Assessing Preschool Teachers' Practices to Promote Self-Regulated Learning *

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Abstract

Recent research reveals that in preschool years, through pedagogical interventions, preschool teachers can and should promote self-regulated learning. The main aim of this study is to develop a self-report instrument to assess preschool teachers' practices to promote self-regulated learning. A pool of 50 items was recruited through literature review. Items, then, were formulated as statements, to which the teachers could respond on a Likert-scale. In line with the expert and teacher opinions, twenty statements were removed from the original pool and some statements were reformulated. The latest version of the scale consisted of 21 statements. The participants were preschool teacher (*N*=169) from Istanbul. Empirical testing at item and scale level showed that T-SRL is a reliable and a valid instrument to assess preschool teachers' classroom practices promoting self-regulated learning of their children at the age of 3-6.

Keywords: Self-regulated learning, teacher practices, preschool education.

Introduction

Today's rapidly changing societies with the emerging new forms of socialization and new models of economic development where knowledge is the main asset required educational systems to modify themselves.

The development of these necessary skills and competencies is one of the most important aims of education. However, the skills and competencies needed for this new world is different from the ones that were required by the industrial mode of production of the past century. With the DeSeCo (The Definition and Selection of Competencies)

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project, which was carried out in collaboration with a wide range of scholars, experts and institutions, OECD developed a framework of necessary key competencies (Rychen & Salganik, 2003). Reflectiveness is the underlying concept in this framework. Being reflective requires individuals to reach a level of social maturity that allows them to distance themselves from social pressures, take different perspectives, make independent judgments and take responsibility for their actions, that is, to use metacognitive skills (thinking about thinking), creative and critical abilities (Ananiadou & Claro, 2009).

In another study carried out in the context of the OECD/CERI project on New Millennium Learners (NML), OECD aimed at developing a framework for century competencies for the new generation of learners in the light of the requirements of the 21st century (Ananiadou & Claro, 2009). According to Wolters (2010) core competencies in the 21st century framework appear nearly synonymous with the dimensions of self-regulated learning.

Self-Regulated Learning

The term self-regulation is used to depict individuals' deliberate and effective use of metacognition, motivation, and strategic action in order to attain goals (Butler & Winne, 1995; Perry & Winne, 2006; Schunk & Zimmerman, 2007). Self-regulated individuals exercise metacognition by engaging in and monitoring reflective, analytical forms of thinking. Motivation involves goal setting, attributions, and self-efficacy that effect individuals' commitment to and pursuit and attainment of goals. Strategic action is the external manifestation of individual's metacognition and motivation (Perry & VandeKamp, 2000).

Every child is born with the capacity to self-regulate and this capacity for self-regulation develops with age. Although biological factors like temperament and predisposed reactivity underpin the development of self-regulation in children (Bodrova & Leong, 2007; Berk, Mann, & Ogan, 2006), early experiences play an important role on this development (Boekaerts, 1997).

Recent investigations demonstrate that development of effective self-regulation during preschool years is a prerequisite for school readiness and success (e.g. Denham, Warren-Khot, Bassett, Wyatt, & Perna, 2012; McClelland, Acock, & Morrison, 2006). In fact, self-regulation predicts children's success in school more powerfully than IQ tests or math and reading skills upon school entry (Blair & Razza, 2007; Diamond, Barnett, Thomas, & Munro, 2007).

Self-regulated learning is a special type of self-regulation pertaining to learning that takes place in school or classroom contexts. According to Zimmerman (1998) self-regulated learning is the self-directive process through which learners transform their mental abilities into academic skills. Self-regulated learning process involves academically effective forms of learning involving metacognition, intrinsic motivation, and strategic action (Zimmerman, 1989, 1990, 2002; Winne & Perry, 2000).

Research studies on self-regulated learning emerged in the 1980s, gained prominence in the 1990s and has been growing since then (Dinsmore, Alexander, & Loughlin, 2008). According to Whitebread et al. (2009), self-regulated learning has three main components; metacognitive knowledge (MK), metacognitive regulation (MR); and emotional and motivational regulation (EMR).

Metacognitive knowledge refers to one's knowledge about cognition related to person, tasks and strategies. Metacognitive regulation refers to some procedural verbalization and behaviours including planning, monitoring, control and evaluation that enable to perform activities in a more structured way. Emotional and motivational regulation refers

to monitoring and controlling of motivational and emotional experiences about activities being carried out by children. Table 1 shows components and subcomponents of the model along with the descriptions.

Self-Regulated Learning of Preschool Children

Research on self-regulated learning emerged more than two decades ago to answer the question of how students become masters of their own learning processes (Zimmerman, 2008). Unfortunately, due to the long-held view that children under the age of 10 have difficulty in coordinating the cognitive and metacognitive processes required to complete complex, multifaceted tasks (Winne, 1997; Zimmerman, 1990) and very young children are not capable of self-regulated learning in any formal way (Zimmerman, 1989, 1990), most research on self-regulated learning has involved learners in upper-elementary grades through college (Perry, Phillips, & Dowler, 2004).

