

Primary Teachers' Beliefs and Knowledge about Self-regulated Learning in the Kingdom of Saudi Arabia

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ABSTRACT The current study examines the beliefs and knowledge of primary teachers about self-regulated learning (SRL). It also investigates the effects of gender, subject taught, and years of teaching experience on teachers' beliefs and knowledge about SRL. To this purpose, 80 teachers were chosen from different primary schools in Arar city of Saudi Arabia. Two questionnaires, "self-regulated learning teacher beliefs questionnaire (SRLTBQ)" and "teachers' knowledge of self-regulated learning" inventory (TSRLI), were used for data collection. Comparative descriptive design was used as the study design. The results of the study reveal that teachers' beliefs about SRL are high but that their knowledge of SRL are low. There is a significant correlation between the mean scores of teacher's reported beliefs about SRL and teacher' knowledge. The results also indicate that gender, subject taught, and years of experience have significant effects on some aspects of teachers' beliefs and knowledge.

INTRODUCTION

Education is the cornerstone of the development of any nation, that is, the wealth of a nation depends on the development of its human resources. In the development of human resources, the key individuals who should bear the responsibility are teachers. Teachers are responsible for the great task of producing students who can compete at the national and international stages. Becoming a teacher is a complex process that involves gaining many skills and several knowledge dimensions. Therefore, the quality of a teacher is crucial and has been globally accepted to be significantly associated with the quality of education in general and students' learning outcomes in particular (Kiprop and Verma 2013).

Contemporary teacher professional development views teachers as learners drawing on resources in their teaching environments to inform their work and professional growth (Little 2003). This form of teacher professional learning requires teachers to take charge of their own learning (Renyi 1996). Factors such as motivation,

interest, self-efficacy, metacognition, and self-regulation are important keys in their learning in addition to content-area skills (Schunk 1998; Zimmerman 2001). One of these factors, the concept of self-regulation, is important in the development of these skills for teachers. As self-regulation helps students to take responsibility for their own learning, it is expected also to assist teachers in their own professional development (Capa Aydin et al. 2009). Self-regulation skills are necessary for teachers to become expert teachers instead of only experienced non-expert teachers (Erfani and Wright 2005). Because teachers are life-long learners and have to act as role models for their students, it is very important that teachers learn to regulate their own professional learning (Mutton and Brindley 2008; Kramarski and Michalsky 2009). As proposed by Butler and Schnellert (2012) in their professional development model, teachers also need to engage in a self-regulated process to plan, monitor, reflect, adapt and revise practices when they support their students' SRL.

Research on self-regulated learning (SRL) has a long history and remains a key topic in educational research (Bembenutty 2011; Zimmerman and Schunk 2011). Self-regulated learning (SRL) in the school setting increases success in problem solving, academic achievement, intrinsic motivation, writing performance skills,

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academic motivation, self-efficacy, on-task behaviors, and task interest (Pintrich 1999; Perry and Vandekamp 2000; Zimmerman 2002; Cleary and Zimmerman 2004; Eissa 2009; Lavasani et al. 2011; Malpique 2014; Muehl 2015; Agustiani et al. 2016; Yidizli and Saban 2016; Wang 2017; Fernandez-Rio et al. 2017). Numerous intervention studies have revealed that training on SRL enhances students' academic performance (Schunk and Ertmer 2000; Fuchs et al. 2003; Masui and De Corte 2005; Gürtler and Schmitz 2005; Dignath and Büttner 2008; Büttner and Langfeldt 2008). SR skills do not develop naturally as learners grow up, especially in preschool and primary stages (Baker 2005; Bembenuity 2011). Students need support in an environment full of practices, which foster self-regulated skills. Since self-regulatory processes are teachable (Zimmerman 2002), teachers play a key role in promoting SRL. Indeed, Perry and colleagues (Perry and Vandekamp 2000; Perry et al. 2002) repeatedly indicated that the adjustments teachers made to the learning environment and their teaching practices had positive effects on their pupils' development of SRL. Studies that examined the relation between teachers practices and SRL have suggested that teachers should establish a high-SRL context by using direct instruction, guided practices, modeling effective use of strategies, reflective practices, effective feedback, and cooperative learning in order to help students acquire self-regulatory learning skills (Pintrich and DeGroot 1994; Turner 1995; Perry 1998; Mercer and Nordby 2002; Perry and Rahim 2011). Recent research results indicate that students acquire SR skills in intervention programs developed by researchers more than by teachers (Buettnner and Langfeldt 2008; Dignath and Buttner 2008). So, teachers have a weaker effect in developing students' SR skills. This might be due to the fact that many teachers remain unfamiliar with SRL (Hutchinson and Thauberger 2007; Lombaerts and Van Braak 2009), and very little SRL-based instruction has actually taken place in schools (Perry et al. 2006; Baker 2008; Kistner et al. 2010). The study by De Kock et al. (2005) indicate that most teachers neglect teaching their students how to learn. According to Perry et al. (2008), many of the teachers involved in their investigation feel unsure about how to support their students to become self-regulated learners. As little is known about the extent to which primary school teach-

ers encourage the concept of self-regulated learning and if teachers consider it suitable for primary school practice, the present study aims to gain insights into how primary teachers view self-regulated learning.

A way of investigating teachers' thinking is to examine their beliefs, which serve as a filter through which self-regulation is explained (Nespor 1987; Goodman 1988; Calderhead and Robson 1991; Kagan 1992; Pajares 1992, 1997; Fang 1996; Smith and Croom 2000; Ertmer 2005; Hermans and Van Keer 2008). Teachers' beliefs affects different aspects of teachers, such as teachers' attitude, teaching strategies, teachers' practices and behaviors. Results of several studies indicate that knowledge and beliefs held by teachers influence their practices and behaviors in the classroom (Richardson et al. 1991; Calderhead 1996; Vacc and Bright 1999; Simon et al. 2000). Trigwell and Prossner (1996) established a statistically significant correlation between beliefs of teaching and approaches towards teaching and between beliefs of teaching and beliefs of the learning process as well as between beliefs of the learning process and approaches towards teaching.

Little work has been done on in-service teachers' beliefs and knowledge of self-regulated learning behaviors in a primary setting in the Arab World (Atia 2011). Scant attention has been paid to teachers' beliefs and its relationship with knowledge and practices. Moreover, no study to date has focused on beliefs about self-regulated learning among teachers in Saudi Arabia schools contexts.

Study Literature

Many models of self-regulated learning have been developed over the past two decades. Among these models, Pintrich and Zusho's (2007) model has an extended, detailed, and clear framework of SRL. Hence, Pintrich and Zusho's (2007) model has been adopted as the framework of the current study.

