

Analyzing Thinking Styles of Students Studying at Physical Education and Sports Academies of Public and Private Universities

Mehmet Öztürk

İstanbul University, School of Physical Education and Sport

E-mail: iuzoturk@istanbul.edu.tr

Tel: 00902124737070/18750

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Abstract- Thinking in general includes features obtained from observation, experience, intuition, reasoning and other channels; also, it is the manner of disciplining of application, analysis and evaluations, and mental process in order to understand the current situation (Ozden, 2003). Thinking style is described based on mental self-government and as the preferred way of using the individuals' minds and knowledge, and the preferred way of thinking (Sternberg, 1997). The current study was done in order to determine the thinking styles of students studying at physical education and sports academies of public and private universities. Students from Istanbul State University and Halic Private University attended this study. Amongst the total of 296 volunteering students, 153 were female and 143 were male. In order to determine the thinking styles of the students, 96 item Thinking Styles scale developed by Sünbül (2004) was used. Using this five point Likert type scale the students' thinking styles were found as legislative, executive, judicial, monarchic, hierarchic, oligarchic, anarchic, global, local, internal, external, liberal and conservative. As a result of the analysis made, it was found that all students with regard to school type, gender and academic departments, used "Legislative" thinking style the least which corresponds to the statement of "Rarely=2" and used "Anarchic" thinking style the most which corresponds to the statement of "Sometimes=3". Also, it was seen that public university students, female students and training education students use "Anarchic" thinking style more when compared with the opposing groups.

Keywords: thinking styles, student of sport, student thinking style, private universities.

Introduction

Thinking in general includes features obtained from observation, experience, intuition, reasoning and other channels. Also, it includes the manner of disciplining of application, analysis and evaluations, and mental process in order to understand the current situation (Palic 2011). According to Dewey, thinking is a specification that develops spontaneously when a person faces a problem or goes into a strange situation. In other words, it is a problem solving behavior (Holyoak and Morrison 2005, Kaya 2009). Style is defined as the preferred approach and ways of using the abilities somebody has while performing his/her daily activities and trying to obtain a behavior in the learning process (Duru, 2004). In addition, Sternberg (1997) describes thinking style based on mental self-government and defines it as the preferred way of using the individuals' minds and knowledge, and the preferred way of thinking. Therefore, it is clear that it would be more beneficial if the education and training schedule will be done in accordance to the pre-determined students'

thinking styles. Also, the current study was done in order to determine the thinking styles of students studying at physical education and sports academies of public and private universities.

Materials and Procedure

Study population consisted of students from Istanbul University and Halic University School of Physical Education and Sport as the private (foundation) and public university. On a voluntary basis and without distinction between male and female, a total of 296 students attended the study; 128 students from Halic University and 168 students from Istanbul University, and 153 of them were female and 143 were male. In order to determine the thinking styles of the students, 96 item Thinking Styles scale developed by Sternberg and adapted to Turkish and its variety and reliability study completed by Sünbül (2004) was used. This is a 5 point Likert type scale and the ratings range from 5 to 1 as 5=always, 4=often, 3=sometimes, 2=rarely, 1=never. Out of 96 questions, 7 or 8 question sets determine 13 different thinking styles. These thinking styles are: legislative, executive, judicial, monarchic, hierarchic, oligarchic, anarchic, global, local, internal, external, liberal and conservative.

First, ANOVA test was used in order to determine which thinking styles were used the most by students with regard to school type, gender and the academic department. And then, t-test (two sample t test) was used to determine if the means of two groups differ from each other. $P < 0.05$ was considered significant.

Results

At the end of the current study that was done in order to determine the thinking styles of students studying at physical education and sports academies of public and private (foundation) universities, the data collected are given in the tables and figures below. The thinking styles given in the tables below are the means of 13 different thinking styles determined as a result of 7 or 8 question sets. These means are the average of the values provided for each question, ranging from 1 to 5. With regard to these averages, the evaluation is done as: always=5, often=4, sometimes=3, rarely=2, never=1.

A total of 296 public and private university students and the means of 13 different thinking styles with regard to their school

types, genders and their academic departments are given in Table 1. In addition, the mean values of thinking styles of all students were given in Figure 1, the values for private and public students were given in Figure 2, female and male students in

Figure 3 and the values for students studying training and management are given in Figure 4.

