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The Instruction of Learning Strategies and Their Reflection on Cognitive Processes: Elementary Teacher and Student in Turkey

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Abstract: Learning to learn is the most important element of effective learning and it includes various learning strategies that students use while they learn. In this research it was aimed to identify whether the learning strategies have been sufficiently taught to the students in elementary schools or not. The research was carried out with a sample of 260 teachers and 500 students in primary schools in Istanbul during the academic year of 2004-2005. Survey method was used to accomplish the aims stated above and an attitude scale was also applied to reveal the teachers level of awareness about learning strategies. The data showed that learning strategies were not emphasized sufficiently in the schools and only their advantages were mentioned superficially teachers were not efficient at teaching those strategies and teachers were eager to participate in an in-service training program related to the learning strategies.

Key words: Learning, learning strategies, learning tactics

INTRODUCTION

Exchanging knowledge and technology among nations has become easier with the help of globalization and because of the overwhelming changes in science, it has become imperative for nations to revise their education systems and to adapt them to today's world's needs. This change has given rise to a review of current strategic learning methods, thus saving students from a huge burden of information (Oguz *et al.*, 2001). This means expanding the limits of education as much as possible and gives a different meaning to knowledge. In this respect, all the data that an individual gets is regarded a kind of raw material. When an individual is able to process this raw material and makes it a part of his/her thinking system, then he/she produces real knowledge (Özden, 1998). However, the quality of knowledge and methods of operations might be more important than the quantity of knowledge (Sönmez, 2004). These methods, which might vary for each individual, function under the name of learning strategies in terms of learning to learn. Students particularly need strategies to activate their learning potentials so that they can learn to learn.

Learning strategies, which might also be regarded one's personal learning methods, in a sense are the transformation of personal knowledge processing forms into cognitive tasks in a shape that will include performance administration. In fact these tasks, which

facilitate students learning and directly shape their learning facilities, are key cognitive structures which students get used to using (Arends, 1996). The term Learning strategies refers to what students know and how they must learn and construct and direct their learning (Weinstein and Mayer, 1986; Wittrock, 1986). Learning strategies, which play a key role in learning more complex knowledge and skills and develop with present skills, can also be described as personal ways to increase the quality of learning, including cognitive operations which can be used by students and taught by teachers. In constructing knowledge they include cognitive tactics which will help the teacher evaluate knowledge and process the skills that will activate learning (Nisbet and Shucksmith, 1986; Derry and Murphy, 1986; Mayer, 1988; Güven, 2004).

Traditionally at schools, students are expected to learn very different kinds of knowledge, but teaching how to learn this knowledge is usually ignored (Özer, 2002). However, active and permanent learning is possible with necessary learning strategies so that students themselves process the knowledge. The progress in this respect has extended the cause-result relation between the mental structures and data processing processes of students much further than how much they learn. May be, the main metaphor to be discussed should be the organization of dominant knowledge structures in formal life that are shaped on the learner's hands (Mayer, 1992). In this sense, the biggest obstacle in classes is not to show them