However, over the last decade, various indications have been found for suggesting traces of self-regulated learning earlier than expected. According to Whitebread, Bingham, Grau, Pino Pasternak and Sangster (2007), studies in laboratory settings and studies based on children's self-report data have been underestimating young children's abilities. Studies in which children have been observed in their natural settings and/or while performing familiar tasks showed that young children can and do engage in self-regulated learning (e.g; Annevirta & Vauras, 2006; Istomina, 1975; Perry, 1998; Perry et al., 2004; Robson, 2010; Sperling, Walls, & Hill, 2000; Whitebread & Coltman, 2010; Whitebread et al., 2007).

Table 1. *Description of components and subcomponents of self-regulated learning (adapted from Whitebread et al. (2009))*

Components	Subcomponents	Descriptions
Metacognitive Knowledge	Knowledge of Persons	Knowledge about cognition in relation to; Self: Refers to own capabilities, strengths, weaknesses, academic/task preferences, comparative judgements about own abilities Others: Refers to others' processes of thinking, Universals: Refers to universals of people's cognition
	Knowledge of Strategies	Refers to own knowledge in relation to strategies used or performing a cognitive task, where a strategy is a cognitive or behavioural activity that is employed so as to enhance performance or achieve a goal.
	Knowledge of Tasks	Refers to own long term memory knowledge in relation to elements of the task
Metacognitive Regulation	Planning	Refers to the selection of procedures necessary for performing the task, individually or with others
	Monitoring	Refers to the on-going on-task assessment of the quality of task performance (of self or others) and the degree to which performance is progressing towards a desired goal
	Control	Refers to a change in the way a task had been conducted (by self or others), as a result of cognitive monitoring
	Evaluation	Refers to reviewing task performance and evaluating the quality of performance (by self or others).
Motivational-Emotional Regulation	Monitoring	Refers to the assessment of current emotional and motivational experiences regarding the task
	Control	Refers to the regulation of one's emotional and motivational experiences while on task.

Preschool Teachers' Practices Supportive of Self-Regulated Learning

How teachers' practices affect students' self-regulated learning have been researched on various educational levels.

For example, at the elementary level, Hammann, Berthelot, Saia and Crowley (2000) investigated how often teachers coach their students' learning and the relation of this coaching to students' strategic learning. The researchers videotaped 11 teachers during daily classroom instructions on 3 occasions. Then, the students responded to a questionnaire assessing use of learning strategies. The results showed that only in 9% of the videotaped segments, the teachers coached their students' learning (e.g. describing cognitive processes, suggesting strategy use, etc.). The mostly recommended strategies by the teachers were; using learning aids, engaging in metacognitive activity and using elaboration strategies for remembering. Results also indicated that students' strategic learning is significantly related to teachers' coaching of learning.

At the secondary level, Ader (2013) developed a framework for teachers' promotion of students' self-regulated learning. In this ethnographic study with three secondary school mathematics teachers, the researcher focused on the metacognitive component of self-regulated learning. Data were collected via observations of the classrooms, audio recording of various lessons and interviews with the teachers. Also students' work and the materials used by the teachers were collected. The researcher showed that there are differences in the teachers' emphasis on metacognition throughout the stages of the lessons and the activities they used, and during their interactions with the students of different achievement levels and progress with the activities. During the introduction and early stages of the lessons, the students were urged to reflect on their initial work and their knowledge regarding the mathematical concepts involved. Other times, due to the teachers' adoption of a didactic approach to teaching, a lack of emphasis on metacognition was evident.

When it comes to earlier levels of education, due to the findings from studies indicating that children show signs of self-regulated learning earlier than previously thought, researchers have been motivated to study the features of the preschool teaching and learning contexts that are conducive to promoting self-regulated learning of young children in preschool years.

In Stipek, Feiler, Daniels and Milburn (1995) study, children in child-centered preschools and kindergartens were compared to children in didactic, highly academic programs. A total number of 227 children, including children from poor, minority and middle SES families participated. The results showed that children in child-centered classrooms were more willing to cooperate with their classmates and were able to choose from different activities and materials that are interesting and meaningful. On the other hand, the children in teacher-centered classrooms were observed to be more dependent learners, seek for more adult support and be more worried about school.

Perry and Vandekamp (2000), in their observational study in five classrooms (kindergarten to 3rd grade), identified features of classroom environments that promote self-regulated approaches to reading and writing in young children. They found that nonthreatening evaluation practices, involvement in complex reading and writing activities, the provision of autonomy related to what students read and write, and the ability to modify learning tasks to control challenge are all contextual features that improve self-regulated learning in these classrooms.

Whitebread and colleagues investigated the extent to which different learning contexts (e.g., working individually, in a small group, with an adult) appear to afford differential

opportunities for children to experience and practice their metacognitive skills. The results of this observational study showed that pair work and small group work along with challenging tasks and teachers' warm approach have been found to be among the practices most supportive of self-regulated learning in preschool settings (Whitebread et al., 2007; Whitebread & Coltman, 2010).

Despite this growing interest on the features of teaching and learning contexts, due to the time-consuming nature of observational studies, it's difficult for researchers to carry out a large-scale study to investigate how much teachers promote self-regulated learning in their classroom. A workable instrument is a need. The only workable instrument for carrying out a large study was developed by Lombaerts, Engels and Athanasou (2007), which was developed for primary education context only. Thus, the aim of this study is to develop a self-report instrument to assess preschool teachers' practices promoting self-regulated learning in their classrooms.