SRL according to Pintrich and Zusho's (2007) model is defined as an active and purposive process whereby learners set learning goals, attempt to monitor, regulate, and control their cognition, motivation, behavior, and context. Their goal and contextual features guide them in the environment (Pintrich 2005). Pintrich and Zusho stated that self-regulation processes fall into four cate-

gories: regulated cognition, regulated motivation, regulated behavior, and regulated context. This model indicates that within each previous category, four cyclical phases exist: goal setting and planning, monitoring, control and regulation, and self-reflection. The goal setting and planning of regulated cognition includes goal setting, retrieval of relevant prior knowledge, and activation of metacognitive knowledge. The teacher in the current phase creates explicit goals which they monitor and regulate in the following phases. The second part is retrieval of relevant prior knowledge (RRPK). The RRPK helps teachers in constructing new knowledge. The last part is activation of metacognitive knowledge. It consists of three types of knowledge: declarative knowledge, procedural knowledge, and conditional knowledge. The significance of metacognitive knowledge is that it helps teachers to utilize and regulate cognitive processes (Pintrich and Zusho 2007; Schunk 2004). The monitor phase refers to monitoring teacher's performance during the application of metacognitive knowledge. The control and regulation phase of regulated cognition refers to altering, adjusting, and selecting the monitoring information during the previous phase. The self-reflection phase includes assessing and evaluating the performance of teachers.

Considering regulated motivation, in the goal setting and planning phase, teachers make judgments about themselves and academic performance in relation to motivational processes, which includes students' expectancy levels and interest in subject, and their effects. The second phase is the monitor phase. In the present phase, teachers create criteria in order to observe their motivational processes in the previous phase. In the third phase during regulated motivation (control and regulation), teachers use many strategies to control and regulate motivation, such as positive self-talks (Bandura 1997) and attempts to increase the significance and the value of the tasks (Sansone et al. 1992; Wolters 1998). The last phase of regulated motivation is the self-reflection phase. In this phase, teachers make attributions about their outcomes, and these attributions can lead them to intensified levels of emotions, such as pride, anger, and guilt (Weiner 1986).

Considering regulated behavior, this category of regulated processes aims to control the teaching behaviors of teachers. The first phase

of regulated behavior is goal setting and planning. In this phase, teachers make plans on the management of time and effort. During the second phase (monitoring), teachers make judgments according to their examination of effort levels and time management. The gathered information during this phase helps teachers to assess their progress toward behavioral goals. The last phase of behavior regulation is control and regulation phase. During this phase, teachers may use certain strategies, such as seeking help from experts and persistence, to control their behaviors. Many times, the current phase (control and regulation) and the previous phase (monitoring) happen simultaneously. The last phase is self-reflection. During this phase, teachers make judgments about their actions and strategies according to students' feedback.

Considering the regulated context, the aims of this process are to monitor, control, and regulate teaching context. The first phase of context regulation is goal setting and planning. During this phase, teachers make perceptions of classroom environments and tasks. These perceptions include students' academic levels, tasks difficulty degrees, and assessment method. Beside the perceptions of environments, teachers also make perceptions about students' personalities, students' motivation, and students' engagement. The next phase of context regulation is the monitoring phase. During this phase, teachers monitor rules, tasks, students' enthusiasm, and students' behaviors. The successes in this phase lead to successful control and regulation. The third phase of context regulation is the control and regulation phase. During this phase, teachers attempt to control, regulate, and change factors in the classroom environments. Pintrich and Zusho (2007) indicated that context control is the hardest phase of this regulation process. The last phase of context regulation is self-reflection. During this phase, teachers make judgments and generalizations about aspects of the teaching environment, and these judgments and generalizations are based on certain criteria, such as comfort and students' feedback.

A few studies have been conducted to test Pintrich and Zusho's (2005, 2007) model. Most of these studies dealt with students' self-regulated learning (Schunk 1996; Boekaerts 1997; Perry and Vandekamp 2000; Pintrich 2000; Zimmerman and Schunk 2001; Cleary and Zimmerman 2002; Zimmerman 2002; Azevedo and

Cromley 2004). There are a few research on teachers' self-regulation process. Mullin (2011) investigated teachers' beliefs about self-regulated learning, examined the relationship between teachers' self-regulated learning behaviors, including monitoring strategy use and self-evaluation, and the instructional practices employed by teachers to promote self-regulated learning among students, and examined the influence of teacher' self-regulated learning and instructional practices, which are meant to promote self-regulated learning in students, on the academic achievement of students. The findings indicate that teachers' beliefs about monitoring strategy use had a moderate mean score, while teachers' beliefs about self-evaluation had a high mean score. Teachers' self-regulated learning behaviors are related to their use of instructional practices, and a positive relationship between teachers' self-regulated learning and academic achievement was observed. Dix (2009) examined mathematics teachers' reported beliefs and practices about self-regulated learning and their relationships with observed classroom instruction, and also examined the effects of grade level, subject, course taught, and number of years of teaching experience on the reported beliefs and practices. The results indicate that teachers' reported beliefs about self-regulated learning are not aligned with observed practices. There is no significant difference in teachers' reported beliefs when compared based on the grade level taught. There was a significant interaction in teachers' beliefs between the grade level taught and the number of years of teaching experience. Also, the results show no significant relationships between teachers' reported practices and the grade level taught, even when gender, number of years of teaching experience, and course level taught were used as controls. Bembenuity (2006) examined whether the association between teachers' self-efficacy beliefs and academic performance is mediated by the use of self-regulatory learning strategies. The researchers used path analyses to draw the final model. The results indicate that teachers' self-efficacy beliefs have an indirect effect on their academic performance mediated by their use of self-regulatory learning strategies. Tillema et al. (2002) examined the differences between Holland and Israeli teachers based on the strategies employed during instruction to develop students' self-regulated learning skills. The results indi-

cate that there were disparities and similarities between the teachers' strategies. Israeli teachers confirmed goal setting, planning, management of time, motivation, and metacognition, whereas Holland teachers confirmed independent learning, self-study, self-development, and critical inquiry. Teachers from both countries considered self-regulated learning as a reflective approach for themselves and their students. Aرسال (2010) examined the effects of diaries on self-regulation strategies of pre-service science teachers. The researchers adopted Pintrich and Zusho's self-regulation model as a basis of the study. The results indicate that intrinsic motivation, task value, metacognition, and time management strategy usage were significantly high. Ferreira and Simao (2012) presented a case study of an elementary teacher who changed her practices to foster self-regulated learning strategies, such as self-evaluation, goal setting and planning, and rehearsing and memorization, in her students. The results indicate that the teacher's classroom practices promoted opportunities to encourage her students to become more conscious of their learning processes. Capa Aydin et al. (2009) aimed to develop and validate an instrument to assess the multidimensional nature of teacher self-regulation. The proposed dimension, which include help seeking, self-reflection, self-evaluation, self-instruction, emotional regulation, goal setting, mastery goal orientation, performance goal orientation, and intrinsic interest, was supported.

Spruce (2012) examined teachers' beliefs and knowledge about metacognition and self-regulated learning (SRL), their knowledge about teaching metacognition and SRL, and how these were applied in classroom practice. The results indicate that teachers have some knowledge of metacognition, SRL, and knowledge of teaching them, and that teachers feel moderately positive about SRL. There is no relationship between teacher beliefs about SRL and their knowledge about teaching metacognition. Lastly, interviews and classroom observations indicate that teachers have the ability to describe good practices for teaching SRL and metacognition.

Lau (2013) explored the perceptions of Chinese language teachers and the implementation of instruction based on self-regulated learning. The results indicate that Chinese teachers have a positive perception of SRL based instruction and altered their instructional tasks based on

important factors, such as the nature of SRL-based instruction, cultural, students' and teachers' factors, and external support affecting teachers' perceptions and implementation of new instructions.