Table 1. Mean Values of Thinking Styles with regard to All Students, School Type, Gender and Academic Department

	All students (N=296)		Group Numbers	School type (1 Private= 128, 2 Public=168)		Gender (1 Female=153, 2 Male=143)		Academic department (1 Training=140, 2 Mgmt.=156)	
	M	SD		M	SD	M	SD	M	SD
Legislative	1.823	0.47	1	1.767	0.447	1.943	0.415	1.8	0.452
			2	1.866	0.483	1.695	0.492	1.844	0.485
Executive	2.246	0.565	1	2.123	0.462	2.308	0.604	2.398	0.59
			2	2.339	0.618	2.179	0.514	2.109	0.506
Judicial	2.229	0.585	1	2.159	0.523	2.368	0.595	2.389	0.671
			2	2.281	0.625	2.08	0.537	2.084	0.451
Monarchic	2.202	0.481	1	2.192	0.458	2.145	0.481	2.069	0.433
			2	2.209	0.499	2.263	0.474	2.321	0.492
Hierarchic	2.302	0.538	1	2.135	0.456	2.32	0.54	2.22	0.631
			2	2.429	0.563	2.282	0.538	2.375	0.428
Oligarchic	2.546	0.514	1	2.453	0.494	2.623	0.533	2.58	0.551
			2	2.617	0.52	2.465	0.482	2.517	0.478
Anarchic	2.96	0.904	1	2.773	0.84	3.135	0.814	3.286	0.828
			2	3.102	0.928	2.773	0.96	2.668	0.871
Global	2.471	0.646	1	2.526	0.565	2.572	0.598	2.378	0.7
			2	2.429	0.7	2.362	0.678	2.554	0.583
Local	2.499	0.625	1	2.41	0.588	2.571	0.55	2.482	0.72
			2	2.566	0.645	2.422	0.69	2.514	0.527
Internal	2.473	0.742	1	2.544	0.631	2.479	0.709	2.286	0.806
			2	2.418	0.815	2.466	0.779	2.64	0.637
External	2.355	0.698	1	2.164	0.582	2.354	0.642	2.369	0.75
			2	2.5	0.745	2.356	0.756	2.342	0.651
Liberal	2.225	0.506	1	2.186	0.485	2.275	0.404	2.145	0.422
			2	2.255	0.52	2.172	0.592	2.298	0.562
Conser- vative	2.528	0.683	1	2.57	0.617	2.542	0.682	2.41	0.829
			2	2.495	0.729	2.513	0.686	2.633	0.497

According to the data given in Table 1, after grouping all the students according to school type, gender and academic department, it was seen that "Anarchic Thinking Style" was used predominantly and "Legislative Thinking Style" was used the least. After performing statistical analysis (stepwise ANOVA), both thinking styles were found to be significantly different from the rest of the thinking styles.

Accordingly, the whole student group consisting of 296 students used "Anarchic Thinking Style" predominantly with the mean value and standard deviation of 2.960 ± 0.904 and "Legislative Thinking Style" was used the least with the mean value and standard deviation of 1.823 ± 0.470 ($F=52.65$, $P=0.000$, $R-Sq=14.14\%$).

It was found that 128 private university students that attended the current study used "Anarchic Thinking Style"

predominantly with the mean value and standard deviation of 2.773 ± 0.840 and "Legislative Thinking Style" was used the least with the mean value and standard deviation of 1.767 ± 0.447 ($F=28.89$, $P=0.000$, $R-Sq=17.36\%$). For the public university students, these values were determined as "Anarchic Thinking Style" with the mean value and standard deviation of 3.102 ± 0.928 and "Legislative Thinking Style" with the mean value and standard deviation of 1.866 ± 0.483 ($F=30.46$, $P=0.000$, $R-Sq=14.41\%$).

It was found that 153 female university students that attended the current study used "Anarchic Thinking Style" predominantly with the mean value and standard deviation of 3.135 ± 0.814 and "Legislative Thinking Style" the least with the mean value and standard deviation of 1.943 ± 0.415 ($F=28.89$, $P=0.000$, $R-Sq=17.36\%$). For the male students, these values were determined as "Anarchic Thinking Style" with the mean value

and standard deviation of 2.773 ± 0.960 and "Legislative Thinking Style" with the mean value and standard deviation of 1.695 ± 0.492 ($F=30.46$, $P=0.000$, $R-Sq=14.41\%$).

It was found that a total of 140 training education students that attended the current study used "Anarchic Thinking Style" predominantly with the mean value and standard deviation of $3,286 \pm 0,828$ and "Legislative Thinking Style" the

least with the mean value and standard deviation of 1.800 ± 0.452 ($F=28.89$, $P=0.000$, $R-Sq=17.36\%$). For the sports management students, these values were determined as "Anarchic Thinking Style" with the mean value and standard deviation of 2.668 ± 0.871 and "Legislative Thinking Style" with the mean value and standard deviation of 1.844 ± 0.485 ($F=30.46$, $P=0.000$, $R-Sq=14.41\%$).