Method

Participants

Participants were 169 preschool teachers in Istanbul. All teachers participated voluntarily in the study. After initial descriptive analysis, 10 teachers were removed from the original sample as these subjects were outliers for normal distribution on several items. For further analysis were carried out with 159 teachers. The majority of the participants were female (96.2%) and worked with children (83%) aged from 4 to 6. These results are consistent with the population means according to Ministry of Education statistics (2014). Table 2 shows the main sample characteristics of the final sample.

Table 2. *Sample characteristics: Participants' demographic and professional background (n= 159)*

Characteristic/category	%
Gender	
Male	3.8
Female	96.2
Year of experience	
0-5 years	41.5
6-10 years	27.7
11 years and above	30.8
Class size	
1-10 children	10.7
11-20 children	67.3
21-30 children	22.0
Age of children	
3-4 year-old	17.0
4-5 year-old	41.5
5-6 year-old	41.5
Types of school	
Public	67.3
Private	32.7

Scale development

For the scale development, Whitebread et al. (2009) model of self-regulated learning for young learners was adopted. As previously mentioned, according to this model, self-regulated learning has three main components: metacognitive knowledge, metacognitive regulation, and emotional-motivational regulation. Under each component, there are also subcomponents.

The metacognitive component has three subcomponents, namely, knowledge of person (KoP), knowledge of task (KoT) and knowledge of strategy (KoS). Total number of 17 items (KoP= 7 items; KoT= 4 items; KoS= 6 items) was formulated in order to assess to what extent preschool teachers provide opportunities for children to be aware of their own and their peers' cognition as well as of their knowledge about task and strategies.

For the metacognitive regulation (MR) component, a total number of 24 items was formulated under four subcomponents, namely: planning (7 items), monitoring (4 items), control (6 items) and evaluation (7 items) in order to assess to what extent preschool teachers provide opportunities for children, while working on tasks, to plan, monitor, control, and evaluate their cognitive processes while working on tasks.

9 items related to the emotional-motivational regulation (EMR) component were formalized under two subcomponents, namely, monitoring of emotions-motivation (5 items) and control of emotions-motivation (4 items) in order to assess to what extent preschool teachers provide opportunities for children to monitor and control their emotional and motivational states.

Total number of items for three components was 50. The numbers of items mainly reflect the proportionality in the number of subcomponents within each component of self-regulated learning. These items were structured as statements, to which the teachers could respond on a Likert-scale ranging from 0 = "never" to 4 = "always".

Testing and refining

50 statements for three components were emailed to four researchers from U.K, Canada, Belgium, and Turkey who are experts both in self-regulated learning and preschool education. The experts rated each statement on four dimensions; whether it was clear; whether it was supportive of self-regulated learning; whether it was suitable for preschool context and whether it was reflective of its given self-regulated learning component. The expert opinions were collected to ensure the face validity of the scale.

In the light of feedback from the experts, 20 statements were removed from the original pool and some statements were reformulated. The latest version of the scale consisted of 30 statements (MK= 10, MR= 13, EMR= 7). Although one of the experts was Turkish who was knowledgeable in Turkish preschool context and curriculum and since the scale's cultural appropriateness was an important concern, to further ensuring the scale's appropriateness for Turkish preschool education context, five preschool teachers examined the statements in terms of clarity and suitability for Turkish context. These teachers rated all the items as suitable for Turkish context. However, following the teachers' suggestions, some terms were changed (e.g. using the "activity" rather than using "task" in the items).

Subsequently, a scale with 30 statements was formulated as a four point Likert-scale, with 0='never', 1='sometimes', 2='often', and 3='always' as possible responses. Metacognitive Knowledge, Metacognitive Regulation, and Emotional and Motivational Regulation comprise 10, 13 and 7 items respectively. Numbers of items for each subcomponent were shown in Table 3. Since knowledge of person subcomponent of MK

has various dimensions (metacognitive knowledge of oneself and others) it has more items in this subcomponent in comparison with the other subcomponents.

Table 3. *Numbers of items for each subcomponent*

Components/Subcomponents	# of items
Metacognitive Knowledge	
Person	6
Task	2
Strategy	2
Metacognitive Regulation	
Planning	3
Monitoring	3
Control	3
Evaluation	4
Emotional and Motivational Regulation	
Monitoring	4
Control	3

Results

This section involves the report of empirical instrument testing at item and scale level. First, for ensuring the construct validity of the scale, the underlying factor structure of the scale was examined. Internal consistency of the subscales and correlations between them were also examined.

Exploratory Factor Analysis

To investigate the possible underlying factor structure of 30 items, Exploratory Factor Analysis (EFA) was used. Before running EFA, data was tested for the assumptions of EFA statistics.

According to the assumptions of EFA, the determinant of the correlation matrix indicating singularity in the data should be bigger than .00001 and Kaiser–Meyer–Olkin (KMO) measure should be bigger than .80 to assure adequacy of sample size. Moreover, Barlett's test of sphericity should be significant which indicates that correlation matrix is not an identity matrix.