the necessary methods and to ignore) their learning styles while helping them attain experiences they need (Bahar, 2003). The obstruction caused by this deficiency in instruction stems from not understanding the student's cognitive structure's well enough and lack of learning strategies and teaching methods which should have been taught to the individual (Öztürk, 1995; Bahar, 2003; Akinoglu and Ozkardes Tandogan, 2007). Learning strategies, which are shaped according to the student's cognitive structures, are the highest level of learning tactics and are the key elements to be used skillfully by teachers (Delamont, 1987; Talu, 1997; Ataunal, 2003) since the learning methods students follow in classroom-based strategy teachings closely affect acquisition and using the strategies taught before (McNeil, 1971; McKeachie, 2002). In the organization of learning in the classroom, the importance and usage area of every strategy which are taught depending on the content help the student's interest to be centralized (Nisbet and Shucksmith, 1986). In teaching the learning strategies, strategic approaches of teachers and their knowledge about learning strategies are, therefore, important. The strategies which teachers are aware of, use and teach should be identified with formal objectives (Pressley *et al.*, 1992). This planned process which will be carried out in the supervision of the teacher enables the students to realize their personal learning strategies and to adapt their learning environments to possible variables (Scheck, 1988). The effects of teachers on teaching strategies get meaningful by keeping learning in an inter-aspect balance (i.e., by creating association between learner and the things to be learned) because teaching these strategies direct cognitive processes on personal learning (Alvidrez and Weinstein, 1999). The deficiency in teaching strategy in terms of directing conscious stems from the teacher to a great extent. The teachers knowledge on learning strategies and their teaching skills of learning strategies have remained under the influence of traditional philosophies. In fact, even their being models in teaching the learning strategies may be enough for the strategies to be named and their realization of their functions in the process (Schunk and Zimmerman, 1998).

Especially in the first five years of primary schools, learning strategies and their instruction are neglected and postponed to further classes. However, no matter what level students are, they can best acquire learning strategies at schools. In order to achieve this effectively, class teachers should be equipped with necessary knowledge and skills in this subject. This study tries to reveal the level of the teachers awareness and performance about the instruction of learning strategies in the first five years of primary schools. The questions to be answered are:

- Which learning strategies and to what extent do the teachers teach ?
- Is there a relationship between learning strategies teaching variables and the strategies which are taught ?
- Is there a difference between the learning strategies the teachers teach and the way the students perceive them ?

Method of research: Survey method (model) was used in the research. In this design framework, whether learning strategies are taught or not and how much the students are aware of learning strategies in learning situations are researched. In this way, learning strategies teaching variable was tried to be described as its present and ideal level. In the study, the teachers levels of awareness about learning strategies were revealed through an attitude scale at first and accordingly, it was seen that they are aware of the learning strategies to a great extent.

Sample: The target population consists of 260 class teachers (59% female and 48.1% male) working at state primary schools and 500 5th grade students in Istanbul. The reason for limiting the research within 5th grades is that learning strategies built on spatial values coincide with abstract operations period (age 11) and finding out the strategy perception age.

Instrument: The research was formed with strategies explaining the instruction of learning strategies by referring to data processing theory which are based on tactical classification developed by Weinstein and Palmer (1986) and adapted by Ozturk (1995). These strategies are attention, repetition, encoding, organization, retention, directing cognition and perceptive learning strategies. Based on the instruction of these strategies, the basic tactics which each strategy consists of and instructional behaviour steps about applying these tactics were determined through triple groupings. For each of these seven learning strategies, tactics and instructional directives developed in groups of three for each were presented for application.

Data analysis: Seven learning strategies the teachers use and variables depending on instruction were tested and relational correlation between the teacher's and student's questionnaires based on mutual awareness were compared. Frequency, Percentage and variance analysis for other descriptive statistics were carried out via SPSS 7 package programme to determine which strategy was taught to what extent and how it was perceived by the students.

RESULTS

In this study, which aims to find out to what level Primary School class teachers apply learning strategies instruction and to what level learning strategies reflect on student's cognitive processes, when it comes to the ways for the instruction of learning strategies, it is seen that 15.4% of the teachers do nothing about it and 16.5% of them only explain their advantages. When the time allocated for teaching the strategies is taken into consideration, it is found out that 44.6% of the teachers use them in every lesson. As for the strategies which are taught, it is observed that the repetition and attention strategies are emphasized while other strategies are taught very little. When it comes to the quality of the education in learning strategy instruction, it is seen that 13.5% of the teachers have no education about the strategies. According to Babadogan (1996), in a great majority of universities, there is not even a lesson called learning strategies. They are taught in other lessons. But it is thought that those teachers who think they have been taught learning strategies interpret this subject under the teaching methods framework and in traditional meanings; therefore, 63.1% of them see themselves as qualified about this subject. The study shows parallelism with Özer's (2002) teacher's learning strategies instruction level and the level of seeing themselves partly qualified (63.6%). Besides, 79.6% of the teachers would like to take part in an in-service programme about learning strategies. The process the teachers follow in the instruction of learning strategies was outlined (Table 1 and 2).