Buzza and Allinotte (2013) examined the development of self-regulated learning by pre-service teachers' and investigated the relationship between the self-reported SRL of these teachers', their understanding of SRL behaviors and supportive teaching practices. The results indicate that teachers' self-reported learning strategy scores predicted their performance in an SRL classroom observation assignment, while motivation scores were unrelated.

Seker and Dincer (2016) examined foreign language teachers' opinions about the importance and the level of use of self-regulated language learning strategies in their classes. The results reveal that promotion of SRLS remained at very low levels.

Jayawardena et al. (2017) presented the case study of a senior secondary school science teacher. The teacher used several practices, such as goal setting, modeling, and scaffolding, to help students develop aspects of SRL, such as problem solving and critical thinking. The results indicate that the previous teaching practices were not prominent in her teaching.

Study Objectives

With Pintrich and Zusho's model serving as a guide, this study used quantitative method to investigate teachers' self-regulated learning beliefs and teachers' knowledge of self-regulated learning, examine the relationship between teachers' beliefs and teachers' knowledge about SRL, and investigate the effects of gender, subject taught, and years of teaching experience on beliefs and knowledge of SRL.

Research Questions

1. What are teachers' beliefs about self-regulated learning?
2. What level of knowledge do teachers have on self-regulated learning?
3. What is the relationship between teachers' beliefs about SRL and teachers' knowledge?
4. To what extent does teachers' gender influence teachers' beliefs and teachers' knowledge of SRL?

5. To what extent does the subject taught influence teachers' beliefs and teachers' knowledge of SRL?
6. To what extent does years of teaching experience influence teachers' beliefs and teachers' knowledge of SRL?

METHODOLOGY

Participants

The participants in this study were 84 primary teachers from the Northern Border District. In the sample, female teachers prevailed: there were 40 (47.62%) female teachers in comparison to 44 (52.38%) male teachers. In the sample, 53(63.09%) teachers taught special education subject in comparison to 27(36.91%) teachers that taught Islamic education subject. Demographic characteristics of all participants are provided in Table 1.

Table 1: Demographics of the sample

<i>Items</i>	<i>Percent</i>
<i>Gender</i>	
Male	52.38
Female	47.62
<i>Years Teaching Experience</i>	
More than 5 years	54.70
Less than 5 years	45.24
<i>Subject Teaching</i>	
Special education	63.09
Islamic education	36.91

Instruments

Self-regulated Learning Teacher Beliefs Questionnaire

The SRLTBQ assesses teachers' beliefs about self-regulated learning. It consists of two parts. The first part is designed to capture personal information about the participants, including gender, subject taught, and years of teaching experience. The second part consists of 98 items distributed among 4 dimensions, cognition regulation (38 items), motivation regulation (20 items), behavior regulation (18 items), and context regulation (22 items). Each dimension consists of 4 sub-sections, including goal setting and planning, monitoring, control and regulation, and self-reflection. The SRLTBQ was designed according to Pintrich and Zusho's (2007) model of self-regulated learning. It can

be completed in 45-60 minutes. Respondents rate the items on a three-point Likert scale, ranging from 'disagree' to 'agree'. To verify the survey's content validity, experts' opinions were obtained. The Cronbach's alpha for the scale was 0.79 in this study.

Teachers' Knowledge of Self-regulated Learning Inventory

According to the theoretical model of Pintrich and Zusho (2007) of self-regulated learning, a multiple choice test was constructed for measuring teachers' knowledge of SRL. The TKSRLI contains 20 vignettes with four choices as answers. One of the answers was the correct answer. The correct answer was based on literature detailing teachers' knowledge of self-regulated learning. The inventory initially had 30 vignettes. Comprehensibility of the items was re-evaluated in light of the opinions obtained from 11 specialists in the fields of educational psychology, curriculum and instructions, and special education fields. Based on the experts' opinions, 10 vignettes were removed and the final inventory included 20 vignettes. Internal reliability, estimated by Cronbach's Alpha, was 0.72. TKSRLI can be completed in 40 minutes.

Procedures

The researchers constructed the instruments of the study. To verify the instrument's content validity, experts' opinions were obtained. Permission to conduct the study was obtained from

the Department of Education as well as the principals of the selected schools. Twenty schools were selected from a list of public schools in the Northern Border District in Arar city by means of the systematic random sampling method. The researchers piloted the SRLTBQ and TKSRLI before their implementation with larger samples in order to establish the reliability of these instruments. The researchers distributed the instruments among selected schools. The secretaries of the twenty selected schools served as contact persons. Once the participants had completed the questionnaires, they sealed them in the envelope provided and handed them back to their respective secretaries. The researchers corrected the instruments gotten from the secretaries. The data obtained were analyzed by SPSS (version 17).

RESULTS

1. Teachers' Beliefs about Self-regulated Learning

Data related to the first study question were analyzed with descriptive statistics to determine the level of teachers' beliefs about self-regulated learning as shown in Table 2.

The results of the analysis show that teachers' beliefs in cognition regulation, motivation regulation, behavior regulation, and context regulation were high. According to the results, cognition regulation is the category of self-regulated learning that had the highest mean; context regulation is the category of SRL that had the second highest mean; motivation regulation is

Table 2: Means and standard deviations of the teachers' beliefs of self-regulated learning

	<i>Items</i>	<i>Mean</i>	<i>SD</i>
Cognition Regulation (106.77,10.2)	Goal setting and planning	60.03	4.49
	Monitoring	16.34	2.13
	Control and regulation	8.49	0.83
	Self-reflection	21.91	2.75
Motivation Regulation (54.72,6.45)	Goal setting and planning	19.49	1.86
	Monitoring	8.41	1.08
	Control and regulation	21.43	2.59
	Self-reflection	5.39	0.92
Behavior Regulation (50.27,6.50)	Goal setting and planning	16.8	1.89
	Monitoring	16.74	2.13
	Control and regulation	10.92	1.73
	Self-reflection	5.81	0.75
Context Regulation (62.34,6.66)	Goal setting and planning	19.96	2.01
	Monitoring	19.69	2.08
	Control and regulation	14.00	1.68
	Self-reflection	8.69	0.89
	Total teachers' beliefs of SRL	274.09	19.91

the category of SRL that had the third highest mean, and behavior regulation is the category of SRL that had the least mean. The overall beliefs of teachers were high.

2. Teachers' Knowledge of Self-regulated Learning

Data related to the second study question were analyzed with descriptive statistics (mean and standard deviation) to determine the level of teachers' knowledge about self-regulated learning as shown in Table 3.

Table 3: Means and standard deviations of the teachers' knowledge of self-regulated learning

<i>Item</i>	<i>Mean</i>	<i>SD</i>
Teachers' knowledge of SRL	6.56	2.56

The results of the descriptive analysis show that teachers' knowledge of self-regulated learning were low.

3. The Relationship between Teachers' Beliefs and Teachers' Knowledge about Self-regulated Learning

An analysis of the questionnaire results shows that there is a significant correlation between the mean scores of teacher's reported beliefs about self-regulated learning and the mean scores of teacher' knowledge. The mean score for teachers' beliefs was 274.09 (SD = 19.91). The mean score for teachers' knowledge was 6.56 (SD = 2.56). The Pearson correlation value was 0.239 with a p-value of 0.032, which is significant, when analyzing the means of beliefs and knowledge. Table 4 provides this information.