Although the data satisfied the assumptions of Kaiser–Meyer– Olkin test (KMO= .879) and Barlett's test of sphericity (χ^2=1472.344, p<.001), one of the items, i.e. item 27, did not meet the requirement of normal distribution and the determinant of the correlation matrix was too small. Therefore, item 27 was removed. 10 participants were also removed because their responses were outliers for normal distribution on several items. In order to reach a determinant value of required magnitude, correlation matrix was examined. 8 items were removed (item 4, 5, 6, 11,16,17,23, 28) according to correlation matrix results since their correlation with other items was not sufficient. Therefore, the determinant of the correlation matrix was increased to a new value of 5,519E-005 (> .00001) and a normal distribution was ensured. Thus, EFA was carried out with 159 participants and 21 items.

Principal Axis Factoring method of factor and Promax with Kaiser Normalization method of rotation was used and factors were rotated by Promax with Kaiser Normalization. The results of factor analysis suggested that there were five factors

underlying structural framework of the T-SRL. The eigenvalues were 7.8, 1.8, 1.3, 1.2 and 1.1 respectively. The three-factor model accounted for 51.6% of the common variance. The items with high loadings on the first factor reflected emotional and motivational aspects; the second factor reflected metacognitive regulation during task (planning, monitoring and control); while items loading high on the third factor were representing the metacognitive knowledge of task and strategy. The fourth factor represented the metacognitive regulation after task (evaluation) while the last factor's items were loaded by the metacognitive knowledge of person. Corresponding item loadings within the three factor model are presented in Table 4 (See Appendix A for the English version; Appendix B for the Turkish version of the instrument).

Table 4. *Results of the Principal Axis Factoring factor analysis (numbers in the parenthesis correspond to item numbers of the 21-item scale)*

	Factor				
	I	II	III	IV	V
Item 26 (#19)	.913				
Item 30 (#21)	.661				
Item 25 (#18)	.660				
Item 29 (#20)	.631				
Item 24 (#17)	.624				
Item 14 (#10)		.729			
Item 13 (#9)		.707			
Item 19 (#13)		.646			
Item 18 (#12)		.524			
Item 12 (#8)		.503			
Item 15 (#11)		.410			
Item 9 (#6)			.881		
Item 8 (#5)			.602		
Item 7 (#4)			.507		
Item 10 (#7)			.492		
Item 20 (#14)				.845	
Item 21 (#15)				.635	
Item 22 (#16)				.482	
Item 2 (#2)					.725
Item 1 (#1)					.615
Item 3 (#3)					.359

The first factor which was labelled "T-SRL emotional and motivational regulation" (EMR; 5 items) determines to what degree teachers allow children to monitor and control their emotion and motivation in classroom context. The second factor was labelled "T-SRL metacognitive regulation during task" (MRdT; 6 items) and determines to what extent teachers provide opportunities to children to plan, monitor and control their tasks while they are involved in tasks. The third factor, labelled "T-SRL metacognitive knowledge of task and strategy" (MKTS; 4 items) concerns teachers' efforts to make children aware of characteristics of several tasks and strategies. The fourth factor, labelled "SRL metacognitive regulation after task" (MRaT; 3 items), aims to determine whether teachers create a classroom context where children evaluate their tasks. The fifth factor labelled "T-SRL metacognitive knowledge of person" (MKP; 3 items) assess to what extend teachers provide opportunities to children to be aware of their own cognition. Cronbach's alpha for the total scale with 21 items was 0.91. The subscales also had good internal consistency scores separately: .842 for the emotional and motivational regulation; .807 for the metacognitive regulation during task; .787 for the metacognitive knowledge of task; .753 for the metacognitive regulation after task; .718 for the metacognitive knowledge of person.

Besides, item-to-subscale correlations ranged from 0.67 to 0.86 over five subscales. Due to acceptable internal consistency scores for the scale and all subscales (a > 0.70), items of the T-SRL emotional and motivational regulation, T-SRL metacognitive regulation during task, T-SRL metacognitive knowledge of task and strategy, T-SRL metacognitive regulation after task and T- metacognitive knowledge of person scale can be considered as a scale, with scores ranging from a minimum of 0 to a maximum of 84. Pearson correlations between subscales ranged from 0.37 to 0.61 ($p<.001$) and can be considered as important in practice (see Table 5).

In order to examine whether there is a significant difference between scores of teachers who scored at top 27% and bottom 27% on scale, t-test was used. This analysis was accepted as a way of ensuring validity of the scales in the literature (Karakelle & Saraç, 2007)

Table 5. *Correlations between the subscales of the T-SRL practice scale*

	EMR	MRdT	MKTS	MRaT	MKP
EMR	1	.580**	.479**	.549**	.523**
MRdT			.610**	.483**	.534**
MKTS				.425**	.535**
MRaT					.371**
MKP					1

**. Correlation is significant at the 0.01 level (2-tailed).

and results showed that there is a significant difference between scores of top 27% and bottom 27% teachers on the scale. This result provides evidence for the validity of the scale.

