not leave school early	3,84	1,03
	17	School Administrator is responsible in his/her job.	3,75	0,97
	18	School Administrator uses school resources rationally	3,47	1,08
	19	School Administrator is approachable	3,82	1,11
	20	School Administrator is hardworking	3,74	0,99
	21	School Administrator is diligent in keeping professional secrets.	3,51	1,04
	22	School Administrator does not speak negatively about his/her superiors	3,71	1,09
	23	School Administrator tries to develop own competence	3,38	1,05
	24	School Administrator follows through his/her appointments.	3,65	1,04
	25	School Administrator follows legal responsibilities in school management	3,82	1,10
		TOTAL	3,69	0,77

Table 6. Social responsibility in school management.

	Item	Statement	M	SD
Social Responsibility	26	School Administrator is sensitive to the values of the environment	3,11	1,10
	27	School Administrator shares both success and failure in the school	3,45	1,15
	28	School Administrator has awareness in protecting school environment	3,53	1,06
	29	School Administrator voluntarily helps people in need	3,45	1,18
	30	School Administrator is diligent in using school tools and equipment	3,30	1,26
	31	School Administrator provides suitable environments for the disabled	3,32	1,12
	32	School Administrator leads activities related to art	3,24	1,16
	33	School Administrator encourages stakeholders to participate in social activities	3,32	1,15
	34	School Administrator is active and willing to involve the school in social projects	3,40	1,17
		TOTAL	**3,35**	**0,89**

and in the scale. Items with load values 0, 40 and higher are collected in the same factor. Factor load value of 0.45 or higher is a good selection criterion. However this value can be decreased to 0, 30 for a limited number of items during practice (Buyukozturk, 2007). At the end of the factor analysis, the scale was found to be composed of three factors which were named Human Relations, Professional Discipline and Social Responsibility (Table 4 to 6).

Factor structure was defined as three-factor according to eigenvalues and this can be observed in the scree plot graphic based on eigenvalues (Figure 1). The graphic shows a high accelerated decrease after the first factor. This fact shows that the scale has a general factor.

The facts that the obtained percentage to explain the total variance is high and that factor loads are high in three factors in the research show that UVISMS can measure what it sets out to measure and therefore it is valid. The scale was analyzed both by exploratory factor analysis and confirmatory factor analysis.

CFA was undertaken in AMOS program for the three factor UVISMS obtained as a result of CFA earlier. Current CFA showed that all items in the scale were compatible with the three-factor structure and the goodness-of-fit indices also provided good values. Findings related to CFA results for UVISMS are provided in Table 3 and Figure 2.

The fact that χ^2/df ratio calculated in the analysis was smaller than 5 and that RMSEA value was lower than 0, 10 are regarded as lower limits for model-data fit (Anderson and Gerbing, 1984; Marsh at al., 1988). Accordingly, values for model-data fit display that the generated model is compatible with the data which provides the scale with construct validity.

DISCUSSION

Local values are replaced by universal values as a result of today's globalization process and the advances in communication and transportation technologies. These universal values that rapidly spread orient the behaviors of individuals as they affect organizations and cause them to form new attitudes and behaviors. One of the