4. Effects of Gender on Teachers' Beliefs and Teachers' Knowledge about Self-regulated Learning

In order to examine the effects of gender on teachers' beliefs about self-regulated learning,

Table 4: Correlation Analysis – Descriptive Statistics of the relationship between teachers' beliefs and teachers' knowledge about self-regulated learning

<i>Items</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Pearson correlation(r)</i>	<i>p</i>
Teachers' knowledge of SRL	6.56	2.56	84	0.239	0.032*
Teachers' beliefs of SRL	274.09	19.91	84		

independent t-tests were performed. The results show that there is a statistically significant difference between males and females in the following sub-skills of the four categories of self-regulated learning: cognition regulation: goal setting and planning (t=-2.977, p=0.004) and control and regulation (t=-2.667, p=0.009); motivation regulation: goal setting and planning (t=-2.545, p=0.013), monitoring (t=-3.184, p=0.002), and self-reflection (t=-2.374, p=0.02); behavior regulation: monitoring (t=-2.438, p=0.017), control and regulation (t=-2.248, p=0.027), and self-reflection (t=-2.635, p=0.01); context regulation: monitoring (t=-2.263, p=0.026) and self-reflection (t=-2.730, p=0.008), as shown in Table 5.

The results show also that there is no significant difference between males and females based on teachers' knowledge of SRL (t=1.246, p=0.217).

5. Effects of Subject Teaching on Teachers' Beliefs and Teachers' Knowledge about Self-regulated Learning

In order to examine the effect of subject teaching on teachers' beliefs about self-regulated learning, independent t-tests were performed. The results show that there is a statistically significant difference between Islamic education teachers and special education teachers in the following sub-skills of the four categories of SRL: cognition regulation: self-reflection (t=1.955, p=0.054); motivation regulation: goal setting and planning (t=2.754, p=0.017), monitoring (t=2.463, p=0.016), and self-reflection (t=1.970, p=0.052); behavior regulation: (t=2.092, p=0.04); context regulation: goal setting and planning (t=2.042, p=0.045), as shown in Table 6.

The results show also that there is no significant difference between Islamic education teachers and special education teachers based on teachers' knowledge of SRL (t=-0.231, p=0.818).

Table 5: Independent t-test results between male teachers and female teachers on teachers' beliefs and teachers' knowledge about self-regulated learning

Items		Male teachers (n=44)		Female teachers (n=40)		t	P
		M	SD	M	SD		
Cognition Regulation	Goal setting and planning	58.6	5.5	61.4	2.54	-2.97	0.004*
	monitoring	16.1	2.1	16.5	2.16	-0.98	0.321
	Control and regulation	8.25	0.9	8.72	0.68	-2.66	0.009*
Motivation Regulation	Self-reflection	21.4	3.0	22.4	2.34	-1.77	0.081
	Goal setting and planning	18.9	2.3	20.0	1.19	-2.54	0.013*
	monitoring	8.05	1.3	8.77	0.58	-3.18	0.002*
Behavior Regulation	Control and regulation	20.9	2.9	21.9	2.05	-1.83	0.071
	Self-reflection	5.15	1.1	5.62	0.67	-2.34	0.02*
	Goal setting and planning	16.5	2.1	17.1	1.61	-1.43	0.156
Context Regulation	monitoring	16.2	2.4	17.3	1.67	-2.48	0.017*
	Control and regulation	10.5	1.9	11.3	1.42	-2.28	0.027*
	Self-reflection	5.60	0.8	6.03	0.58	-2.63	0.01*
Teachers' Knowledge	Goal setting and planning	19.6	1.9	20.3	2.05	-1.51	0.134
	Monitoring	19.2	2.3	20.2	1.67	-2.26	0.026*
	Control and regulation	13.9	1.6	14.1	1.81	-0.24	0.792
Teachers' Knowledge	Self-reflection	8.43	1.2	8.95	0.22	-2.70	0.008*
		5.13	2.3	4.58	1.65	2.70	0.217

Table 6: Independent t-test results between Islamic education teachers and special education teachers on teachers' beliefs and teachers' knowledge about self-regulated learning

Items		Islamic teachers education (n=31)		Special education teachers (n=53)		t	P
		M	SD	M	SD		
Cognition Regulation	Goal setting and planning	61.26	2.85	59.39	5.04	1.779	0.079
	monitoring	16.81	2.24	16.09	2.05	1.441	0.153
	Control and regulation	8.70	0.72	8.37	0.86	1.689	0.095
Motivation Regulation	Self-reflection	22.74	2.03	21.49	2.98	1.955	0.054*
	Goal setting and planning	20.26	1.13	19.09	2.04	2.754	0.017*
	monitoring	8.81	0.56	8.21	1.21	2.463	0.016*
Behavior Regulation	Control and regulation	22.18	20.4	21.04	2.78	1.898	0.061
	Self-reflection	5.67	0.68	5.24	0.99	19.70	0.052*
	Goal setting and planning	17.15	1.49	16.62	2.05	1.182	0.241
Context Regulation	monitoring	17.33	1.47	16.43	2.35	1.814	0.074
	Control and regulation	11.48	1.25	10.64	1.88	2.092	0.04*
	Self-reflection	5.92	0.38	5.75	0.87	0.968	0.336
Teachers' Knowledge	Goal setting and planning	20.59	0.97	19.64	2.31	2.042	0.045*
	Monitoring	20.22	1.80	19.41	2.17	1.661	0.101
	Control and regulation	14.29	1.49	13.85	0.18	0.377	0.264
Teachers' Knowledge	Self-reflection	8.93	0.27	8.57	1.07	1.723	0.089
	Control and regulation	14.29	1.49	13.85	0.18	0.377	0.264
	Self-reflection	8.93	0.27	8.57	1.07	1.723	0.089
		4.78	1.82	4.89	2.07	-0.231	0.818

6. Effects of Years of Teaching Experience on Teachers' Beliefs and Teachers' Knowledge about Self-regulated Learning

In order to examine the effects of years of teaching experience on teachers' beliefs about self-regulated learning, independent t-tests were

performed. The results show that there is no significant difference between teachers with less than 5 years of experience and teachers with more than 5 years of experience in all sub-skills of the four categories of SRL, but there is a significant difference between two groups in the control and regulation skill ($t=-2.201$, $p=0.031$)

under the context regulation category, as shown in Table 7.

The results show also that there is no significant difference between teachers with less than 5 years of experience and teachers with more than 5 years of experience in teachers' knowledge of SRL ($t=1.746, p=0.085$).

DISCUSSION

The aims of the present study are to investigate teachers' self-regulated learning beliefs and teachers' knowledge of self-regulated learning, examine the relationship between teachers' beliefs and teachers' knowledge about SRL, and investigate the effects of gender, subject taught, years of teaching experience on beliefs and knowledge of SRL.

1. Teachers' Beliefs about Self-regulated Learning

Descriptive findings reveal the following: First, in-service teachers who participated in the study exhibited high beliefs of self-regulated learning. Therefore, it can be concluded that participants of the study mostly think of self-regulated learning as an ideal solution for the best learning that can be achieved. Second, most of the teachers wish to contribute to the improve-

ment of learning process and search for the best practices to achieve this goal. Third, Saudi students experienced underachievement, community dissatisfaction, and weak results in international tests. Fourth, the self-regulated learning model of the present study (Pintrich and Zusho's model) covered all dimensions of learning process. Fifth, the model of SRL of the present study is consistent with the beliefs of expert teachers regarding the benefits of regulating all dimension of learning, including cognition, motivation, behavior, and context. Sixth, most teachers think that SRL is the best way to transfer the responsibility of learning from the teacher to the learner. Finally, creating a lifelong learner is an important goal that can be achieved by self-regulated learning.