The scores obtained by the top and bottom 27% of teachers according to their scores from the scale was examined on the subscales to provide evidence for consistency

between scale and subscales. This analysis was accepted as a way of ensuring validity of the scales in the literature (Moore & Foy; 1997). The findings verify that each subscale discriminate between those who score high and low on the scale ($p<.001$; see Table 6). That is an indication that there is a consistency between scale and each subscale and it is evidence of validity of T-SRL.

In order to examine the item-total correlation and the discrimination of items, Pearson correlation analysis and t-test was used. These analysis were accepted as a way of ensuring reliability of the scales in the literature (Onat & Otrar, 2010). Results showed that each item in the scale had positive statistically significant relation with the total score ($p<.001$). Moreover, there are significant differences between teachers who got highest scores (top 27%) and those who got lowest scores (bottom 27%) for each item ($p<.001$). These findings assured that all items belonged to the structure of the scale and each item has discrimination power (See Appendix C).

Table 6. *Discrimination analysis of the subscales among the top and bottom scorers from the total scale*

	t	*df*	*p*
EMR	-15.549	84	.000
MRdT	-13.716	84	.000
MKTS	-13.474	84	.000
MRaT	-11.329	84	.000
MKP	-11.504	84	.000

Conclusion

Results of the present study showed that T-SRL is a reliable and a valid instrument to assess preschool teachers' classroom practices promoting self-regulated learning of their children at the age of 3-6. In the present study, a relatively small yet diverse group of preschool teachers participated voluntarily. Therefore, further research with larger groups is needed.

Moreover, this study was conducted in the Turkish context. Cross-cultural studies in which the T-SRL will be administered would show the usability of the instrument in different cultures. Besides, these studies would reveal comparative results showing how practices of teachers diverse across different culture.

Whitebread et al. (2009) suggested three main components describing self-regulatory abilities of young children: Metacognitive knowledge, metacognitive regulation and emotional-motivational regulation. While metacognitive knowledge has 3 subcomponents as knowledge of person, strategy and task. Furthermore knowledge of person is divided into 3 subcomponents; knowledge of self, other and universals. Metacognitive regulation consists of 4 subcomponents; planning, monitoring, control and evaluation. Lastly, monitoring and control of emotions and motivations formalized as subcomponents of emotional-motivational regulation. Preliminary results of validity and reliability analysis of T-SRL showed that the factor structure of the instrument was different from the

structure presumed by Whitebread et al. (2009). However, structure of T-SRL made sense considering the distribution of factors. Considering the similarities between the initial theoretical framework and what was found as a result of the analysis conducted, emotional-motivational regulation and metacognitive knowledge of person are the common factors.

The major difference found between framework of Whitebread et al. (2009) and the factor structure found in this study, appeared in the metacognitive regulation component. While this component comprises 4 subcomponents in framework of Whitebread et al., the results of this study suggested a two-phase factor structure, i.e. metacognitive regulation during and after tasks. Planning, monitoring and control, which could be considered as metacognitive regulation activities while working on a task, formed the *metacognitive regulation during task* subscale of T-SRL. Evaluation, which could be considered as regulatory activities after task performance appeared as *metacognitive regulation after task* in the present instrument. This might be resulting from teachers' focus on the sequential progress of students' activities in the classroom, rather than emphasising the orchestration of multiple subcomponents within metacognitive regulation. This difference between how researchers have in mind and how teachers interpret may be due to the level of understanding on how children self-regulate their learning. Since the researchers focus more on self-regulatory activities of children, they have a more detailed conceptualisation. Preschool teachers that took part in this study did not have a specific training about self-regulation and metacognition. Hence, manifestations of their conceptualisation of metacognitive regulation can be less sophisticated in its dimensionality.

Items presumed as metacognitive knowledge of others were eliminated according to factor analysis. This could once again be resulting from preschool teachers not having awareness regarding the promotion of metacognitive knowledge of other persons. Alternatively, there can be a problem with the wording of these items (item 4, 5, 6). Metacognitive knowledge of task and strategy are also separate factors of the aforementioned framework. However, in the present factor distribution, these two factors aggregated in the same factor.

As suggested in the literature, the scale with items left should be further analysed with confirmatory factor analysis to assure factor structure of the scale. However, there is another alternative for further improving the scale. The 30 item-scale can be administered to teachers again after editing the removed items' wording. The advantage of this latter approach would be to acquire the same factor structure presumed in Whitebread et al. (2009).

There is a need for instruments to assess classroom practices of preschool teachers for promoting self-regulated learning. Although there are instruments appropriate for primary classrooms, there is a lack of such an instrument at the preschool level. Although there are concerns regarding the use of self-report measures, a self-report instrument is a practical measurement tool for teachers to evaluate their classroom practices, thus allowing researchers to conduct large-scale studies. Therefore, T-SRL presented in this study would be the first step to fill the gap in research efforts towards developing such a measurement instrument. Yet metacognitive and self-regulatory researchers highlight the importance of checking construct validity of such self-report instruments since participants could reflect intentionally or unintentionally a distorted reflection of their actions in their responses to self-report instruments (e.g. Veenman, 2005). Checking the consistency of data from teachers' self-reports and data from experts' observations of teachers' practices would provide further evidence for validity of the instrument.