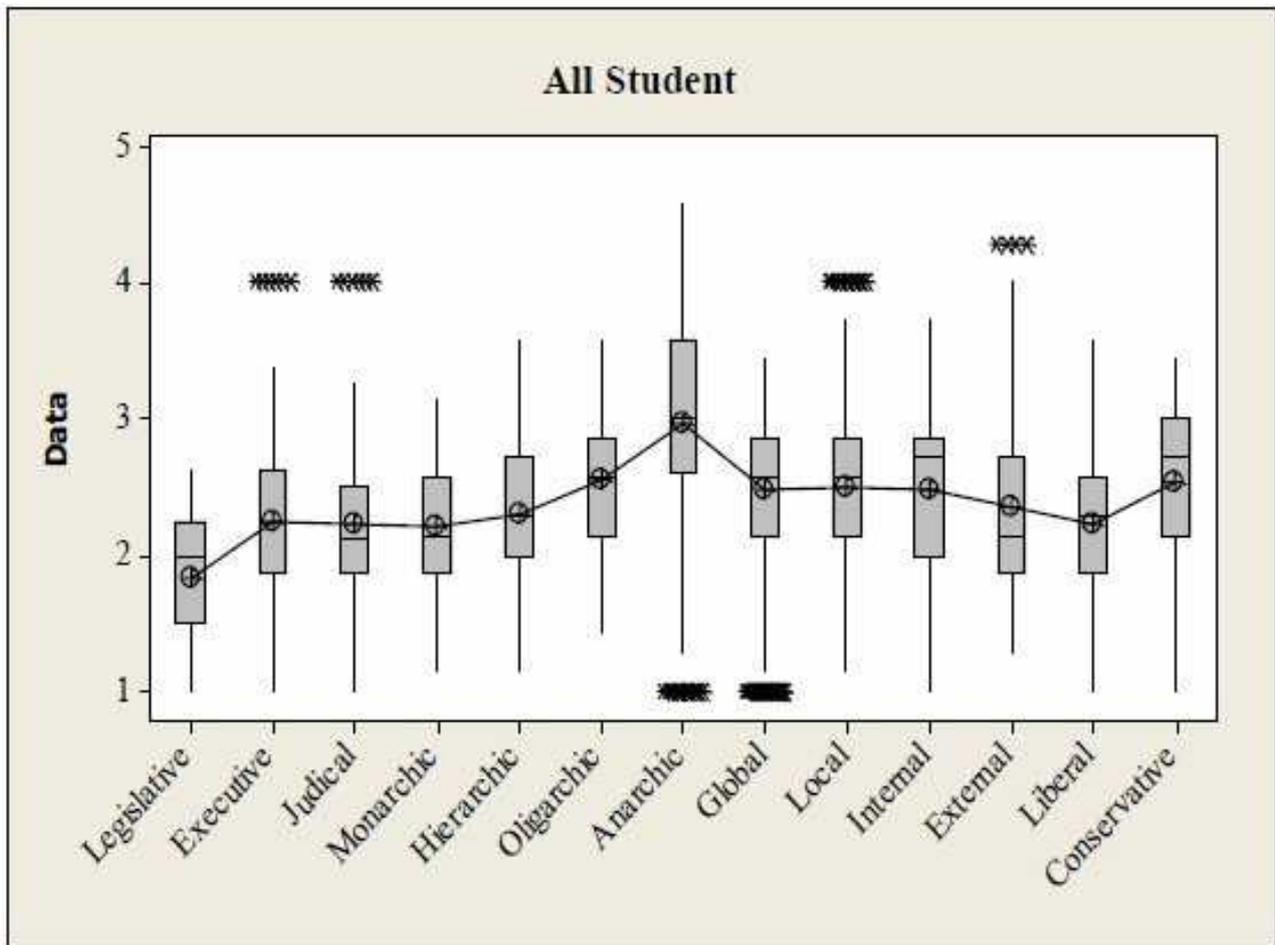


Figure 1. Thinking style mean value distribution of all the students that attended the study from both schools