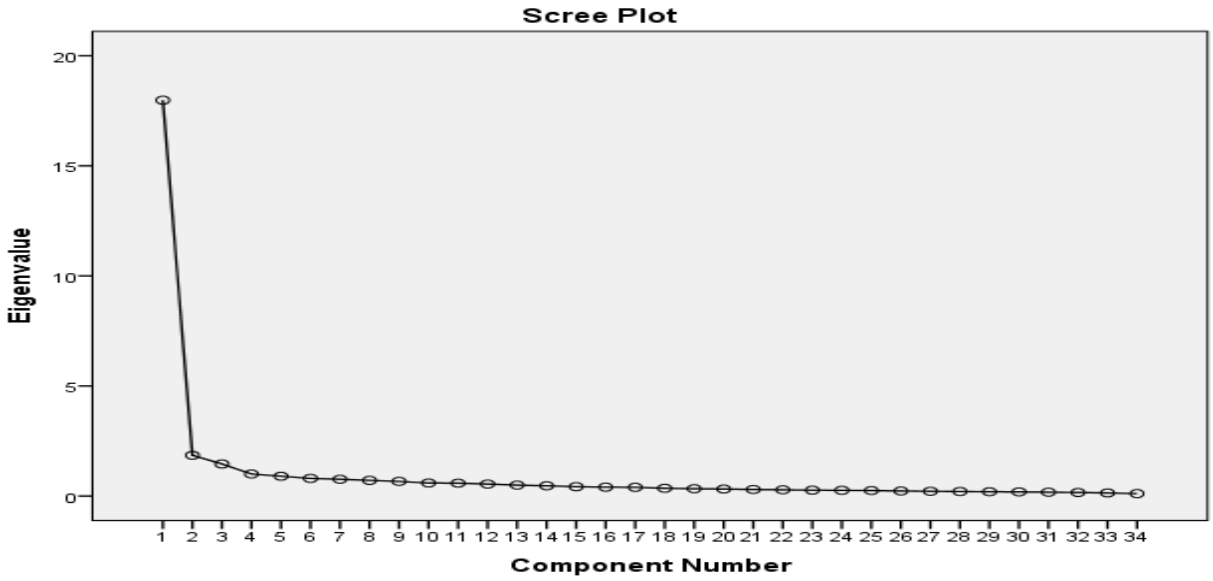

Figure 1. Scree Plot Graphic Based on Eigenvalues.

