Possibilities and Challenges for Teaching Students with Visual Impairments

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Abstract: The current pedagogy is based on effective learning achieved in the education bidirectional relationship; the student becomes an active part of their training, engaging in a systematic and organized effort of learning.

The study of school population with disabilities cannot be achieved outside the new trends transforming the educational process concerns in this area focuses on the most appropriate ways of recovery / rehabilitation/reduction of the gap between actual and potential manifest.

It has conducted a study on a group of 55 children with vision impairment. We proposed to investigate whether there are differences in metacognitive reading achievement for students with low vision and students with blindness. It has applied an *Inventory of metacognitive awareness of reading strategies* (MARSI). We conducted a comparative analysis based on metacognitive reading achievement: *Global Reading Strategies*, *Strategies for Problem Solving*, *and Strategies for Reading Support.*

The results of this research revealed that students with blindness not more frequently used metacognitive reading strategies.

Keywords: teaching, students with visual impairments, metacognition, metacognitive strategies, reading process

Introduction

In the last 30 years, learning concerns covered various areas, complex and comprehensive. In this regard, published papers devoted to *academic study* (Levin and Pressley, 1986), *meta-knowledge* (Paris, 1987), *self-learning theories* (Zimmerman, 1990) *motivational influences in education* (Broply, 1999), *phenomenological aspects related learning* (McCombs & Marzano, 1990), *social and cultural influences on self-regulating learning* (Boekaerts 1998, Pressley, 1995), *monitoring reading* (Pressley & Ghatala 1990), *personal cognitive development* (Ferrari & Mahalingam, 1998) (Scott Paris & Alison G. H. Paris, 2001).

Research on metacognitive development was initiated in the early 1970's by Ann Brown, John H. Flavell, and colleagues (see Brown, Bransford, Ferrara & Campione, 1983; Flavell, Miller & Miller, 1993; Schneider & Pressley, 1997).

Metacognition was defined by John H. Flavell as "*knowledge about cognitive phenomena*" or simply "*thinking about thinking*" (Flavell, 1979).

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Schneider (2008, pp. 114.) considers that "*this concept refers to knowledge that people have about their abilities to process information and knowledge about the nature of cognitive tasks and the strategies used to cope with such tasks.*

If initially, metacognition, as a concept, emerged in the context of development research today is widely used in various areas of psychology, including motivation research, clinical and educational psychology. Recent developments also include models of cognitive neuroscience in metacognition (Shimamura, 2000).

Self-regulation learning is conscious and controlled process, which allows students to direct and control their thoughts, behaviors and emotions to be successful in their learning experiences. Learning Self-regulation is a "construct" that includes issues such as cognitive strategies, metacognition, motivation, and commitment to solving the task.

Self-regulation learning emphasizes autonomy and control of the person who monitors and adjusts lead actions to acquire information, resulting in increased expertise of the learner.

According to Zimmerman (2000, p.14), self-regulation learning "*refers to thoughts, feelings and self-generated actions that are planned and adapted cyclically personal goals*" (as cited Alison Scott G. Paris & Paris, 2001).

The cyclically popular of self-regulation learning has three distinct phases: *planning, monitoring performance and reflecting experience* (Pintrich & Zuzho, 2002; Zimmerman, 2000). During the planning phase, students analyze specific task and set goals that will follow to achieve the learning task. In the performance monitoring phase, students use strategies to advance the learning task and monitor the effectiveness of these strategies in achieving pregnancy. In the final step, the reflection on performance, students assesses your performance regarding the learning task, analyzing the effectiveness of strategies chosen and followed. (S. Zumbrunn, J. Tadlock & E. D. Roberts, 2011).

To promote self-regulation learning in the classroom, teachers must teach students **specific strategies to facilitate their self-learning.** This process often includes tasks such as: *determining the goal, the following objectives* (Winne & Hadwin, 1998; Wolters, 1998), *planning* (Zimmerman, 2004; Zimmerman & Risemberg 1997), *self-motivation* (Corno, 1993; Wolters 2003; Zimmerman, 2004), *attention control* (Harnishferger, 1995; Kihl, 1985 Winne, 1995), appropriate use learning strategies (van Broek, Lorch, Linderhorm & Gustafson, 2001; Winne, 1995), self-monitoring (Butler & Winne, 1995; Carver & Scheier, 1990), seeking adequate relief (Butler, 1998; Ryan, Pintrich & Midglez, 2001) and self-assessment (Schraw & Moshman, 1995). (Cited S. Zumbrunn, J. Tadlock & ED Roberts, 2011).