2. Teachers' Knowledge of Self-regulated Learning

The descriptive findings reveal the following: First, that in-service teachers who participated in the study exhibited low level knowledge of self-regulated learning. Therefore, it can be concluded that the present standards of evaluation of teachers are not a true reflection of teachers' work. According to the previous evaluation, teachers didn't have the desire to improve their academic levels and search for knowl-

Table 7: Independent t-test results between teachers who less than 5 years and teachers who more than 5 years on teachers' beliefs and teachers' knowledge about self-regulated learning

Items	Less than 5 years (n=38)		More than 5 years (n=46)		t	P	
	M	SD	M	SD			
<i>Cognition Regulation</i>	Goal setting and planning	59.68	4.78	60.28	4.29	0.595	0.554
	Monitoring	16.79	1.63	16.00	2.39	1.668	0.099
	Control and regulation	8.47	0.83	8.50	0.84	0.156	0.876
	Self-reflection	22.18	2.75	21.72	2.76	0.735	0.464
<i>Motivation Regulation</i>	Goal setting and planning	19.35	2.29	19.59	1.48	0.553	0.582
	Monitoring	8.38	1.21	8.43	0.98	0.214	0.831
	Control and regulation	21.68	2.73	21.24	2.51	0.742	0.460
	Self-reflection	5.41	0.89	5.36	0.95	0.201	0.841
<i>Behavior Regulation</i>	Goal setting and planning	16.68	2.18	16.89	1.65	0.501	0.617
	Monitoring	16.53	2.35	16.89	2.04	0.750	0.455
	Control and regulation	10.88	1.63	10.96	2.83	0.188	0.851
	Self-reflection	5.71	0.79	5.89	0.71	1.098	0.276
<i>Context Regulation</i>	Goal setting and planning	19.79	2.06	20.09	1.99	0.642	0.523
	Monitoring	19.59	2.24	19.67	1.97	0.365	0.716
	Control and regulation	13.53	2.12	14.35	1.18	2.201	0.031*
	Self-reflection	8.59	1.16	8.76	0.64	0.852	0.397
<i>Teachers' Knowledge</i>		5.29	2.34	4.52	1.62	1.746	0.085

edge that can achieve this goal because they were satisfied with their low level. Second, high achieving students who graduated from secondary schools didn't wish to join the faculties of education and teachers institutes, while low and average achieving students joined these faculties. Therefore, low inputs lead to low outputs. The previous result is consistent with what researchers observed regarding low levels of knowledge of teachers in schools. Third, although, pre-service teachers should be aware of their own learning by improving their self-regulation strategies before they fly solo in their own classrooms (Kurt 2010), the educational courses in the faculties of education didn't include modern terms such as metacognition, brain-based learning, and self-regulated learning. Hence, the present course contents didn't provide teachers with appropriate skills and knowledge.

3. The Relationship between Teachers' Beliefs and Teachers' Knowledge about Self-regulated Learning

Pearson's R correlation coefficient was calculated to examine whether there is any relationship between teachers' beliefs about SRL, as measured by the SRLTBQ, and their knowledge of self-regulated learning, evaluated by the TK-SRLI. The results were unexpected. It was found that there is a statistically significant relationship between these constructs. Perhaps, though participants may believe that SRL is valuable, it does transform to knowledge of how to teach it. Furthermore, Lombaerts et al. (2009) found that teachers' beliefs have a stronger influence on a high level of professional knowledge and teachers' recognition of SRL practices. Self-regulated teachers are mostly described as (pro)active agents who trigger certain educational beliefs and proactively acquire appropriate knowledge (Butler 2003; Manning and Payne, 1993; Randi 2004). Teachers' knowledge acquisition of SRL can be enhanced when their SRL development is supported by collaborative reflection during professional development activities. Dialogue with peers facilitates co-construction of knowledge. As Tillema (1995) found, teachers' beliefs are filtering the learning. Thus, both—teachers' prior knowledge as well as their beliefs—seem to have an impact on teachers' learning and might also influence teachers' behavior.

4. Effects of Gender on Teachers' Beliefs and Teachers' Knowledge about Self-regulated Learning

Regarding teachers' beliefs about self-regulated learning, there is a statistically significant difference between males and females on the following sub-skills of the four categories of self-regulated learning: Regarding cognition regulation, the results indicate that female teachers outperform male teachers in goal setting and planning. Based on direct observations in schools, female teachers outperform male teachers in compliance with school rules and laws. One of these school rules is preparation of daily lessons, which indicates goal setting and planning. This is because of the strict administrative method implemented in the girls' schools, which includes daily follow-up of the work to be performed.

There are significant differences between male teachers and female teachers in favor of female teachers. Female teachers recognize the importance of setting goals and good planning, and this leads to their empowerment to form the public perception of what will be implemented, thereby increasing their ability to control and regulate. There are no significant differences between male and female teachers in both self-monitoring and self-reflection. Self-monitoring and self-reflection skills require training.

Regarding motivation regulation, there are significant differences between male teachers and female teachers in goal setting and planning, self-monitoring, and self-reflection in favor of female teachers. Regarding goal setting and planning, female teachers outperform male teachers in their appreciation of the value of the task, which represents one of the components of motivation, and this increases the level of interest in the achievement of the task. Regarding self-monitoring, when the female teachers are aware of their beliefs of motivation and plans associated with their academic duties, they are more capable of self-monitoring than male teachers. Regarding self-reflection, female teachers outperform male teachers in their desire to develop their performance that is aligned with administrative work system that they are part of. Female teachers attributed their successes and failures to achieve their tasks to internal reasons, while male teachers attributed them to external reasons. The results indicate also that there are no significant differences between male

and female teachers in control and regulation. The level of possession strategies of male and female teachers, such as positive self-talk, promising rewards to one's self for completing academic tasks, trying to make tasks more interesting, trying to increase the task value or relevance of a task, self-affirmation, invoking shame or guilt to motivate completion of tasks, and defensive pessimism may be, were low.

Regarding behavior regulation, there are significant differences between male teachers and female teachers in self-monitoring, control and regulation and self-reflection in favor of female teachers. Regarding self-reflection, girls' schools help female teachers to examine their levels of effort and time management, and make judgments accordingly. Regarding control and regulation, the information that female teachers recognize during the monitoring phase helps them to assess their efforts and times, and therefore, they will increase or decrease their efforts and times. This will help them to control and regulate their behaviors effectively. Regarding self-reflection, girls' schools help female teachers to get correct judgments on their work. This helps female teachers to determine the effective strategies that lead to success. The results indicate also that there is no significant difference between male and female teachers in goal setting and planning, management of time and effort needed to acquire training.