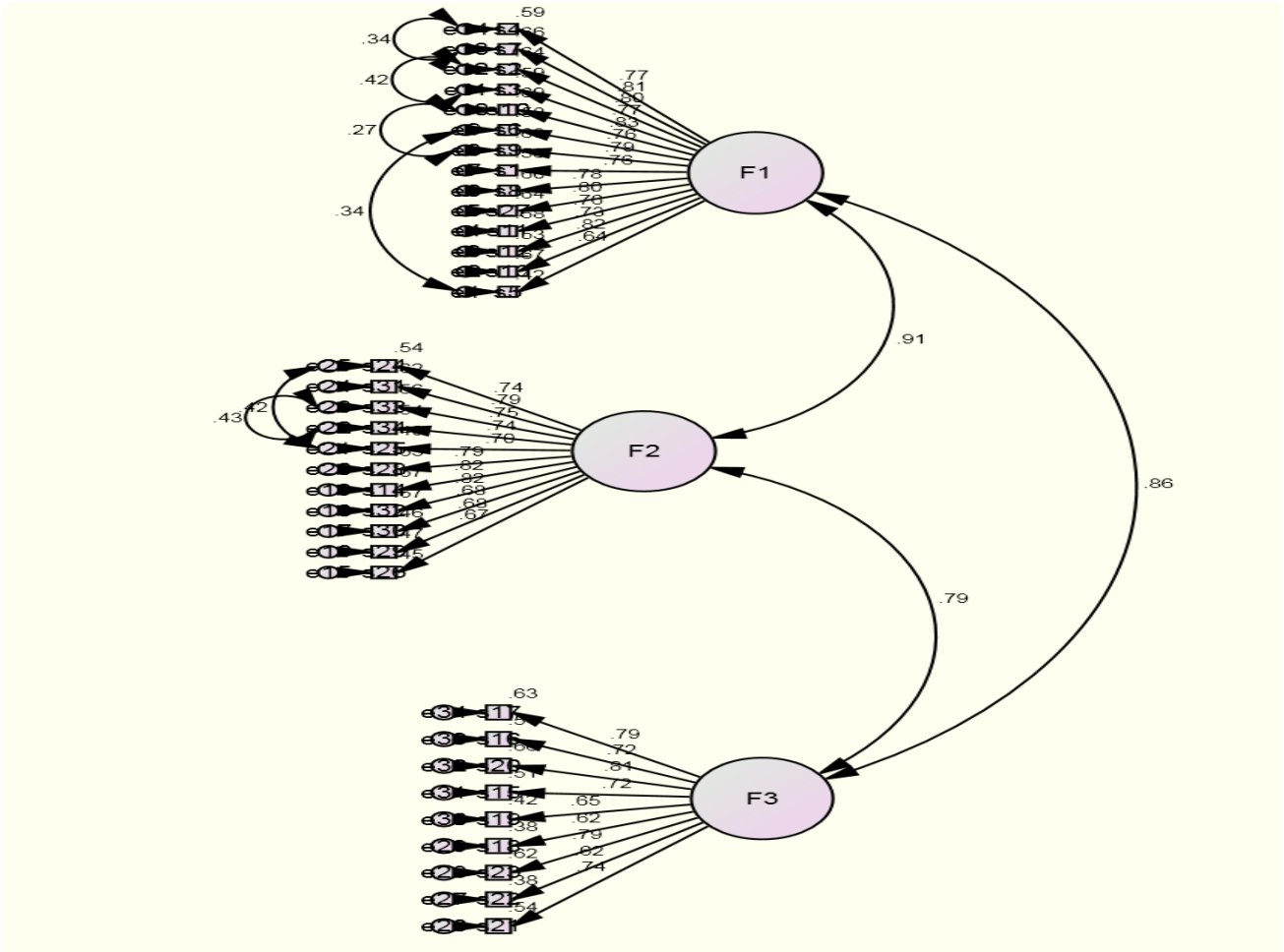

Figure 2. CFA Diagram.

organizations affected by universal values is the school organization whose main aim is to educate individuals.

There are not many studies in literature about the dominant universal values in school management. In their research about universal moral values, Kinnier et al. (2000) presented the universal moral values in four dimensions as “Commitment to something greater than oneself”, “Self-respect but with humility, self-discipline and acceptance of personal responsibility”, “Respect and caring for others” and “Caring for other living things and the environment”. In his research Swartz (1994) presented the world the universal values world “at peace”, “wisdom”, “social justice”, “world of beauty”, “inner harmony”, “protect evrimontel”, “unity with nature”, equality and “board minded”. Khazanachi at al. (2007) Subsequent studies might suggest how managers can foster shared values, while identifying practices that reinforce those values to fuel innovation. Abbott at al. (2005) and Finegan (2000) found that common values affect organizational commitment in positive means. Posner and Schmidt (1993), on the other hand, found that both individual and organizational values affect individual work performance in positive way. All these researches show that organizational values affect work life in positive. Current study has set forth a total of 34 universal values combined in three dimensions as “Human Relations”, “Professional Discipline” and “Social Responsibility”.

CONCLUSION

Universal values are the common products of humanity and whether universal or local they are one of the elements shaping human behavior. Just like local values, universal values also affect the decisions made in private, social and work life. Therefore, it can be argued that school administrators’ values play determinant roles in their managerial duties. The current study identified three dimensions of universal values that are taken into consideration by school administrators while performing administrative tasks: “Human Relations”, “Professional Discipline” and “Social Responsibility” (Table 4 to 6).

The analysis of research data shows that UVISMS can be used to identify school administrators’ commitment to universal values in school management. Moreover, I think that the results of this study will help universal values to expand in schools and managing schools with regard to universal values.

RECOMMENDATIONS

The fact that universal values are the common products of humanity, existence of an international labor market, ongoing discussions about the concept of world citizenship and existence of teachers and students from various nations in many schools necessitate commitment to universal values by school administrators. Therefore, school administrators can be encouraged to adopt universal values in their administrative tasks. Also, effects of universal values in school management can be studied in terms of different variables.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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Educational Research and Reviews

Full Length Research Paper

Investigation of problem solving ability of students in school of physical education and sports(Kafkas University Sample)

İlker Ozmutlu

Kafkas University Sarıkamış School of Physical Education and Sports, Turkey.