Accordingly, whereas the students expressing that they are directed tactics in repetition strategies instruction are 63.6%, this rate is 41.2% with teachers. According to the Table 2, teachers point out that they teach repetition

strategy most and organization strategy least (14.4%). Thus, the students reveal that they learn repetition strategy most (63.6%) and organization strategy least (39.4%). The parallelism between the findings shows both the harmony of concentric questionnaires and the indecision and disorganization of teachers in teaching the strategies. It is thought that the students who believe they have learned the learning strategies from their teachers cannot distinguish learning strategies from teaching strategies.

As a result of one-way variance analysis that was used to determine whether there is a meaningful difference between the time allocated for learning strategies instruction and attention strategies F-value (2.664) is found as statistically significant (SD = 3.256, $p < 0.05$) (Table 3).

As a result of one-way variance analysis was used to determine whether there is a meaningful difference between the time allocated for learning strategies instruction and I enable my students study tables, graphics and tables about subjects carefully article, F-value (2.664) was found as statistically significant (SD = 3.256, $p < 0.05$). After LSD test was done to determine in which time intervals there is a statistically significant difference, a statistically significant difference was found between allocating time every lesson (n = 116, average = 4.19 SS = 0.68) and allocating time a lesson a day (n = 16, Average = 3.68, SS = 0.94) in favour of allocating time every lesson. Accordingly, the rate of helping students carefully examine tables, graphics and tables about subjects every lesson was found higher than that of allocating time only a lesson a day.

As a result of one-way variance analysis was used to determine whether there is a meaningful difference between the ways followed for learning strategies and

Table 1: The process the teachers in the sample follow

Characteristics		f	(%)
Time allocated for the instruction of learning strategies	Each lesson	116	44.6
	1 lesson a day	16	6.2
	1-2 lessons a week	57	21.9
	never	71	27.3
Methods followed in learning strategies instruction	Giving information	23	8.8
	explaining its use	48	18.5
	Practicing	149	57.3
	Doing nothing	40	15.4
The educational quality of teacher in learning strategies instruction	Pre-service	122	46.9
	In-service	32	12.3
	Written materials	71	27.3
	Nothing	35	13.5
Teacher's finding himself or herself qualified in learning strategies instruction	Qualified	57	21.9
	Partly qualified	164	63.1
	Unqualified	39	15.0
Willingness to attend a programme organized for the instruction of the strategies	I do	207	79.6
	I can learn without it	39	15.0
	I do not	14	5.4

n = 260

Table 2: The highest average value percentages in grouped learning strategies

Strategies	Teacher (Always) (n = 260)		Student (Always) (n = 500)	
	f	(%)	f	(%)
Attention	93	35.9	294	58.9
Repetition	107	41.2	318	63.6
Encoding	75	28.8	278	55.5
Organization	37	14.4	197	39.4
Retention	61	23.6	237	47.3
Cognition administration	47	17.9	241	48.2
Perceptive	59	22.7	245	49.1

Table 3: Variance analysis for the article (I help my students study tables, graphics and tables about subjects carefully) according to the time allocated for learning strategies instruction

Source of variation	SS	SD	MS	F-value	p-value
Inter-Groups	4.616	3	1.539	2.664	0.048
In-Groups	147.846	256	0.578		
Total	152.462	259			

Levene test, $f = 2.058$, $SD = 3.256$, $p = 0.106$, $SS = \text{Sum of Squares}$, $MS = \text{Mean of Squares}$

Table 4: Variance for the article (I help my students use the time effectively.) according to the methods followed for learning strategies instruction

Source of variation	SS	SD	MS	F-value	p-value
Inter-Groups	3.396	3	1.132	2.853	0.038
In-Groups	101.569	256	0.397		
Total	104.965	259			

Levene test $f = 0.374$, $SD = 3.256$, $p = 0.772$

perceptive learning strategies, F-value (2.853) was found as statistically significant ($SD = 3.256$, $p < 0.05$) (Table 4).