Metacognitive development - educating metacognitive functions

Assuming that metamemory declarative children improve with age (Schneider & Lockl, 2002; Schneider & Pressley, 1997 cited E.R. Lai, 2011), there are three core functions of metacognition can be educated: functions knowledge functions procedural and executive functions (Flavell, 1979 as cited in S.E. Israel, 2007). The function of

knowledge is to understand the roles and metacognitive strategies. Metacognition executive function refers to knowing when and how to execute (to perform) metacognitive strategies.

Metacognition procedural functions enable the reader to understand how to conduct effective strategies and then execute strategies without thinking.

Also, knowledge of metacognition functions helps to place metacognitive development levels regarding the most appropriate teaching strategies. (Israel, 2007).

Cognitive development in children with vision impairment

In the literature, some authors support the idea that cognitive skills are likely to grow more slowly or in a different way to visually impaired children than those without visual impairments. Bishop (1996), for example, believes that the most notable delay in the development of children with visual impairments is the motor areas, followed by delays in the development of cognition (in the case of severe visual impairment).

Cognition includes many areas such as training concepts about the world and objects, memory, thinking, problem-solving and creativity. Severe vision loss involves general restrictions, each of which affects the development of cognition: the variety of experiences, the ability to control the environment, the ability to self in the environment.

In ontogenesis, “object permanence " is usually the first sign of intelligence development, while being a visual capacity. As a consequence of this situation, while limiting the visual function of difficulties in determining the cause and effect of events - "what happens when ...”

Cognitive factors such as classification, conservation, comparison, correspondence one - on - one, are also core elements in the formation of the concepts, critical areas that are to be learned.

In the formation of concepts, vision plays a significant role in motivational functions, stimulating and inclusive. Concerning blindness, a child may have great difficulty in perceiving using tactile - kinesthetic and other senses an object in its entirety. (Preda, 1993)

Referring to the development concepts, Bishop (1996), Chapman & Stone (1989) noted that this is the most affected area cognition in people with visual impairments; cognitive concepts form the basis for development. Damage to this area is due to the lack of vision or decrease the quantity and quality of visual experience and factors which act indirectly, that feeling of insecurity, fear the independent exploration of the environment. Intervenes here utility developed by initiating early intervention family support specialists, parents become co-therapists in recovering their children from the earliest years of life.

Visually impaired child builds concepts about the world in a different way; he followed the same sequence in cognitive development as seers but at a slower pace, being different and the way they are shown a series of cognitive abilities. They are more dependent on information of "second-hand" needed intercession access to the

surrounding world, helped by an adult or another competent person. Therefore, verbal descriptions of objects and experiences must be very clear and precise.

Barraga (1974) argues that without vision, many concepts cannot develop without the intervention strategies planned by the teacher to combine experience "first hand" in exploring objects with verbalization of issues that cannot be perceived visually (as cited Chapman & Stone, 1989). Scott (1982) describes the astonishment that visually impaired children living in concept formation, likening the experience to an "*unexpected black hole*".

To avoid confusion arising in the process of forming concepts is recommended as a natural framework and that certain steps that the student will go through (Preda, 1993).

The learning conditions in blindness

Learning in children with blindness follows the same steps as when the child without visual impairment, provided the use of private coping mechanisms for gathering information from the environment.

Besides the difficulty of receiving information from the environment are complete, Guinea (1985) (apud Best, 1995) recalls three significant features of the learning process of the child blind: 1) analytic perception of reality. 2) A delay in learning acquiring 3) Temporary obstacles in Learning, through imitation.

When we talk about educational process in children with visual impairments, include here and specific ways of teaching - learning, so learning the special conditions can be successfully achieved by adapting teaching style by teachers and given some factors such as location, presentation, experience, Expectations, Providing information, speed. (Chapman & Stone, 1998).

Students with blindness and low vision at the without other associated disabilities can receive the same education as a student with normal vision and necessary adaptations of some of the activities, resources and teaching materials for the success of understanding and knowledge of the integration into a normal social environment.