Implications

The scale developed in the present study, would be a useful instrument not only for researchers in self-regulation and preschool education but also for practitioners in preschools. As mentioned earlier in this paper, there is a lack of instruments to assess practices of preschool teachers to promote self-regulation although there are studies and instruments assessing primary education teachers' practices (Lombaerts et al., 2007; Perry & VandeKamp, 2000). Moreover, the scale would help teachers to develop understanding and awareness of self-regulated learning, therefore, to learn how to create classroom context enriching self-regulated learning and to acknowledge the levels of their children's self-regulation abilities. It would also be a worthwhile effort to see whether changes occur in teachers' reports of their teaching practices and the factor structures of their responses with differential levels of training given to teachers about self-regulation and practices to promote students' self-regulated learning.

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References

Ader, E. (2013). A framework for understanding teachers' promotion of students' metacognition. International Journal for Mathematics Teaching & Learning. Retrieved June 10, 2014 from http://www.cimt.plymouth.ac.uk/journal/ader.pdf

Ananiadou, K. and Claro, M. (2009). 21st century skills and competences for new millennium learners in OECD countries. Retrieved from Paper Prepared for Organization for Economic Cooperation and Development: http://www.oecd-ilibrary.org/education/21st-century-skills-and-competences-for-new-millennium-learners-in-oecd-countries_218525261154.

Annevirta, T., & Vauras, M. (2006). Developmental changes of metacognitive skill in elementary school children. Journal of Experimental Education, 74, 197–225.

Berk, L.E., Mann, T.D., & Ogan, A.T. (2006). Make-believe play: Wellspring for the development of self-regulation. In D.G. Singer, R. Golinkoff, & K. Hirsh-Pasek (Eds.), Play = learning: How play motivates and enhances children's cognitive and social-emotional growth (pp. 74 – 100). New York: Oxford University Press.

Blair, C., & Razza, R. P. (2007). Relating effortful control, executive function, and false belief understanding to emerging math and literacy abilities in kindergarten. Child Development, 78, 647–663.

Bodrova, E. & Leong, D. J. (2007). Tools of the mind: the Vygotskian approach to early childhood education (2nd ed.). Columbus, OH: Merrill/Prentice Hall.

Boekaerts, M. (1997). Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers, and students. Learning and Instruction, 7(2), 151–86.

Butler, D. L., & Winne, P. H. (1995). Feedback and self-regulated learning: A theoretical synthesis. Review of educational research, 65(3), 245-281.

Denham, S. A., Warren-Khot, H. K., Bassett, H. H., Wyatt, T., & Perna, A. (2012). Factor structure of self-regulation in preschoolers: Testing models of a field-based assessment for predicting early school readiness. Journal of Experimental Child Psychology, 111, 386-404.

Diamond, A., Barnett, W.S., Thomas, J., & Munro. S. (2007). Preschool program improves cognitive control. Science, 318, 1387-1388.

Dinsmore, D. L., Alexander, P. A., & Loughlin, S. M. (2008). Focusing the conceptual lens on metacognition, self-regulation, and self-regulated learning. Educational Psychology Review, 20(4), 391-409.

Hamman, D., Berthelot, J., Saia, J., & Crowley, E. (2000). Teachers' coaching of learning and its relation to students' strategic learning. Journal of Educational psychology, 92(2), 342.

Istomina, Z. M. (1975). The development of voluntary memory in preschool age children. Social Psychology,13, 5–64.

Karakelle, S., & Saraç, S.(2007). Çocuklar için üst bilişsel farkındalık ölçeği (ÜBFÖ-Ç) A ve B formlari: Geçerlik ve güvenirlik çalışması.Türk Psikoloji Yazilari, 10(20), 85-103.

Lombaerts, K., Engels, N., & Athanasou, J. (2007). Development and validation of the self-regulated learning inventory for teachers. Perspectives in Education, 25(4), 29-47.

McClelland, M. M., Acock, A. C., & Morrison, F. J. (2006). The impact of kindergarten learning-related skills on academic trajectories at the end of elementary school. Early Childhood Research Quarterly, 21(4), 471 – 490.

Ministry of Education (2014). National education statistics 2013-2014. Ankara: Milli Eğitim Bakanlığı.

Moore, R. W., & Foy, R. L. H. (1997). The scientific attitude inventory: A revision (SAI II). Journal of Research in Science Teaching, 34(4), 327-336.

Onat, O., & Otrar M. (2010). Bilişsel duygu düzenleme ölçeğinin Türkçeye uyarlanması: Geçerlik ve güvenirlik çalışmaları [Adaptation of cognitive emotion regulation questionnaire to Turkish: Validity and reliability studies], Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 31, 123-143.

Paris, S. G., & Paris, A. H. (2001). Classroom applications of research on self-regulated learning. Educational psychologist, 36(2), 89-101.

Perry, N. E. (1998). Young children's self-regulated learning and contexts that support it. Journal of Educational Psychology, 90, 715–729.

Perry, N., Phillips, L., & Dowler, J. (2004). Examining features of tasks and their potential to promote self-regulated learning. The Teachers College Record,106(9), 1854-1878.

Perry, N. E., & VandeKamp, K. O. (2000). Creating classroom contexts that support young children's development of self-regulated learning. International Journal of Educational Research, 33, 821–843.