As a result of one-way variance analysis was used to determine whether there is a statistically meaningful difference between the ways followed for learning strategies instruction and the I help my students use the time effectively article, F-value (2.853) was found as statistically significant ($SD = 3.256$, $p < 0.05$). As a result of LSD test which was carried out to determine in which teaching methods there is a significant difference, there is a significant difference between giving information each few hours ($n = 23$, Average = 4.21, $SS = 0.59$) and just explaining that it would be useful ($n = 48$, average = 3.85, $SS = 0.61$) in favour of giving information each few hours (0.05).

As a result of variance analysis carried out to determine whether there is a statistically significant difference between the quality of education on learning strategies instruction and organization strategies, F-value (3.988) was found as statistically significant ($SD = 3.256$, $p < 0.05$) (Table 5).

As a result of one-way variance analysis carried out to determine whether there is a statistically significant difference between the quality of education on learning strategies instruction and the I help them answer the subject related questions in a desired level article, F-value

Table 5: Variance for the article (I help my students answer the related questions at the required level.) according to the quality of education for learning strategies instruction

Source of variation	SS	SD	MS	F-value	p-value
Inter-Groups	7.113	3	2.371	3.988	0.008
In-Groups	152.190	256	0.594		
Total	159.304	259			

Levene test $F = 0.747$, $SD = 3.256$, $p = 0.525$

Table 6: Variance for the article (I help my students choose sources and models which will direct their learning.) according to the level of finding themselves qualified for learning strategies instruction

Source of variation	SS	SD	Mean squares	F-value	p-value
Inter-Groups	5.573	2	2.786	4.818	0.009
In-Groups	148.624	257	0.578		
Total	154.196	259			

Levene test $F = 6.386$, $SD = 2.257$, $p = 0.002$

(3.988) was found as significant ($SD = 3.256$, $p < 0.05$). As a result of Scheffe test that was carried out to determine in which education quality there is a statistically significant difference, a statistically significant difference was found (0.05) in favour of having pre-service training, between learning from written sources ($n = 71$, average = 3.95, $SS = 0.80$) and having pre-service training ($n = 122$, Average = 4.29, $SS = 0.65$). According to the quality of education at pre-service training, the average of students answering the questions at the required level is higher than learning the strategies from written sources.

As a result of variance analysis carried out to determine whether there is a statistically significant difference between the level of finding himself/herself effective and qualified on learning strategies instruction and cognition administrative strategies, F-value (4.818) was found as significant (0.05) (Table 6).

As a result of one-way variance analysis carried out to determine whether there is a statistically significant difference between the level of finding himself/herself effective and qualified on learning strategies instruction and the I help them choose sources and models which will direct their learning article, F-value (4.818) was found as statistically significant ($SD = 2.257$, $p < 0.05$). As a result of Dunnet C-test that was carried out to determine in which finding himself/herself effective and qualified level there is a statistically significant difference, a positive difference was found between finding oneself qualified ($n = 57$, average = 4.10, $SS = 0.79$) and finding oneself unqualified ($n = 39$, average = 3.61, $SS = 0.96$) in favour of finding oneself qualified (0.05). Teachers, who provide cognition administration by helping the students, choose the sources and models which will direct them to learning, find themselves efficient and qualified in learning strategies instruction and differentiate from those who find themselves inefficient and unqualified in this respect (3.61).