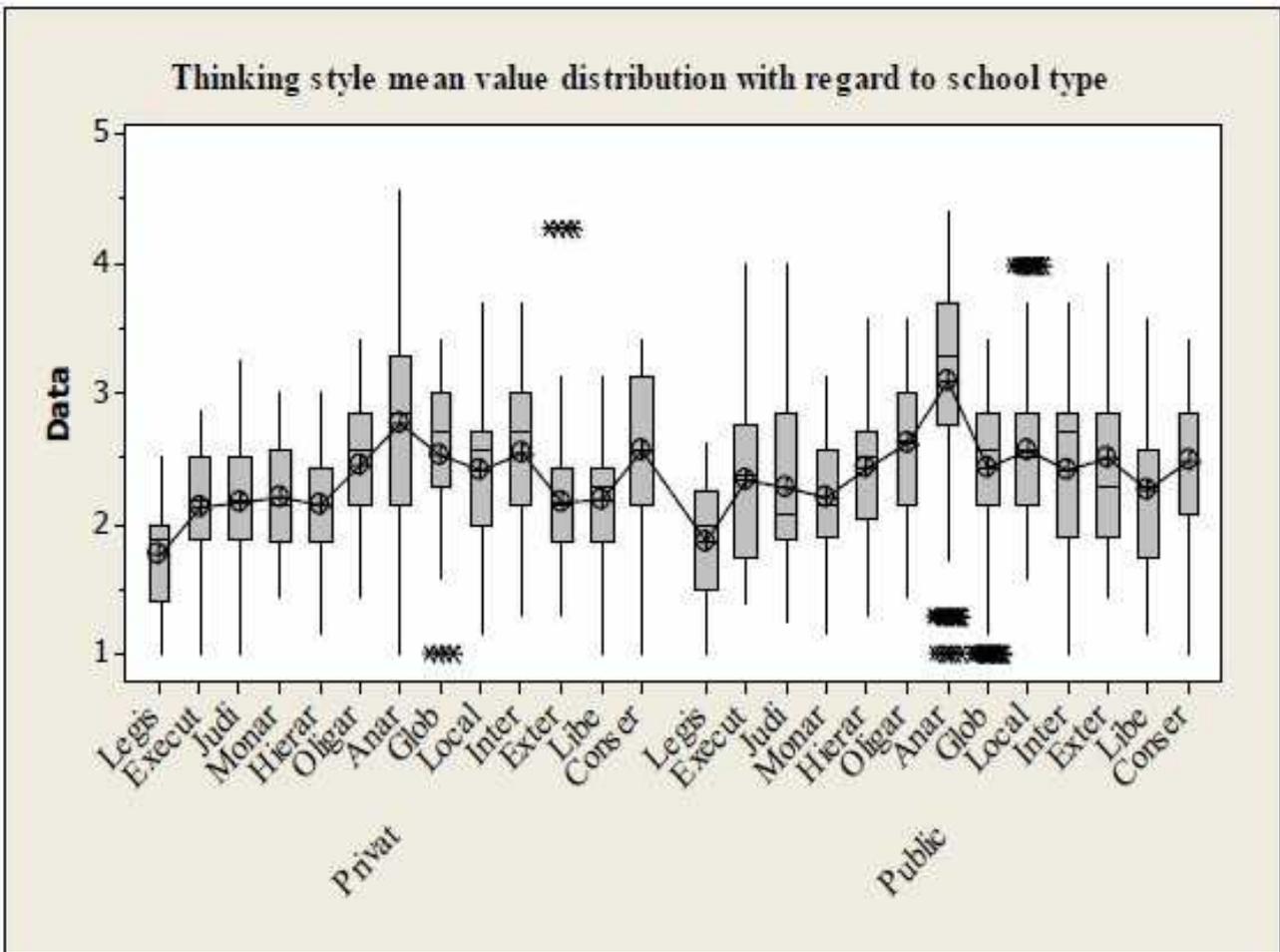


Figure 2. Thinking style mean value distribution of public and private university students