Regarding context regulation, there are significant differences between male teachers and female teachers in self-monitoring and self-reflection in favor of female teachers. Regarding self-monitoring, female teachers outperform male teachers in gaining awareness of the areas that need to be monitored in the work environment and learning how to effectively monitor them. Regarding self-reflection, female teachers used criteria that are based on challenge, enjoyment, and encouragement to evaluate their regulation of the teaching environment, which in turn reflects in their work and performance effectively. The results indicate also that there is no significant difference between male and female teachers in goal setting and planning, and control and regulation. Regarding goal setting and planning, male and female teachers' perceptions of the learning environment and tasks were equal. Regarding control and regulation, the efforts by teachers (male and female) to control, shape, and change factors in the teaching environment were equal.

Regarding teachers' knowledge of self-regulated learning, there is no significant difference between male and female teachers. First, the information gathered from teachers' evaluations and assessments didn't reflect the actual professional level of teachers; therefore, teachers were satisfied with their level. They view themselves as good teachers that don't need to enhance their academic level. Second, the training programs held by the education department do not deal with modern terms such as metacognition and self-regulated learning.

5. Effects of Subject Teaching on Teachers' Beliefs and Teachers' Knowledge about Self-regulated Learning

Regarding teachers' beliefs about self-regulated learning, there is a statistically significant difference between Islamic education teachers and special education teachers in the following sub-skills of the four categories of self-regulated learning: Regarding cognition regulation, the results indicate that there is a significant difference between Islamic Education and Special Education teachers in self-reflection in favor of IE teachers. The authors attribute these results to two reasons: First, the Holy Quran and sayings of Prophet Mohammad, which represent the basics of Islamic education subject, confirms reflection and considers individual actions as well as emphasize the mastery of work, and this reflected on IE teachers' beliefs and practice. On the other hand, SE teachers believe that the procedures of teaching practices are in accordance with constant instructions to deal with the special needs of students. Also, the contents of special education are limited to how to deal with cases of students with special needs from the perspective of humanity only. Second, IE learners are characterized by a variety of capabilities, while SE learners are characterized by constant capabilities. These characteristics of IE learners call for their teachers to reflect on their performance.

Regarding motivation regulation, the results indicate that there is a significant difference between IE and SP teachers in goal setting and planning, self-monitoring, and self-reflection in favor of IE teachers. Considering goal setting and planning, the academic task value of IE teachers was high as a result to the contents of IS subjects, which represent the Holy Quran and sayings of Prophet Mohammad. SE teachers'

academic task value was low. Considering self-monitoring, SI teachers outperform SE teachers in goal setting and planning, leading to superiority in self-monitoring. Considering self-reflection, the expectancies and values created in the self-reflection phase are utilized by teachers in the goal setting and planning phase of the next cycle of the motivational regulation process.

Regarding behavior regulation, the results indicate that there is a significant difference between IE and SP teachers in control and regulation. As a result of the variety of capabilities of IE learners, the teachers will increase the effort and time spent on teaching. Regarding context regulation, perceptions of the teaching environment, tasks, and duties of IE teachers were high according to their students' characteristics and contents of IE subject.

Regarding teachers' knowledge of self-regulated learning, there is no significant difference between IE and SE teachers. Both IE and SE teachers were equal in their training courses and qualifications. The information that was gathered from teachers' evaluations and assessments didn't reflect the actual professional level of IE and SE teachers.

6. Effects of Years of Teaching Experience on Teachers' Beliefs and Teachers' Knowledge about Self-regulated Learning

Regarding teachers' beliefs about self-regulated learning, there is a significant difference between teachers with less than 5 years and teachers with more than 5 years in control and regulation of context regulation in favor of teachers with more than 5 years. Teachers with more than 5 years were outperformed by teachers with less than 5 years in the efforts to control, shape, and change factors in the teaching environment.

Regarding teachers' knowledge of self-regulated learning, there is no significant difference between teachers with less than 5 years and teachers with more than 5 years. The information that was gathered from teachers' evaluations and assessments didn't reflect the actual professional level of the teachers. Therefore, teachers were satisfied with their academic performance. They view themselves as good teachers that don't need to enhance their academic performance. The training programs held by the education district does not deal with modern

terms such as metacognition and self-regulated learning.

CONCLUSION

While most of the previous Arabic studies on SRL have solely focused on assessing whether Arabian students possess the characteristics of self-regulated learners, the present study provides a new perspective to conduct SRL research in Saudi Arabia context by changing the research focus from students to teachers. Pintrich and Zusho's model was adopted as the framework of the current study. Using descriptive comparative design, we examined teachers' beliefs and knowledge of self-regulated learning and examined the effects of gender, subject taught, and years of teaching experience. The results indicate the following: teachers' beliefs about self-regulated learning are high; teachers' knowledge of self-regulated learning are low; there is a significant difference between male teachers and female teachers in beliefs of self-regulated learning, but this significant difference does not exist for teachers' knowledge of self-regulated learning. A significant difference between Islamic education teachers and special education teachers exist in beliefs of self-regulated learning, but this significant difference does not exist for teachers' knowledge of self-regulated learning. A significant difference between teachers with less than 5 years of experience and teachers with more than 5 years of experience in control and regulation of context regulation exist in beliefs of self-regulated learning, but this significant difference does not exist for teachers' knowledge of self-regulated learning.

LIMITATIONS

The first limitation of this qualitative research is its small sample size. The time and labor involved in conducting a quantitative research make it difficult to have a large sample size. The second limitation is that the geographic region involved is also limited, specifically to primary schools in the Northern Border District in Arar city. The third limitation is that the findings may not be applicable to middle and high schools or college classrooms. Finally, the response rate is another limitation. Completion of questionnaires was voluntary and resulted in a low response rate, 42 percent.

RECOMMENDATIONS

1. The results of the current study indicate that teacher's knowledge of SRL was low; hence, the in-service teacher training programs should aim to promote SRL knowledge of teachers, in order to practice self-regulated learning strategies in their classrooms.
2. The current results call for teacher preparation programs to review their programs and see whether their training programs include such critical elements like SRLS to help future teachers acquire how to learn skills.
3. Since Pintrich and Zusho's model of self-regulated learning is a comprehensive model that indicates all dimensions of learning (cognition, behavior, motivation, and context), it should be taken into account when policy makers plan to set up training programs for in-service teachers.
4. Future studies should search for possible moderators that may influence the correlations between teachers' beliefs and teachers' knowledge about self-regulated learning, such as trainers' attitudes and hypermedia integration with self-regulated learning.
5. The main limitation of the present study is that it examined teachers' beliefs and knowledge by means of self-report instruments and not through the actual use of self-regulated learning practices in the classrooms. Future research should link teachers' beliefs, teachers' knowledge, and teachers' practices via more objective measures, such as observations cards.