Table 7: Variance for the article (I help my students repeat the subjects aloud and silently.) according to the willingness to participate an in service training programme

Source of variation	SS	SD	MS	F-value	p-value
Inter-Groups	12.377	2	6.188	7.491	0.001
In-Groups	212.342	257	0.826		
Total	224.688	259			

Levene test, $f = 5.207$, $SD = 2.257$, $p = 0.06$

Table 8: The relationship between teachers' learning strategies instruction and students' learning these strategies and the direction of cognitive reflection

Article 1- Helping student think how the subject will be useful	Teacher	Student
N	260.000	500.00
X	4.360	4.72
SS	0.620	0.57
R	0.124*	
P	0.046	

*: $p < 0.05$

As a result of one-way variance analysis carried out to determine whether there is a statistically significant difference between willingness to participate to an education programme about learning strategies instruction and repetition strategies, F-value (7.491) was found as meaningful (0.05) (Table 7).

As a result of one-way variance analysis carried out to determine whether there is a difference between willingness to participate in an in-service programme about learning strategies instruction for teachers and the I help them read the subjects aloud and silently article F-value (7.491) was found as statistically significant ($SD = 2.257$, $p < 0.05$). As a result of Dunnet C test carried out to determine in which level of willingness to participate there is a statistically significant difference, a significant difference was found between willingness to participate ($n = 207$, average = 4.14, $SS = 0.83$) and learning without having such a necessity ($n = 39$, average = 3.61, $SS = 1.20$) in favour of willingness to participate (Table 8).

In order to determine the relationship between the articles of concentric questionnaires carried out on teachers and students, Pearson Correlational Coefficient was used and comparisons were made. Accordingly, a statistically significant difference was found between helping students think about how useful the subject will be article of attention strategies group and the responses of teachers and students (0.05). There is a difference in favour of students (4.72) who learn how they will make use of what they learn ($R = 0.124$, $p = 0.046$). In Öztürk's study (1995), the highest relationship between students and teachers in terms of student's learning situations of learning strategies was obtained from attention encoding and cognition administration strategies. This finding shows parallelism with present study (Table 9).

Table 9: The relationship between teachers' learning strategies instruction and students' learning these strategies and the direction of cognitive reflection

Article 16- helping students make plans appropriate for the studies	Teacher	Student
N	260.000	500.00
X	3.730	4.09
SS	0.820	1.01
R	0.140*	
P	0.024	

*: $p < 0.05$

As a result of Pearson Correlational Coefficient carried out to determine the relationship among each of the questionnaire articles, a statistically significant difference (0.05) was found between the helping the students make plans appropriate for the studies article of cognition administration strategies group and the responses which the students and the teachers gave. Thus, there is a difference ($R = 0.140$, $p = 0.024$) in favour of the students (4.09) who express that their teachers help them make personal plans appropriate for the studies.

Correlational level based on comparison about the other articles was found low. That is, no meaningful relationship was found between the concentric questionnaire articles that the teachers and the students responded. In the study of Öztürk's (1995), the inadequacy of education level which the primary school teachers have and unawareness of the primary school students about these strategies have been given as the reasons for low levels of relation.

DISCUSSION

As indicated in Introduction, most of the studies that were conducted in Secondary School level and in the universities on learning strategies point out that students use mainly repetition strategies (Akinoglu and Saribayrakdar, 2007). Comparing to the studies at secondary school level a few research studies report findings related to the primary school. For example, in a study made by Özer (2002) it was found that majority of the teachers ($n = 349$) use simple repetition strategies at primary school level. Öztürk (1995) also studied general learning strategies that was based on the classification of learning strategies of Weinstein at primary and secondary school level. He reported that attention, repetition and emotional strategies are dominantly used in primary school levels. The results of this study also confirm that teachers teach repetition strategies most and teach organization strategies least. Consequently, students learn repetition strategies most and organization strategies least. The dominance of attention and the