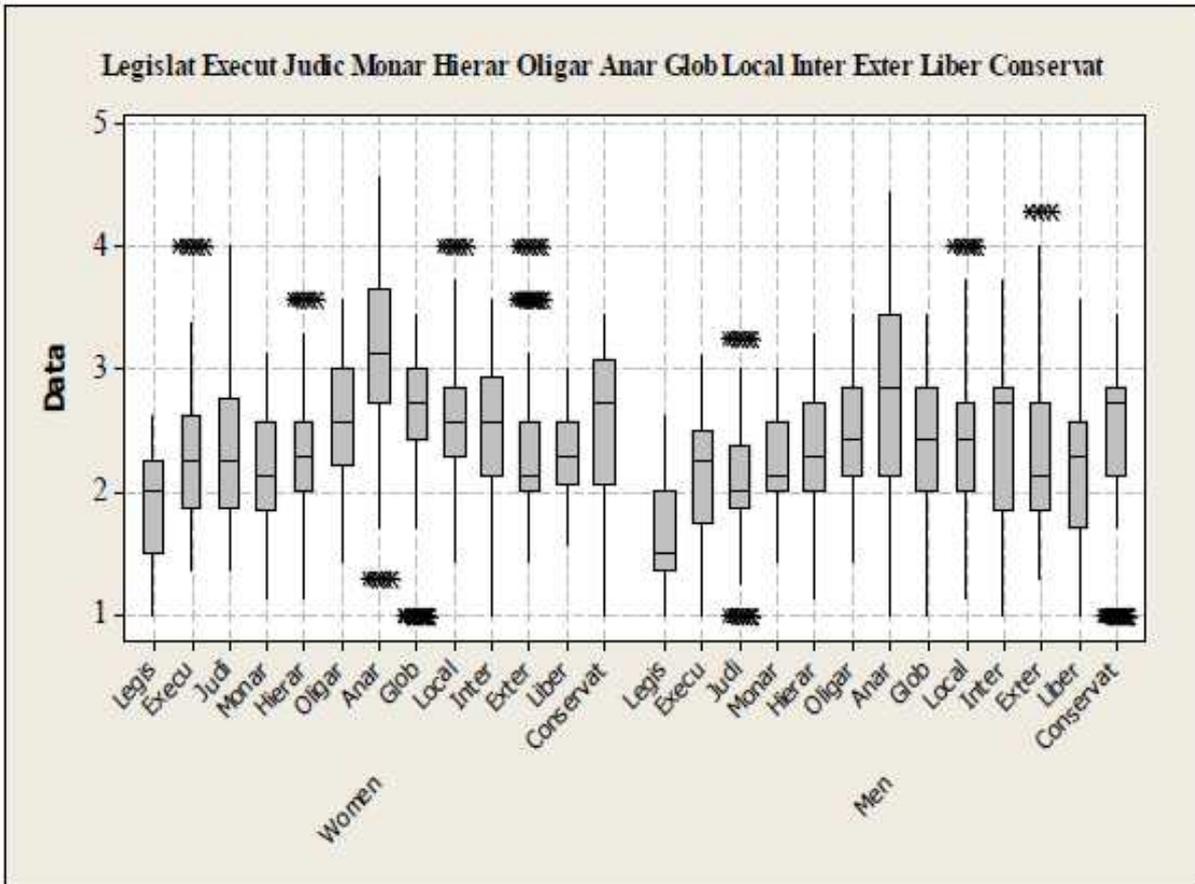


Figure 3. Thinking style mean value distribution of female and male students

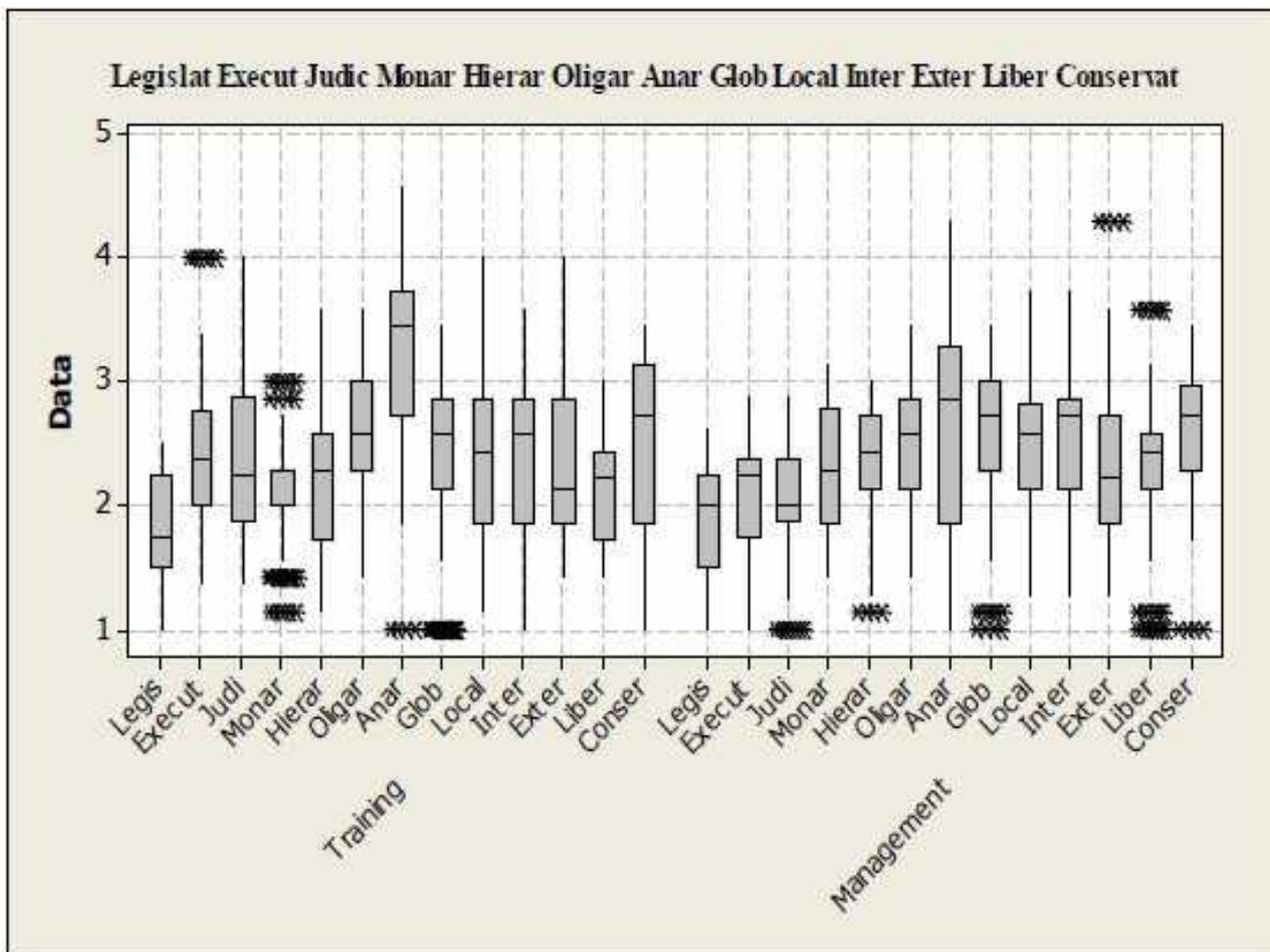


Figure 4. Thinking style mean value distribution of sports management and training education students

In order to determine whether there are any differences between the public-private university, female-male and training-management groups with regard to the most and the least used thinking styles by the students that attended the

current study, statistical analysis (two samples t test) was performed and its results are given in Table 2. Also, these comparisons were shown in Figure 5.

Table 3. Analysis results of the differences between legislative and anarchic thinking styles with regard to the students' school types, gender and academic department

Thinking Style	Grup Type	N	M	SD	t	P (2-tailed)	Similar/Different
School type							
Legislative	Private	128	1.767	0.447	-1.813	0.071	Similar
	Public	168	1.866	0.483			
Anarchic	Private	128	2.773	0.84	-3.144	0.002	Different
	Public	168	3.102	0.928			
With regard to gender							
Legislative	Female	153	1.943	0.415	4.672	0	Different
	Male	143	1.695	0.492			
Anarchic	Female	153	3.135	0.814	3.5	0.001	Different
	Male	143	2.773	0.96			
With regard to academic department							
Legislative	Training	140	1.8	0.452	-0.8	0.424	Similar
	Mgmt.	156	1.844	0.485			
Anarchic	Training	140	3.286	0.828	6.239	0	Different
	Mgmt.	156	2.668	0.871			