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The aim of this research is to examine the problem solving abilities of School of Physical Education and Sports students. To achieve this aim, in the academic year 2013 – 2014, a research group did a study of 433 students of the School of Physical Education and Sports, Kafkas University. This sample consisted of 184 female and 249 male students. Within the research model in this study, the Problem.
Solving Inventory (PSI) was used to measure the students' problem solving abilities. The scale was developped by Heppner and Peterson (1982) and its Turkish version was prepared by Şahin, Şahin and Heppner (1993). The SPSS 14.0 packaged software was used for data analysis and interpretation. The only sample Kolmogorov-Smirnov Test was used to determine if the data is normally distributed and it was determined that they are not distributed normally and then instead of the t test, the Mann-Whitney U test and instead of one way ANOVA test, the Kruskal-Wallis Test was used, and also frequency test was used. This study showed that the students of the School of Physical Education and Sports have problem-solving abilities, and there are no t test factors in terms of gender, department, type of learning and type of school they graduated from. However, there is a significiant difference between the class factor and problem-solving abilities.

Key Words. Physical education, student, problem solving.

INTRODUCTION

A human being is sociable. He is always in a relationship and interacts with other persons in society. These relationships and interactions sometimes persist, and can sometimes cause problems. Love, anger, jealousy, victory, pain of loss, shame, revenge, missing, ambitions etc. are emotions that have been revealed as a result of a relationship and interaction with others. So, the human being has a psychological existence as well as a social one. An individual seeks for an effective and fast way out of any problems that might come up. This affects him when it remains a problem unsolved. From this point of view, an ability to solve problems will reveal individual differences.

There are many notions about problems when a search

E-mail: ilkerozmutlu@gmail.com

of the literature is undertaken. Among these notions, according to Baykul (1999), defines a problem as that which perplexes a human being, challenges him and makes him indistinct beliefs. According to Bingham (2004), a problem is an obstacle which confront a human being in achieving his aims. Güçlü (2003) defines a problem as a quarrel that exists as a result of inhibition when a human being achieves his aim. Heppner and Krauskopf (1987) define a problem as a difficulty that occurs in daily life and leads to a psychological breakdown.

A problem is defined as a difference between solving a problem, it involves making an effort in order to remove this difference (Kneeland, 2001). Solving a problem can be defined as a process that follows cognitive-behavioural steps (Kalaycı, 2001). According to Pesen (2003), solving a problem involves releasing the resultant relationships involved in a new event or situation, and making new relationships in order to achieve an aim.

Solving a problem is a learnable ability; therefore, the most important point in terms of an individual and organizational problem solving is knowing the problem solving process (Güçlü, 2003). Solving a problem involves developing abilities to understand the nature of the problem, setting a suitable course for solving the problem and interpreting the results. When this aim occurs, a person tends to have the habit of explaining the events around him in order to solve the problem (Altun, 2002). Problem solving ability is an art that develops by means of repeating opportunities, which have great importance by individuals who solve problems (Bingham, 2004).

A problem-solving ability helps people to deal with the environment in which he lives, therefore, humanity has to learn how to solve problems (Senemoğlu, 2001).

Sonmaz (2002) deals with solving a problem in three ways: cognitive, sentimental and social, based on all these notions. The cognitive dimension is a process that involves a person identifying a problem, presenting the basic problem, seeking various way out and deciding on a suitable way out. The sentimental dimension involves emphasizing with others' emotions in solving a problem and developing suitable reactions to them. Besides, when an individual hopes to solve a problem, he must cope with the stress that arises when he faces obstacles (Sonmaz, 2002).