repetition strategies might be explained as follows: as it was seen in this study a considerable number of teachers are not aware of the term learning strategies. Even the teachers who indicate that they use learning strategies in their lessons can not be regarded as a person who has enough information regarding the learning strategies. As Schunk and Zimmerman (1998) state the knowledge of teachers about learning strategies and their teaching skills of learning strategies may remain under the influence of traditional philosophies. In fact the behaviorist theories of learning may have effect on this. Because the curriculum especially in many developing countries have been developed under the influence of behaviourist aspect of learning in which the individual differences in general and learning strategies in specific can not be considered as an integral part of the curriculum. However, by developing new curriculum in the light of the constructivist approach of learning, the learning strategies have been emphasised in the teaching methods and tools. As stated in the results section, teachers are willing to be educated seriously about learning strategies. This positive attitude towards learning and using learning strategies might widen their usage at all levels of schools as well as it might help the students to understand the importance of using high level of learning strategies.

One of the factors affecting the learning strategies used by the students in the classroom might be related to the teaching methods of the teachers itself. In a recent study, Güvenç and Ün Açıkgöz (2007) found that cooperative and individual concept mapping conditions promoted the use of effective learning strategies more than traditional teaching. Because traditional teaching promotes use of memorization strategies. In traditional conditions students are passive and they don't need to do any activity except listening and memorization. On the other hand, in concept maps because of the selection, organisation as well as elaboration processes students' minds actively engaged with the activity that stimulates more effective learning strategies.

Considering the meaningful differences between instructional tactics developed depending on variables, it is seen that perceptive, attention and cognition administration strategies differ mostly. Moreover, according to the results obtained from inventories, it can be said that teachers are generally aware of learning strategies but, during specific practice processes, they aren't qualified enough. In order to determine the relationship between the concentric questionnaire articles carried out on teachers and students, Pearson Correlational Coefficient was used and comparisons were made. As a result, no meaningful relationship was found

among learning strategies except between cognition administration and attention strategies. Considering the maximum article percentage values obtained from students, it is observed that those values have high average values. The low average values teachers have about learning strategies bring the possibility to the mind that they have indecision about strategy instruction and inadequacy about the application of them. When it comes to the perception strategic tactics which are reflected on students, student's perceptions of those tactics show their awareness of the tactics and their levels of interests towards these tactics.

As it was emphasised in many studies (e.g., Bahar, 2002; Demirbas and Demirkan, 2007) the achievement of students in a particular course might be related to many factors. Using learning strategies can be regarded as one of these factors. However, the students achievement might also be related to the efficient usage of a particular learning strategy as well. Hence using more than one strategy in an appropriate context may help meaningful construction of the knowledge framework in mind. Therefore, it may not only be enough for the teachers to teach learning strategies, they should also encourage students to develop a habit of mind for using combined learning strategies in varying conditions.

Depending on the findings, the following suggestions can also be made:

- In the study, it was found that organization strategies are the strategy groups which are taught and learned the least. In such a case, students should also be taught organization strategies adequately.
- Teachers should be well equipped with learning strategies and learning strategies instruction. So, in-service training should be organized towards learning strategies instruction and there should be Research-Development teams in this respect. Moreover, teachers should be periodically informed via written documents and they should follow new learning approaches closely.
- Learning strategies are the types of organizations where the students shape and perform their learning more easily and permanently. Therefore, the students need to learn learning strategies regardless of their education level and type of schooling. Learning strategies instruction is a subject that requires professionalism; thus, necessary importance should be given to it both at universities and at in service training programmes.