Perry, N. E., & Winne, P. H. (2006). Learning from learning kits: gStudy traces of students' self-regulated engagements with computerized content. Educational Psychology Review, 18(3), 211-228.

Robson, S. (2010). Self-regulation and metacognition in young children's selfinitiated play and Reflective Dialogue. International Journal of Early Years Education, 18(3), 227-241.

Rychen, D. S. & Salaganik, L. H. (2003). Introduction. In D. S. Rychen, & L. H. Salaganik (Eds.), Key competencies for a successful life and a well-functioning society (pp. 1-12). Göttingen: Hogrefe & Huber.

Schunk, D. H., & Zimmerman, B. J. (2007). Influencing children's self-efficacy and self-regulation of reading and writing through modeling. Reading & Writing Quarterly, 23(1), 7-25.

Sperling, R.A., R.T. Walls, and Hill L. A. (2000). Early relationships among self-regulatory constructs: Theory of mind and pre-school children's problem solving. Child Study Journal 30(4), 233-252.

Veenman, M. V. J. (2005). The assessment of metacognitive skills: What can be learned from multi-method designs. In C. Artelt, & B. Moschner (Eds.), Lernstrategien und metakognition: Implikationen für forschung und praxis, (pp. 1-30). Berlin: Waxmann.

Whitebread, D., Bingham, S., Grau, V., Pino Pasternak, D., & Sangster, C. (2007). Development of metacognition and self-regulated learning in young children: The role of collaborative and peer-assisted learning. Journal of Cognitive Education and Psychology, 3, 433–455.

Whitebread, D., & Coltman, P. (2010) Aspects of pedagogy supporting metacognition and mathematical learning in young children; evidence from an observational study. ZDM The International Journal on Mathematics Education, 42 (2), 163-178.

Whitebread, D., Coltman, P., Pino Pasternak, D., Sangster, C., Grau, V., Bingham, S., et al. (2009). The development of two observational tools for assessing metacognition and self-regulated learning in young children. Metacognition and Learning, 4(1), 63–85.

Winne, P. H. (1997). Experimenting to bootstrap self-regulated learning. Journal of Educational Psychology, 89, 397-410.

Winne, P. H., & Perry, N. E. (2000). Measuring self-regulated learning. In P. Pintrich, M. Boekaerts, & M. Zeidner (Eds.), Handbook of self-regulation, (pp. 531-566). Orlando, FL: Academic Press.

Wolters, C. A. (2010). Self-regulated learning and the 21st century competencies. Retrieved from Paper Prepared for the NRC Planning Meeting on 21st Century Competencies: http://www.hewlett.org/uploads/Self_Regulated_Learning__21st_Century_Competencies.pdf

Zimmerman BJ (1989). A social cognitive view of self-regulated academic learning. Journal of Educational Psychology, 81(3), 329-339.

Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. Educational Psychologist, 25(1), 3-17.

Zimmerman BJ 1998. Developing self-fulfilling cycles of academic regulation: An analysis of exemplary instructional models. In D. H. Schunk, & B. J. Zimmerman, (eds). Self-regulated learning. From teaching to self-reflective practice (pp.1–10). New York: Guilford Press.

Zimmerman BJ (2002). Becoming a self-regulated learner: An overview. Theory into Practice, 41(2), 64-70.

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. American Educational Research Journal, 45(1), 166-183.

APPENDIX A

Dear teachers,
We are conducting a research study on early year teachers' classroom practices. Please read the following statements and indicate how frequently these teaching activities occur in your classroom regarding the 2013-2014 academic year. Thank you.

Classroom practices	0= Never	1=Rarely	2=Usually	3=Always
1. I provide opportunities for my children to be aware of how they learn.	0 1 2 3			
2. I provide opportunities for my children to be aware of their task preferences.	0 1 2 3			
3. I provide opportunities for my children to develop awareness about their strengths and weaknesses in learning.	0 1 2 3			
4. I draw my children's attention to various strategies they can use for classroom tasks.	0 1 2 3			
5. When I talk about strategies, I draw attention to similarities and differences among various strategies.	0 1 2 3			
6. I provide opportunities for my children to develop their awareness that there are various types of tasks	0 1 2 3			
7. I provide opportunities for my children to detect similarities and differences across tasks.	0 1 2 3			
8. I encourage my children to identify what resources they will need to complete a task before they begin working.	0 1 2 3			
9. I let my children make decisions about how to work.	0 1 2 3			
10. While working on tasks, I encourage my children to stop and look back on what they did.	0 1 2 3			
11. I teach my children how to check their progress.	0 1 2 3			
12. I teach my children how to seek help appropriately.	0 1 2 3			
13. I provide opportunities for my children to apply a previously learned strategy.	0 1 2 3			
14. I want my children to evaluate the quality of their work.	0 1 2 3			
15. I teach my children how to evaluate their learning.	0 1 2 3			
16. I provide opportunities for my children to evaluate the quality of their peers' performances.	0 1 2 3			
17. I help my children to develop awareness about their emotional reactions while working on tasks.	0 1 2 3			
18. I teach my children to monitor their friends' emotional reactions while working on tasks.	0 1 2 3			
19. I help my children to develop awareness about their motivational level regarding the task.	0 1 2 3			
20. I teach my children various attention focusing strategies.	0 1 2 3			
21. I teach my children how to resist distraction.	0 1 2 3			

APPENDIX B

Değerli Öğretmenim,

Okulöncesi öğretmenlerinin öğrencilerine sağlayabildikleri öğrenme-öğretme ortamlarının niteliğini belirlemek amacıyla bir çalışma yürütmekteyiz. Bu çalışma kapsamında sizden iki ölçek doldurmanızı rica ediyoruz. Her iki ölçeği de 2013-2014 öğretim yılına ait deneyimlerinizi göz önünde bulundurarak cevaplayınız. Katkınız için teşekkür ederiz.