REFERENCES

- Agustiani H, Cahyadi S, Musa M 2016. Self-efficacy and self-regulated learning as predictors of students' academic performance. *The Open Psychology Journal*, 9(1): 1-6.
- Arsal Z 2010. The effects of diaries on self-regulation strategies of preservice science teachers. *International Journal of Environmental and Science Education*, 5(1): 85-103.
- Azevedo R, Cromley JG 2004. Does training on self-regulated learning facilitate students' learning with hypermedia? *Journal of Educational Psychology*, 96: 523-535.
- Baker L 2005. Developmental differences in metacognition: implications for metacognitively oriented reading instruction. In: SE Israel, CC Block, KL Bauserman, K Kinnucan-Welsch (Eds.): *Metacognition in Literacy Learning: Theory, Assessment, Instruction, and Professional Development*. New Jersey/USA: Lawrence Erlbaum Associates, Inc., Publishers pp. 61-79.
- Baker L 2008. Metacognition in comprehension instructions. In: CC Block, SR Parris (Eds.): *Comprehension Instruction: Research-based Best Practices*. New York: Guilford Press, pp. 65-79.
- Bandura A 1997. *Self-efficacy: The Exercise of Control*. New York: Freeman.
- Bembenutty H 2011. *Self-regulated Learning: New Directions for Teaching and Learning*. Hoboken: John Wiley and Sons.
- Bembenutty H 2006. Teachers' Self-efficacy Beliefs, Self-regulation of Learning and Academic Performance. *Paper Presented at the Annual Meeting of the American Psychological Association*, New Orleans, LA, 12 August.
- Boekaerts M 1997. Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers and students. *Learning and Instruction*, 7(2): 161-186.
- Butler DL 2003. Self-regulation and Collaborative Learning in Teachers' Professional Development. *Paper Presented at the Biannual Meetings of the European Association for Research in Learning and Instruction (EARLI)*, Padua, Italy.
- Butler DL, Schnellert L 2012. Collaborative inquiry in teacher professional development. *Teaching and Teacher Education*, 28: 1206-1220.
- Buzza D, Allinotte T 2013. Preservice teachers' self-regulated learning and their developing concepts of self-regulated learning. *Brock Education*, 23(1): 58-76.
- Calderhead J 1996. Teachers: Beliefs and knowledge. In: D Berliner, R Calfee (Eds.): *Handbook of Educational Psychology*. New York: Macmillan Library Reference, pp. 709-725.
- Calderhead J, Robson M 1991. Images of teaching: Student teachers' early conceptions of classroom practice. *Teaching and Teacher Education*, 7: 1-8.
- Capa Aydin Y, Sungur S, Uzuntiryaki E 2009. Teacher self regulation: Examining a multidimensional construct. *Educational Psychology: An International Journal of Experimental Educational Psychology*, 29(3): 345-356. DOI: 10.1080/01443410 902927825
- Cleary TJ, Zimmerman BJ 2002. Self-regulation empowerment program: A school-based program to enhance self-regulated and self-motivated cycles of student learning. *Psychology in the Schools*, 41(5): 537-550.
- De kock A, Slegers P, Voeten MJ 2005. New learning and choices of secondary school teachers when arranging learning environments. *Teaching and Teacher Education*, 21: 799-816.
- Dignath C, Büttner G 2008. Components of fostering self-regulated learning among students: a meta-analysis on intervention studies at primary and secondary school level. *Metacognition and Learning*, 3: 231-264.
- Dignath C, Büttner G, Langfeldt HP 2008. How can primary school students acquire self-regulated learning most efficiently? A meta-analysis on interventions that aim at fostering self-regulation. *Educational Research Review*, 3: 101-129.
- Dix AC 2009. *Teachers' Beliefs and Practices about Self-regulated Learning in Secondary Mathematics Classrooms*. Doctoral Dissertation. Florida/USA: University of Florida. From <<http://search.proquest>.

- com/> Available from Dissertations and Theses Database. (UMI NO.3440894). (Retrieved on 14 June 2014).
- Ertmer PA 2005. Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *Educational Technology Research and Development*, 53(4): 25–39.
- Fang Z 1996. A review of research on teacher beliefs and practices. *Educational Research*, 38: 1: 47-65.
- Fernandez-Rio J, Cecchini JA, Mendez-Gimenez A et al. 2017. Self-regulation, co-operative learning, and academic self-efficacy: Interactions to prevent school failure. *Front Psychol*, 8(22): 1-10.
- Ferreira PC, Simao AM 2012. Teaching practices that foster self-regulated learning: A case study. *Educational Research Journal*, 1(1): 1-16.
- Fuchs LS, Fuchs D, Prentice K, Burch M, Hamlett CL et al. 2003. Enhancing third grade students' mathematical problem solving with self-regulated learning strategies. *Journal of Educational Psychology*, 95(2): 306- 315.
- Goodman J 1988. Constructing a practical philosophy of teaching: A study of preservice teachers' professional perspectives. *Teaching and Teacher Education*, 4: 121-137.
- Hagger H, Burn K, Mutton T, Brindley S 2008. Practice makes perfect? Learning to learn as a teacher. *Oxford Review of Education*, 34(2): 159-178.
- Hermans R, Van Braak J, Van Keer 2008. Development of the beliefs about Primary Education Scale: distinguishing a developmental and transmissive dimension. *Teaching and Teacher Education*, 24(1): 127–139.
- Jayawardena P, Kraayenood C, Carroll A 2017. Promoting self-regulated learning in science: A case study of a Sri Lankan secondary school science teacher. *International Journal of Information and Education Technology*, 7(3): 195-198
- Kagan DM 1992. Implications of research on teacher belief. *Educational Psychologist*, 27(1): 65-90.
- Kiprop JM, Verma N 2013. Teacher education and globalization: Implications and concerns in the 21st century. *Educational Quest*, 4(1):13-18.
- Kistner S, Rakoczy K, Otto B, Ewijk CD, Büttner G et al. 2010. Promotion of self-regulated learning in classrooms: Investigating frequency, quality, and consequences for student performance. *Metacognition and Learning*, 5: 157-171.
- Kramarski B, Michalsky T 2009. Investigating pre-service teachers' professional growth in self-regulated learning environments. *Journal of Educational Psychology*, 1: 161-175.
- Kreber C, Castleden H, Erfani N, Wright T 2005. Self-regulated learning about university teaching: An exploratory study. *Teaching in Higher Education*, 10(1): 75-97.
- Kurt G 2010. *Pre-service Elementary Mathematics Teachers' Self-regulated Learning Strategies within the Context of Their Teaching Practices*. PhD Dissertation, Unpublished. Middle East Turkey: Technical University.
- Lau KL 2013. Chinese language teachers' perception and implementation of self-regulated learning-based instruction. *Teaching and Teacher Education*, 31: 56-66.
- Lavasani MG, Mirhosseini FS, Hejazi E et al. 2011. The effect of self-regulated learning strategies training on the academic motivation and self-efficacy. *Procedia-Social and Behavioral Sciences Journal*, 29: 627-632.
- Little JW 2003. Inside teacher community: Representations of classroom practice. *Teachers College Record*, 105(6): 913-945.
- Lombaerts K, Engels N, Van Braak J 2009. Determinants to teachers' recognitions of self-regulated learning practices in elementary education. *The Journal of Educational Research*, 102: 163-173.
- Malpique AS 2014. *Implementing Self-regulated Strategies Development for Teaching Argumentative Writing: A Multidimensional Approach*. PhD Thesis, Unpublished. Lisbon: University of Lisbon.
- Manning BH, Payne BD 1993. A Vygotskian-based theory of teacher cognition: Toward the acquisition of mental reflection and self-regulation. *Teaching and Teacher Education*, 9(4): 361-371.
- Masui C, De Corte E 2005. Learning to reflect and to attribute constructively as basic components of self-regulated learning. *British Journal of Educational Psychology*, 75(3): 351-372.
- Muehl D 2015. *The Effectiveness of Self-regulated Strategies on On-task Behaviors of a Student with Attention Deficit Hyperactivity Disorder*. Master Theses, Unpublished. Indiana: Indiana University.
- Mullin A 2011. *Teacher Knowledge of Cognition, Self-regulated Learning Behaviors, Instructional Efficacy, and Self-regulated Learning Instructional Practices in High, Moderate, and Low ELA Achieving and Moderate Need Elementary Schools*. PhD Dissertation, Unpublished. New York: Dowling College, Oakdale.
- Nespor J 1987. The role of beliefs in the practice of teaching. *Journal of Curriculum Studies*, 19: 317-328.
- Pajares MF 1992. Teachers beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62(3): 307-332.
- Pajares F 1997. Current directions in self-efficacy research. In: M Maehr, PR Pintrich (Eds.): *Advances in Motivation and Achievement*. Greenwich, CT: JAI Press, pp. 1-49.
- Perels F, Gürtler T, Schmitz B 2005. Training of self-regulatory and problem solving competence. *Learning and Instruction*, 15(2): 123-139.
- Perry NE 1998. Young children's self-regulated learning and contexts that support it. *Journal of Educational Psychology*, 90: 715-729.
- Perry NE, VandeKamp KO 2000. Creating classroom contexts that support young children's development of self-regulated learning. *International Journal of Educational Research*, 33: 821-843.
- Perry NE, VandeKamp KO, Mercer LK, Nordby CJ. 2002. Investigating teacher-student interactions that foster self-regulated learning. *Educational Psychologist*, 31: 5-15.
- Perry NE, Phillips L, Hutchinson L 2006. Mentoring student teachers to support self-regulated learning. *The Elementary School Journal*, 106: 237-254.
- Perry NE, Hutchinson L, Thauberger C 2007. Mentoring student teachers to design and implement literacy tasks that support self-regulated reading and writing. *Reading and Writing Quarterly*, 23: 27-50.
- Perry N, Hutchinson L, Thauberger C 2008. Talking about self-regulated learning: Scaffolding student