According to the data given in Table 2, there was no significant difference in the least used "Legislative Thinking Style" with the respective mean value and standard deviation of 1.767 ± 0.447 and 1.866 ± 0.483 between private and public university student groups ($t = -1.813$, $p = 0.071$). A significant difference was detected between these two groups in terms of "Anarchic Thinking Style" which was used by both groups predominantly with the respective mean value and standard deviation of 2.773 ± 0.840 and 3.102 ± 0.928 ($t = -3.144$, $p = 0.002$).

According to the data given in Table 2, a significant difference was detected between female and male university students in terms of the least used "Legislative Thinking Style" with the respective mean value and standard deviation of 1.943 ± 0.415 and 1.695 ± 0.492 ($t = 4.672$, $p = 0.000$). There was also a

significant difference between these two groups with respect to "Anarchic Thinking Style" which was used by both groups predominantly with the respective mean value and standard deviation of 3.135 ± 0.814 and 2.773 ± 0.960 ($t = 3.500$, $p = 0.001$).

According to the data given in Table 2, there was no significant difference in the least used "Legislative Thinking Style" with the respective mean value and standard deviation of 1.800 ± 0.452 and 1.844 ± 0.485 between training education and sports management students ($t = -0.800$, $p = 0.424$). A significant difference was detected between these two groups in terms of "Anarchic Thinking Style" which was used by both groups predominantly with the respective mean value and standard deviation of 3.286 ± 0.828 and 2.668 ± 0.871 ($t = 6.239$, $p = 0.000$).