SINIF İÇİ ETKİNLİKLER 0= Hiçbir zaman 1=Nadiren 2=Sık sık 3=Her zaman				
1. Öğrencilerime, nasıl öğrendiklerini fark etmeleri için fırsatlar sunarım.	0	1	2	3
2. Öğrencilerime, ne tür etkinlikleri tercih ettiklerini anlamaları için fırsatlar sunarım.	0	1	2	3
3. Öğrencilerime, öğrenmedeki güçlü ve zayıf yönlerinin farkında olmaları için fırsatlar sunarım.	0	1	2	3
4. Öğrencilerime, etkinliklerde kullanabilecekleri farklı farklı yöntemlerin olduğuna dikkat çekerim.	0	1	2	3
5. Bir etkinlik için kullanılabilecek çeşitli yöntemler arasındaki farklılık ve benzerliklere dikkat çekerim.	0	1	2	3
6. Öğrencilerime, farklı etkinlik türleri olduğunun farkına varabilmeleri için fırsatlar sunarım.	0	1	2	3
7. Öğrencilerime etkinlik türleri arasındaki farklılık ve benzerlikleri görmeleri için fırsatlar sunarım.	0	1	2	3
8. Öğrencilerimi, bir etkinliğe başlamadan önce etkinlikte ihtiyaç duyacakları materyalleri belirlemeye teşvik ederim.	0	1	2	3
9. Öğrencilerimin, nasıl çalışacaklarına kendilerinin karar vermelerine izin veririm.	0	1	2	3
10. Öğrencilerimi, bir etkinlik üzerinde çalışırken geriye dönüp yaptıklarına bakmaya teşvik ederim.	0	1	2	3
11. Öğrencilerime, bir etkinlik üzerinde çalışırken kendi ilerlemelerini nasıl kontrol edeceklerini öğretirim.	0	1	2	3
12. Öğrencilerime, ne zaman ve ne şekilde yardım istemeleri gerektiğini öğretirim.	0	1	2	3
13. Öğrencilerime, önceden öğrendikleri yöntemleri kullanmaları için fırsatlar sunarım.	0	1	2	3
14. Öğrencilerimden, kendi öğrenmelerini değerlendirmelerini isterim.	0	1	2	3
15. Öğrencilerime, öğrenmelerini nasıl değerlendireceklerini öğretirim.	0	1	2	3
16. Öğrencilerime arkadaşlarının performanslarını değerlendirmeleri için fırsatlar sunarım.	0	1	2	3
17. Öğrencilerime, etkinlikler üzerinde çalışırken verdikleri duygusal tepkilerin farkında olmaları için yardımcı olurum.	0	1	2	3
18. Öğrencilerime, arkadaşlarının etkinlikler üzerinde çalışırken verdikleri duygusal tepkilerini izlemeyi öğretirim.	0	1	2	3
19. Öğrencilerime, etkinliğe ilişkin motivasyon düzeylerinin farkında olmaları için yardımcı olurum.	0	1	2	3
20. Öğrencilerime dikkat toplama yöntemlerini öğretirim.	0	1	2	3
21. Öğrencilerime dikkat dağıtıcı şeyler karşısında nasıl direneceklerini öğretirim.	0	1	2	3

Appendix C: The discrimination of items and the item-total correlations

	Item-total correlation			Discrimination of items		
	N	*r*	*p*	*t*	*df*	*p*
Item1	159	.589	.000	-8.305	84	.000
Item2	159	.543	.000	-7.682	84	.000
Item3	159	.597	.000	-8.733	84	.000
Item4	159	.601	.000	-9.796	84	.000
Item5	159	.571	.000	-8.764	84	.000
Item6	159	.593	.000	-8.688	84	.000
Item7	159	.635	.000	-9.991	84	.000
Item8	159	.563	.000	-8.085	84	.000
Item9	159	.544	.000	-5.842	84	.000
Item10	159	.640	.000	-8.751	84	.000
Item11	159	.669	.000	-10.362	84	.000
Item12	159	.554	.000	-8.032	84	.000
Item13	159	.672	.000	-9.890	84	.000
Item14	159	.552	.000	-8.303	84	.000
Item15	159	.670	.000	-10.510	84	.000
Item16	159	.515	.000	-6.598	84	.000
Item17	159	.623	.000	-9.823	84	.000
Item18	159	.557	.000	-7.345	84	.000
Item19	159	.645	.000	-9.771	84	.000
Item20	159	.677	.000	-10.856	84	.000
Item21	159	.757	.000	-13.790	84	.000

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