Best (1995) considers the need to include in the curriculum for children with blindness following aspects education: the senses; Visual stimulation; Orientation in space and mobility; Knowledge of specific techniques and tools; the abilities of individuals' personal autonomy.

Specific strategies of education for visually impaired can be systematized in the sense of Ştefan (2000) as follows: (1) adequate correlation between the activity of perception and the logic-verbal (2) Adapt the material conditions of the learning needs of their visually impaired ; (3) concentration strategy; (4) strict and rigorous grading individualization and (5) Ensuring the stability of cognitive acquisitions.

Study Metacognitive awareness of reading strategies for students with visual impairments

The hypothesis of the study:

1. Students with blindness using a higher frequently strategies for solving the tasks of reading compared to students with low vision.

2. Students with blindness using higher frequency strategies to support reading compared to students with low vision.

3. Students with blindness using with a higher rate overall strategy for reading compared with students with low vision.

Objectives of the study:

O1: Quantifying the frequency with which blind students use problem-solving strategies in reading tasks, compared to students with low vision

O2: Determining the frequency with which blind students use support strategies of reading, compared to students with low vision.

O3: Determining the frequency with which blind students use reading overall strategy compared to students with low vision.

Method:

Inventory of metacognitive awareness of reading strategies (MARSI), Version 1.0 Author: Kouider Mokhtari și Carla Reichard, 2002, contains a total of 30 items, grouped in according to with metacognitive reading achievement:

1. Global Reading Strategies
2. Strategies for problem-solving
3. Support strategies for reading

The sample:

55 students with visual impairments, grades III – X, Special High School "IRIS" from Timisoara.

Verification of the hypothesis no.1

Students with blindness using more frequently strategies for solving the tasks of reading compared with students with low vision.

Table no. 1. Strategies for problem-solving * Type of visual impairments Crosstabulation

			The type of Visually Impaired		Total
			low vision	blindness	
Strategies for problem-solving	low frequency	Count	5	1	6
		% within Strategies for problem-solving	83,3%	16,7%	100,0 %
	medium frequency	Count	12	8	20
		% within Strategies for problem-solving	60,0%	40,0%	100,0 %
	high frequency	Count	24	5	29
		% within Strategies for problem-solving	82,8%	17,2%	100,0 %
Total		Count	41	14	55
		% within Strategies for problem-solving	74,5%	25,5%	100,0 %

17,2 % of students with blindness using more frequency strategies for problem-solving in reading, compared to 82,2 % of students with low vision.

Therefore, hypothesis is disproven, students with blindness do not use a high-frequency strategies for solving the tasks of reading compared to students with low vision.

Verification of the hypothesis no.2

Students with blindness using higher frequency strategies to support reading compared with students with low vision.

Table no. 2. Strategies to support reading * Type of visual impairments Crosstabulation

			The type of Visually Impaired		Total
			low vision	blindness	
Strategies to support reading	low frequency	Count	13	8	21
		% within Strategies to support reading	61,9%	38,1%	100,0%
	medium frequency	Count	16	4	20
		% within Strategies to support reading	80,0%	20,0%	100,0%
	high frequency	Count	12	2	14
		% within Strategies to support reading	85,7%	14,3%	100,0%
Total		Count	41	14	55
		% within Strategies to support reading	74,5%	25,5%	100,0%

Data analysis shows that 14.28% of students with blindness using more frequency strategies to support reading, compared to 85,7% of students with low vision.

In conclusion, hypothesis is disproven, students with blindness do not use with a higher frequency strategies to support reading compared to students with low vision.

Verification of the hypothesis no.3

Students with blindness using with a higher frequency overall strategy for reading compared with students with low vision.

Table no. 3. Global strategy for reading * Type of visual impairments Crosstabulation					
			The type of Visually Impaired		Total
			low vision	blindness	
Global strategy for reading	low frequency	Count	9	3	12
		% within Global strategy for reading	75,0%	25,0%	100,0 %
	medium frequency	Count	20	7	27
		% within Global strategy for reading	74,1%	25,9%	100,0 %
	high frequency	Count	12	4	16
		% within Global strategy for reading	75,0%	25,0%	100,0 %
Total		Count	41	14	55
		% within Global strategy for reading	74,5%	25,5%	100,0 %

25,0% of students with blindness using a higher frequency global strategy for reading compared to 75,0 % of students with low vision.