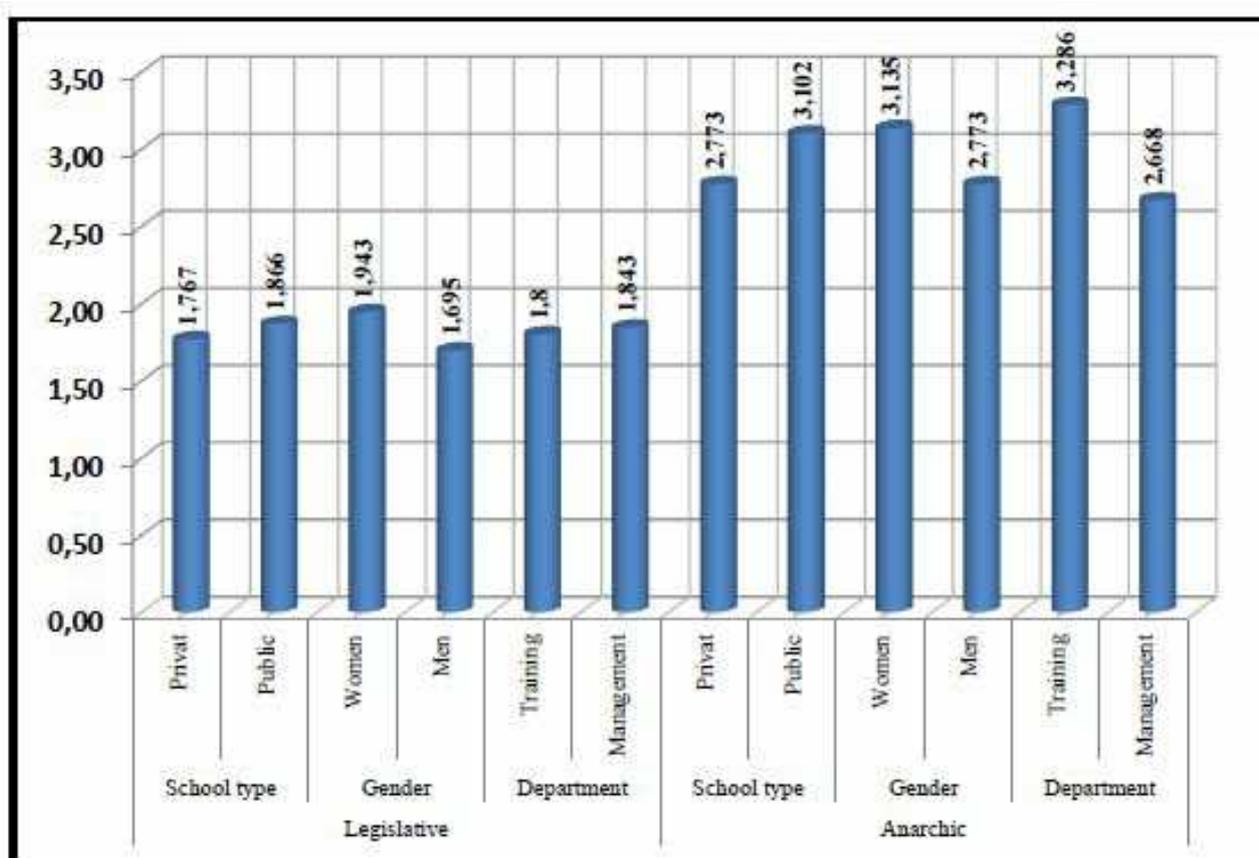


Figure 5. Legislative and anarchic thinking style mean value distribution with respect to the students' school types, gender and academic department

Discussion

In our study, it was found that without distinction between male and female students, "Legislative" thinking style used the least and "Anarchic" thinking style was used the most and these values were found to be significantly different in comparison with the other thinking styles (stepwise Anova test). This finding was found to be the same in the groups classified according to school type, gender and academic department ($p < 0.05$).

After performing analysis with respect to university types as public and private, it was found that students from both universities showed similar "Legislative" thinking style traits which was used the least and different "Anarchic" thinking style traits which was used the most (Table 2; $p < 0.05$). In accordance with the mean values for both schools (mean = 3.102 and 2.773), we can say that while "Legislative" thinking style is similar, "Anarchic" thinking style is used more by public university students. According to this finding, it is obvious that the reason why public university student's use

“Anarchic” thinking style more will be a new study subject. We did not come across a similar study while browsing through publications.

According to our findings, female and male students from both school types used “Legislative” thinking style the least and “Anarchic” thinking style the most and the two thinking style was significantly different when compared to the other thinking styles (Table 1). Also, a significant difference was found between female and male students in terms of these two thinking styles (Table 2; $p < 0.05$). According to the second finding and the mean values of thinking styles, we can say that females tend to use “Legislative” and “Anarchic” thinking styles more when compared with males. Sternberg and Grigerenko (1995), Zhang and Sachs (1997), Zhang (1999), Sternberg and Zhang (2001), Zhang (2002b) and Fer de (2005) found similar results in their studies. However, Saracoglu (2008), Sternberg (1997), Grigeronko and Sternberg (1997), Çubukcu (2004), Zhang (2002), Palic (2011) and Durdukoca (2011) found that there was no significant difference between the thinking styles of female and male students.