The ability to solve a problem is one of the main factor in terms of the existence of humanity. Modern education aims to raise people who can cope with problems, because they don't know what problems they will come across in society or what needs will arise. A person who has developed a problem solving ability can use that knowledge effectively. For this reason, solving a problem and hence educating people in the process, are important (Altun, 2002).

The process of solving a problem is more important than solving a problem in educational terms. Unless we can identify the process and have a knowledge of this process generally, it is hard to solve a defined problem. Solving problem is a part of effective education and developing individual experiences. A student who is encouraged to seek solutions for the problems that he faces, has an opportunity to use his knowledge, skill and needs when he tries to deal with current problems (Bingham, 2004).

Studies of problem solving abilities, especially learning how to solve a problem and how to use it among adults, must emphasize how solving a problem is taught to children, and how children can develop this ability. Within the family, parents and in class, the teacher, are all important. Especially in early period of our lives, knowledge comes from those two sources. They can help children to gain problem-solving abilities in terms of the cognitive, sentimental and behavioural process, use them effectively and make a habit of using them in their daily routines (Yıldız, 2006).

In view of such information, the aim of this study is to analyze the problem-solving ability of students of Physical Education and Sports at Kafkas University with regard to different factors.

METHOD

In this section, the study model, the study group, the collection of data and the analysis of data are described.

Model of study

In conducting the study, a relational scanning method was used. According to Karasar (2009) the relational scanning method is a study model that aims to determine the existence and/or change in rank between two or more variables. He defined a scanning model as an approach that aims to describe a condition that exists in the past and present as existing and emphasizing that event, individual or object that is the subject of the study. It tries to describe the existing conditions; any changing or affecting effort was not made.

Study Group

The study group consistent of physical education and sport instructors, sport management and coaching education department students who study at Kafkas University Physical Education and Sport High School in the 2013-2014 academic year. 184 of them are women, 249 of them are men - 433 students in total. 17 of 450 pieces of data were excluded from the assessment due to incomplete and/or incorrect scoring.

Data Collection and Tools

During data collection, the students were asked to complete a Personal Information Form and a Problem Solving Inventory. In the Personal Information Form they were asked about variables such as gender, department of study, type of education, class and type of school they graduated from.

In order to evaluate their problem solving skills, the Problem Solving Inventory (PSI) was used. This scale was developed by Heppner and Peterson (1982) (transferred by Savaşır and Şahin, 1997). The Turkish version was developed by Şahin et al. (1993). In a reliability study of the scale, the innternal coefficient of consistency was calculated to be 88 in a study of 244 university students in

Table 1. One-Sample Kolmogorov-Smirnov Test which shows problem solving skills of students educated at the Physical Education and Sport High School.

		Total	Hasty Approach	Thinking Approach	Avoident Approach	Evaluator Approach	Confident Approach	Planned Approach
N		433	433	433	433	433	433	433
Normal Parameters	Mean	135,664	33,3995	23,7298	15,1524	13,2933	31,4226	18,6697
	Std. Deviation	16,2965	6,4657	3,8907	3,6356	2,8826	5,6367	3,5283
Most Extreme Differences	Absolute	0,051	0,080	0,112	0,119	0,093	0,060	0,104
	Positive	0,051	0,037	0,054	0,064	0,076	0,031	0,065
	Negative	-0,029	-0,080	-0,112	-0,119	-0,093	-0,060	-0,104
Kolmogorov-Smirnov Z		1,070	1,674	2,330	2,471	1,943	1,239	2,158
Asymp. Sig. (2-tailed)		0,022	,007	0,000	0,000	0,001	0,043	0,000

Table 2. Gender variable results: the Mann-Whitney U Test which shows problem solving skills of students educated at the Physical Education and Sport High School.

		N	Rank Average	Rank Total	U	Z	P
Total problem solving skill	Woman	184	210,14	38665,00	21645,000	-0,981	0,326
	Man	249	222,07	55296,00			

total. The coefficient of correlation found in reliability study of splitting test in two equal parts was found to be 81.