REFERENCES

- Akinoglu, O. and S. Saribayrakdar, 2007. Learning strategies used by secondary school students in the course of history studies. *Educational sciences. Theory and Practice*, 7: 303-312.
- Akinoglu, O. and R. Ozkardes Tandogan, 2007. The effects of problem-based active learning in science education on students academic achievement, attitude and concept learning. *Eurasia J. Math. Sci. Tech. Educ.*, 3: 71-81.
- Alvidrez, J. and S.R. Weinstein, 1999. Early teacher perceptions and later student academic achievement. *J. Educ. Psychol.*, 91: 731-746.
- Arends, R.I., 1996. *Classroom Instruction and Management*. The McGraw-Hill Companies Inc., New York.
- Ataunal, A., 2003. Why and what kind of a teacher? National Education Ministry Foundation: 4, Ankara.
- Babadogan, C., 1996. The Reflection of modern teaching strategies on learning teaching processes. Ankara University, Ankara.
- Bahar, M., 2002. A factor effecting students performance in biology: Working memory capacity. *Sci. Educ.*, 27: 49-53.
- Bahar, M., 2003. The effect of instructional methods on the performance of the students having different cognitive styles. *Hacettepe Univ. J. Educ.*, 24: 26-32.
- Delamont, S., 1987. *The Primary School Teacher*. The Falmer Press, Taylor and Francis Group, Inc., Philadelphia.
- Demirbas, O.O. and H. Demirkan, 2007. Learning styles of design students and the relationships of academic performance and gender in design education. *Learning and Instruction*, 17: 345-359.
- Derry, S.J. and D.A. Murphy, 1986. Designing systems that train learning ability: From theory to practice. *Rev. Educ. Res.*, 56: 1-39.
- Güven, M., 2004. The relationship between learning styles and learning strategies. Eskisehir: Anadolu University, pp: 91.
- Güvenç, H. and K. Ün Açıkğöz, 2007. The effects of cooperative learning and concept mapping on learning strategy use. *Educational sciences. Theory and Practice*, 7: 117-127.
- Mayer, R.E., 1988. *Learning Strategies*. In: An Overview Learning and Study Strategies. Weinstein, C.E., E.T. Goetz and P.E. Alexander (Eds.), Academic Press, New York.
- Mayer, E.R., 1992. Cognition and instruction: Their historic meeting within educational psychology. *J. Educ. Psychol.*, 84: 405-412.
- McKeachie, J.W., 2002. *McKeachie's Teaching Tips*. Houghton Mifflin Company, Inc., Boston.
- McNeil, J., 1971. *Toward Accountable Teachers*. Holt, Rinehart and Winston, Inc., New York.
- Nisbet, J. and J. Shucksmith, 1986. *Learning Strategies*. Routledge Education Books, New York.
- Oguz, O., A. Oktay and A. Ve Halis, 2001. Education in 21st Century and in Turkish Education System. Sedar Publishings, Istanbul.
- Özden, Y., 1998. *Learning and Teaching*. Pegem A Publishing, Ankara.
- Özer, B., 2002. Learning strategies in primary and secondary schools education programmes. *Educ. Sci. Practice*, 1: 17-32.
- Öztürk, B., 1995. The state of using General Learning Strategies by Students. Ph.D. Thesis (Unpublished), Ankara University, Ankara.
- Pressley, M., R.K. Harris and T.J. Guthrie, 1992. *Promoting Academic Competence and Literacy in School*. Academic Press, Inc., California.
- Scheck, R.R., 1988. *Learning Strategies and Learning Styles*. Plenum Press, New York.
- Schunk, H.D. and J.B. Zimmerman, 1998. *Self-Regulated Learning*. The Guilford Press, New York.
- Sönmez, V., 2004. *Systematic Education*. Ani Publication, Ankara.
- Talu, N., 1997. The effect of learning strategies used by 10th grade students at Ankara Private Tevfik Fikret High School on their academic success. Ph.D Thesis (Unpublished), Ankara University, Ankara.
- Weinstein, E.C. and R.D. Palmer, 1986. *Learning and Study Strategies Inventory*. (LASSI) User's Manual. H and H Publishing Company, Inc., Florida.
- Weinstein, C.E. and R.E. Mayer, 1986. *The Teaching of Learning Strategies*. Handbook of Research on Teaching. Macmillan Company, New York.
- Wittrock, C.M., 1986. *Student's Thought Processes*. Handbook of Research on Teaching. Macmillan Company, New York.