It can be assumed that these different findings may result from the socio-economic and cultural differences between the study groups. Also, Saracoglu (2008) found that female and male students use “Legislative” thinking style the least which was similar to our findings, but, on the other hand, it was found that the students used “Executive” thinking style the most, this was different from our findings.

After performing statistical analysis (two samples t test) in order to determine whether there are any differences in their thinking styles between the academic departments, without distinction between female and male students (Table 2), it was found that students studying training education and sports management showed similar “Legislative” thinking style traits which was used the least and different “Anarchic” thinking style traits which was used the most ($p < 0.05$). When we look at the mean values for both groups, we can say that training education students use “Anarchic” thinking style more when compared with the sports management students. In a similar study done by Durdukoca (2001), teacher candidates from both departments show different thinking style traits with the exception of “Hierarchical and Conservative” thinking styles. Although, Palic (2011) and Saracoglu (2008) did similar studies, they have not made a comparison between these educational departments.

Conclusion

According to our study results, it was found that all students with regard to school type, gender and academic departments, used “Legislative” thinking style the least which corresponds to the statement of “Rarely=2” and used “Anarchic” thinking style the most which corresponds to the statement of “Sometimes=3”. Also, it was seen that public university students, female students and training education students use “Anarchic” thinking style more when compared with the opposing groups.

References

1. Çubukçu, Z. (2004). “Determine The Thinking Styles Of Teacher Candidates”. *Trakya University Journal of Social Science*. 5(2), 87-106.
2. Durdukoca ŞF. (2011). “The Comparison of Pre-Service Teacher’s Thinking Styles in Terms of Various Varieties”. 2nd International Conference on New Trends in Education and Their Implications. Antalya-Turkey.
3. Duru, E. (2004). “Thinking Styles: Conceptual and Theoretical Framework”. *Eurasian Journal of Educational Research*, 14, 171-186.
4. Fer, S. (2005). “Validity and Reliability Study of the Thinking Styles” *Educational Sciences Theory & Practise*, 5 (2), 433-461 (2005).
5. Grigerenko E.L., R.J.Sternberg (1997). “Styles of thinking, abilities and academic performance”. *Exceptional Children*. 63(3), 295-302.
6. Holyoak, K., R.G. Morrison. (2005). *Thinking and Reasoning: A Reader’s Guide*. The Cambridge Handbook of Thinking and Reasoning. (Ed. Keith J. Holyoak, Robert G. Morrison). ABD: Cambridge University Press. 1-23.
7. Kaya, B. (2009). “A Study on 6Th, 7 Th and 8TH Grade Student’s Thinking Styles and Mathematics Achievement According to Their School Type, Gender and Grade Level” Master Thesis. Yıldız Tecnical University, Institute of Social Science.
8. Palic, G., E.Altun (2011). “Preservice Science Teachers' Thinking Styles and Relationship Between Physical Laboratory”. 2nd International Conference on New Trends in Education and Their Implications 27-29 April, Antalya-Turkey
9. Saracaloğlu A.S. N,Yenice, N.Karasakaloğlu (2008). “The Comparison of Education Faculty Student’s Thinking Styles in Terms of Various Varieties”. *The Journal of International Social Research*. 1 ,5,732-751.
10. Sternberg R.J. (1994). Thinking styles: Theory and assessment at the interface between intelligence and personality, in: R.J. STERNBERG and P.RUZGIS (Eds). *Intelligence and Personality*. 169-187. New York.
11. Sternberg, R.J. (1997). *Thinking Styles*. New York: Campridge University Press (IBM Professor of Psychology & Education, Yale University), ISBN 0-521- 65713-X.
12. Sternberg R.J. & L.F.Zhang (2001). *Thinking styles across cultures: Their relationship with student learning, Perspective on thinking, Learning and Cognitive Styles*. London: Lawrence Erlbaum Associates, Publishers, ss. 197-225.
13. Sünbül, A. M. (2004). “The Validity and Reliability of the Thinking Style Scala” *Journal of Education and Science*. 9(132), 25-42.
14. Zhang L.F. & J. Sachs (1997). “Assessing thinking styles in the teory of mental self-government: A Hon Kong Validity stud”. *Psychological Reports*. 81, 915-928.
15. Zhang L.F. (1999). “Further cross-cultural validation of the teory of mental self-government”. *The Journal of Psychology Interdidiplinary and Applied*. 133 (2), 165-181.
16. Zhang L.F. (2002a). “Thinking styles and modes of thinking:

Implications for education and research". *The Journal of Psychology*. 136, 245-261.

17. Zhang L.F. (2002b). "Thinking styles: Their relationship with modes of thinking and academic performance". *Educational Psychology*. 22(3), 331-348.