PSI is a Likert-type scale which is scored between 1-6 and consists of 35 items. Possible replies were “I always act in this way”, “I mostly act in this way”, “I often act in this way”, “I sometimes act in this way”, “I rarely act in this way”. The total points which could be added from the scale that ranged between 32-192.

As a result of factor analysis, it was seen that the scale consisted of six factors in the form of “hasty approach” (α=.78), “thinking approach” (α=.76), “avoidance approach” (α=.74), “evaluator approach” (α=.69), “self-confident approach” (α=.59) (transferred by Savaşır and Şahin, 1997).

Data Analysis

The data collected in the study was analyzed using SPSS 15.0 software. In analysing and interpreting the data, before examining the problem-solving skills of students studying at Physical Education and Sport High School in terms of several variables, the data of the study was examined to see if it was normally distributed and could be determined using the Kolmogorov-Smirnov Test (Table 1). As presented in this table, it was found that the distributions were not normal. Consequently, instead of a t test, the Mann-Whitney U Test was used. Instead of a one way ANOVA test, the Kruskal-Wallis Test and also a frequency test were used (Table 1 to 6).

FINDINGS

As can be seen in Table 1, P<0.05. This shows us that the data is not normally distributed.

In Table 2 in terms of the gender variable difference between total points of students educated at the Physical Education and Sport High School was determined that it is not meaningful. [U variable=21645.000 P=0.326>.05].

According to the class variable, there is a difference in total problem solving level of students educated at the Physical Education and Sport High School [X^2 variable =11.684 P=0.009<.05].

In Table 4 in terms of the department variable difference between the total points of students educated at the Physical Education and Sport High School was determined that it is not meaningful.

According to type of education variable, it is determined that there is a difference in the total problem solving points of students educated at the Physical Education and Sport High School [U değeri =12855.500 P=0.211> .05].

According to type of school-graduated variable, it is determined that there is no meaningful difference between the total problem solving levels of students educated at the Physical Education and Sport High School [X^2 variable=5.768 P=0.329>.05].

RESULT AND DISCUSSION

It is determined that there isn’t any difference between

Table 3. Class variable results: the Kruskal-Wallis Test which shows problem solving skills of students educated at the Physical Education and Sport High School

		N	Rank Average	Sd	X^2	P	Meaningful Difference
Total problem solving skill point	1th class	148	243,06	3	11,684	0,009	1-2
	2nd class	149	202,94				1-3
	3rd class	87	192,89				
	4th class	49	223,87				

Table 4 Department variable: the Kruskal-Wallis Test showing problem solving skills of students educated at the Physical Education and Sport High School

		N	Rank Average	Sd	X^2	P	Meaningful Difference
Total problem solving skill point	Physical Education and Sport Instructor	176	213,47	2	2,135	0,344	No
	Sport Management	198	218,28				
	Coaching Education	59	223,21				

Table 5. Education type variable: the Mann-Whitney Test results of students educated at the Physical Education and Sport High School

		N	Rank Average	Rank Total	U	Z	P
Total problem solving skill point	Daytime Education	353	214,21	75614,50	12855,500	-1,251	0,211
	Evening Education	80	229,33	18346,50			

Table 6, Graduated school variable results: the Kruska-Wallis Test showing problem solving skills of students educated at the Physical Education and Sport High School

		N	Rank Average	Sd	X^2	P	Meaningful Difference
Total problem solving skill point	General High School	340	219,45	5	5,768	0,329	No
	Vocational High School	51	207,32				
	Anatolian High School	22	189,64				
	Science High School	3	241,33				
	Sport Hig School	2	369,25				
	Others	15	209,30				

problem solving ability in terms of gender. In conclusion, a student's gender doesn't have any effect on problem-solving. The studies by Üstündağ and Beşoluk (2012), Saracaoğlu and Kanmaz (2007), Dündar (2009), Berkant and Eren (2013), Çam (1997) and Güngör (2012) support this conclusion. We can say that students' individual differences are revealed when they solve a problem instead of their gender. However, the studies by Yalçın et al. (2010), Brems and Johnson (1988), D'Zurilla et al. (1998) and Germi and Sunay (2006) shows the opposite. In these studies, there is support of males in terms of problem-solving. It can be considered that these differences arise from sample group differences.