Hypothesis is disproven: a student with blindness does not use a higher frequency global strategy for reading compared to students with low vision.

Conclusions

Students with blindness do not use a high-frequency strategies for solving the tasks of reading and reading strategies to support comprehensive strategies for reading compared to students with low vision.

References

Best, B. A. (1995). Teaching Children with Visual Impairments, Philadelphia: Open University Press.

Borca, C. (2013). "Metacognition and learning of visually impaired children" în Applied Social Sciences: Education Sciences, Cambridge Scholars Publishing, UK

Borca, C. (2008). „Particularităţi ale predării-învăţării la elevul cu deficienţă de vedere" în Transparenţă şi comunicare în educaţia şi integrarea socio-profesională a persoanelor cu deficienţă de vedere, Cluj-Napoca: Ed. Risoprint.

Borca, C. (2007). Învăţarea mediată la elevul cu deficienţă de vedere în Revista de Ştiinţe ale Educaţiei, nr. 1/2007, Ed UVT, Timişoara; www.ebsco.com;

Borca, C.(2009). Metacogniţia – instrument de adaptare şi reglare a activităţii cognitive la copiii cu deficienţă de vedere, Timişoara: Editura Eurobit.

Borkowski, J. G., Carr, M., Rellinger, E., & Pressley, M. (1990). Self-regulated cognition: Interdependence of metacognition, attributions, and self-esteem. In B. F. Jones & L. Idol (Eds.), Dimensions of thinking and cognitive instruction (pp. 53-92). Hillsdale, NJ: Erlbaum.

Borkowski, J. G., & Muthukrishna, N. (1992). Moving metacognition into the classroom: "Working models" and effective strategy teaching. In M. Pressley, K. R. Harris, & J. T. Guthrie (Eds.), Promoting academic competence and literacy in school (pp. 477-501). San Diego, CA: Academic.

Brown, A. L. (1978). Knowing when, where, and how to remember: A problem of metacognition. In R. Glaser (Ed.), Advances in instructional psychology (Vol. 1). Hillsdale, NJ: Erlbaum.

Brown, A. L., & Campione, J. C. (1977). Training strategic study time apportionment in educable retarded children. Intelligence, 1, 94-107.

Brown, A.L., J.D. Bransford, R.A. Ferrara and J.C. Campione (1983), Learning, remembering and understanding, in J. H. Flavell and E. M. Markman (Eds.), Handbook of Child Psychology, Cognitive Development, New York, Wiley

Chapman, K. E., Stone, M. J. (1989), The Visually Handicapped Child in Your Classroom, London, Cassell Education Limited.

Cross, D. R., and Paris, S. G. (1988). Developmental and instructional analyzes of children's metacognition and reading comprehension. J. Educ. Psychol. 80: 131–142.

Dickinson, D. (1996) Learning Through Many Kinds of Intelligence, access at http://www.newhorizons.org în data de 16.01.2015.

Anne L. Corn, Robert S. Wall, Randall T. Jose, Jennifer K. Bell, Karen Wilcox, and Ana Perez An Initial Study of Reading and Comprehension Rates for Students Who Received Optical Devices, Journal of Visual Impairment & Blindness, May 2002.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. In American Psychologist, 34, 906-911.

Flavell, J. H. (1987). Speculations about the nature and development of metacognition. In F. E. Weinert & R. H. Kluwe (Eds.), Metacognition, Motivation, and Understanding (pp. 21-29). Hillside, New Jersey: Lawrence Erlbaum Associates.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. American Psychologist, 34, 906 - 911.

Gouzman, R. & Kozulin, A., (1998). Enhancing Cognitive Skills in Blind Learners, ICELP, Jerusalem Paper presented at the Annual Conference of the British Psychological Association Educational Section Exeter, UK.

Ionescu, M. (2000). Demersuri creative în predare şi învăţare, Cluj-Napoca: Editura Presa Universitară Clujeană.

Ionescu, M., Radu, I. (2004). Didactica modernă, ediţia a II-a, Cluj-Napoca: Editura Dacia.

Israel, S. E. (2007). Using Metacognitive Assessments to Create Individualized Reading Instruction International, Reading Association.

Kuhn, D. & Dean, D. (2004). A bridge between cognitive psychology and educational practice. Theory into Practice, 43(4), 268-273.

Labuhn, A.S., Zimmerman, B.J., & Hasselhorn, M. (2010). Enhancing students' self- regulation and mathematics performance: The influence of feedback and self-evaluative standards. Metacognition and Learning, 5 (2), 173-194.
Lai, E., R. (2011). Metacognition: A Literature Review, Research Report accessed at http://www.pearsonassessments.com/research în data de 13.03. 2012
Paris, S.G., Paris, A.H. (2001). Classroom Applications of Research on Self -Regulated Learning, Educational Psychologist, 36(2), 89–101, Lawrence Erlbaum Associates, Inc.
Paris, S. G., & Winograd, P. (1990). How metacognition can promote academic learning and instruction. In B. F. Jones & L. Idol (Eds.), Dimensions of thinking and cognitive instruction (pp. 15-51). Hillsdale, NJ: Erlbaum.
Preda, V.(1993).Psihologia deficienţilor vizuali, Cluj-Napoca: Universitatea Babes – Bolyai.
Preda, V. (2004). Dezvoltarea cognitivă în condiţiile cecităţii în Revista de Psihopedagogie, nr. 2/2004, Universitatea Bucureşti, Catedra de Psihopedagogie Speciala, and Bucureşti: Editura Fundaţiei Humanitas.
Pressley, Borkowski, & Schneider (1987). Good information processing: what it is and how education can promote it access at https://opus.bibliothek.uni-wuerzburg.de/.../Sch.. access at date of 12.03.2013.
Ridley, D.S., Schutz, P.A., Glanz, R.S. & Weinstein, C.E. (1992). Self-regulated learning: the interactive influence of metacognitive awareness and goal-setting. Journal of Experimental Education 60 (4), 293-306.
Schneider, W. (1985). Developmental trends in the metamemory-memory behavior relationship: An integrative review. In D. L. Forrest-Pressley, G. E. MacKinnon, & T. G.
Schneider, W. (2008). The Development of Metacognitive Knowledge in Children and Adolescents: Major Trends and Implications for Education In Issue Mind, Brain, and Education Mind, Brain, and Education, Volume 2, Issue 3, pages 114–121, September.
Schneider, W., & Lockl, K. (2002). The development of metacognitive knowledge in children and adolescents. In T. Perfect & B. L. Schwartz (Eds.), applied metacognition (pp. 224 – 257). Cambridge: Cambridge University Press.
Schoenfeld, A. H. (1987). What's all the fuss about metacognition? In A. H. Schoenfeld (Ed.), Cognitive science and mathematics education (pp. 189 215). Hillsdale, NJ: Erlbaum.
Schneider, W., & Pressley, M. (1997). Memory development between two and twenty. Mahwah, NJ: Lawrence Erlbaum Associates.
Smith, L. (2000). Teaching Students with Visual and Multiple Impairments, Texas School for the Blind and Visually Impaired, access at adress http://www.tsbvi.edu/ în 12.03.2012.
Schoenfeld, A. H. (1987). What's all the fuss about metacognition? In A.H. Schoenfeld (Ed.), Cognitive science and mathematics education (pp. 189-215). Hillsdale, NJ: Erlbaum.
Schraw,G.&Moshman, D. (1995).Metacognitive theories. Educational Psychological Review 7: 351–371.
Schraw, G. (1998). Promoting general metacognitive awareness, In Instructional Science March 1998, Volume 26, Issue 1-2, pp 113-125.

Shimamura, A. (2000). The role of the prefrontal cortex in dynamic filtering, Psychobiology, June 2000, Volume 28, Issue 2, pp 207-218.

Ştefan, M. (2000). Psihopedagogia handicapului visual, Bucuresti: Editura ProHumanitate.

Szamoskozi, Şt.(1997). Evaluarea potenţialului intelectual la elevi, Cluj-Napoca: Editura Presa Universitară Clujeană.

Warren, D. H. (1984). Blindness and Early Childhood Development, New York, American Fundation for the Blind.

Wolfs J.L. (1992). Métacognition et éducation: quelques pistes de réflexion, în Recherche en education, no. 10, pp. 25-31.

Zumbrunn, S., Tadlock, J., & Roberts, E. D. (2011). Self-regulation and motivation: A review of the literature. Invited paper for the Metropolitan Educational Research Consortium, Richmond, VA.