There is a difference among the Physical Education and Sports students according to the grade factor. As a result of these differences, first grade students are better than second and third grade student in terms of solving problems. In the literature scanning, the studies by Ferreira and Palhares (2008), Tekin and Karasu (2008) and Kantek et al. (2010) support this. In this study, we started out with these results; we can say that students in the first grade face the different problems of getting used to a new school and a new environment, and they solve their problems by themselves. In addition, they have a higher problem-solving ability. Besides, in the literature, the studies of Yıldız et al. (2011) and Dündar (2009) don't

have similar results. A reason for this difference may be students' relationships with each other, their social surroundings and taking part in undergraduate education.

It is determined that the department factor does not offer a significant difference among the students of Physical Education and Sports in terms of problem-solving. It can be said that the Physical Education and Sports study students, the Physical Education Teachers, and those in Sports Management and the Department of Coaching Training, deal with similar problems and their solutions are similar. Whenever similar research has been analysed, this study is similar to Hoxha (2011) and Öztürk et al. (2009), but it is different from that of Genç and Kalafat (2010). It can be said that the reason for this difference is that university students study in different departments and sciences. Consequently, different departments bring different problems.

It was determined that the difference between total problem solving abilities point and type of education factor is not meaningful. For this reason, students in normal or evening education haven't got different problem solving skills. This is because the type of education is usually the student's choice, and they don't all join the same department and this can be thought of as normal. When researching a similar study, Aslan and Uluçınar (2012), Üstündağ and Beşoluk (2012) and Genç and Kalafat (2010) obtained results that supported it.

In terms of the school from which the students graduated, there isn't a significant difference. There isn't any effect with regard to the students' high school in terms of the ability to solve a problem. This is because, in high school, when students face problems, they resort to their parents or teachers. Consequently, it isn't important which school they graduated from when it comes to solving problems. Similar studies by Tekin et al., (2007) Berkant and Eren (2013) and Aslan and Uluçınar (2012) support this aspect.

In conclusion, with regard to the problem solving activities of students of Physical Education and Sports, there aren't any significant differences in terms of gender, type of education and graduated school. However, in terms of the grade factor and problem-solving ability, there are significiant differences.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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UPCOMING CONFERENCES

20th International Symposium on Society and Resource Management, Hannover, Germany Hannover, Germany

June 8-13, 2014

9th International Conference on the Arts in Society, Rome, Italy
25-27 June 2014 Sapienza University of Rome Rome, Italy

Conferences and Advert

January 2014

4th International Conference on Advanced Materials Research, Macau, China, 22 Jan 2014

International Conference on Advances in History of Sciences, Macau, China, 24 Jan 2014

International Conference on Educational and Developmental Psychology, Dubai, UAE, 30 Jan 2014

Millennium Development Goals (MDGs) in Retrospect: Africa's Development Beyond 2015, Edmonton, Canada, 30 Jan 2014

March 2014

4th Asian Conference on Ethics, Religion and Philosophy, Osaka, Japan

California Association for Health, Physical Education, Recreation, and Dance Conference, Garden Grove, USA

International Conference on Social,Education and Sports (ICSES 2014), Tianjin, China

3rd International Conference on E-Learning and E-Technologies in Education, Kuala Lumpur, Malaysia

April 2013

Association for Supervision and Curriculum Development (ASCD) Conference on Educational Leadership, Los Angeles, USA

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