- teachers' development and use of practices that promote self-regulated learning. International. *Journal of Education and Research*, 47(2): 97-108.
- Perry NE, Rahim A 2011. Studying self-regulated learning in classroom. In: BJ Zimmerman, DH Schunk (Eds.): *Handbook of Self-regulation of Learning and Performance*. New York: Routledge Press, pp. 122-136.
- Pintrich PR 1999. The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research* 31(6): 459-470.
- Pintrich PR 2000. Multiple goals, multiple pathways: the role of goal orientation in learning and achievement. *Journal of Educational Psychology*, 92: 544-555.
- Pintrich PR 2005. The role of goal orientation in self-regulated learning. In: M Boekaerts, PR Pintrich, M Zeidner (Eds.): *Handbook of Self-regulation*. San Diego: Academic Press, pp. 451-502.
- Pintrich PR, Roeser RW, DeGroot EA 1994. Classroom and individual differences in early adolescents' motivation and self-regulated learning. *Journal of Early Adolescence*, 14: 139-161.
- Pintrich PR, Zusho A 2007. Student motivation and self-regulated learning in the college classroom. In: RP Perry, JC Smart (Eds.): *The Scholarship of Teaching and Learning in Higher Education: An Evidence-based Perspective*. Dordrecht, Netherlands: Springer, pp. 731-810.
- Randi J 2004. Teachers as self-regulated learners. *Teachers' College Record*, 106(9): 1825 -1853. <http://dx.doi.org/10.1111/j.1467-9620.2004.00407.x>
- Renyi J 1996. *Teachers Taking Charge of Their Own Learning: Transforming Professional Development for Student Success*. Washington, DC: National Foundation for the Improvement of Education
- Richardson V, Anders P, Tidwell D et al. 1991. The relationship between teachers' beliefs and practices in reading comprehension instruction. *American Educational Research Journal*, 28: 559-586.
- Sansone C, Weir C, Harpster L et al. 1992. Once a boring task, always a boring task? The role of interest as a self-regulatory mechanism. *Journal of Personality and Social Psychology*, 63: 379-390.
- Schunk DH 1996. Goal and self-evaluative influences during children's cognitive skill learning. *American Educational Research Journal*, 33: 359-382.
- Schunk DH 2004. *Learning Theories: An Educational Perspective*. 4th Edition. Upper Saddle River, NJ: Pearson Prentice Hall.
- Schunk DH, Ertmer PA 2000. Self-regulation and academic learning: Self-efficacy enhancing interventions. In: M Boekaerts, PR Pintrich, M Zeidner (Eds.): *Handbook of Self-regulation*. San Diego: Academic, pp. 631-649.
- Seker M, Dincer A 2016. Teacher transformation as a basis for the promotion of self-regulated language strategies. *Literacy Information and Computer Education Journal*, 7(1): 2206-2210.
- Simon MA, Tzur R, Heinz K, et al. 2000. Characterizing a perspective underlying the practice of mathematics teachers in transition. *Journal for Research in Mathematics Education*, 30(4): 579-601.
- Smith KE, Croom L 2000. Multidimensional self-concepts of children and teacher beliefs about developmentally appropriate practices. *Journal of Educational Research*, 93: 312-321.
- Spruce RS 2012. *Teacher Beliefs, Knowledge, and Practice of Metacognition and Self-regulation Learning*. PhD Thesis, Unpublished. Virginia: Old Dominion University.
- Tillema HH 1995. Changing the professional knowledge and beliefs of teachers: A training study. *Learning and Instruction*, 5: 291-318.
- Tillema HH, Kremer-Hayon L 2005. Facing dilemmas: teacher-educators' ways of constructing a pedagogy of teacher education. *Teaching and Teacher Education*, 10(2): 203-217.
- Trigwell K, Prosser M 1996. Changing approaches to teaching: A relational perspective. *Studies in Higher Education*, 21: 275-284.
- Turner JC 1995. The influence of classroom contexts on young children's motivation for literacy. *Reading Research Quarterly*, 30: 410-441.
- Vacc NN, Bright WB 1999. Elementary preservice teachers; changing beliefs and instructional use of children's mathematics thinking. *Journal for Research in Mathematics Education*, 29(1): 89 - 110.
- Wang X 2017. A research design: Investigating the effects of self-regulated learning strategies on EFL learners' writing performance: A case study of a Chinese university. *World Journal of Educational Research*, 4(1): 197-215.
- Weiner B 1986. *An Attributional Theory of Motivation and Emotion*. New York, NY: Springer-Verlag.
- Wolters C 1998. Self-regulated learning and college students' regulation of motivation. *Journal of Educational Psychology*, 90(2): 224-235.
- Yidizli H, Saban A 2016. The effect of self-regulated learning on sixth-grade Turkish students' mathematics achievements and motivational beliefs. *Cogent Education*, 3(1): 1-17.
- Zimmerman BJ 2001. Theories of self-regulated learning and academic achievement: An overview and analysis. In: BJ Zimmerman, DH Schunk (Eds.): *Self-regulated Learning and Academic Achievement: Theoretical Perspectives*. 2nd Edition. Mahwah, NJ: Erlbaum, pp. 1e37.
- Zimmerman 2002. Becoming a self-regulated learner: An overview. *Theory into Practice*, 41(2): 64-70.
- Zimmerman BJ, Schunk DH 2001. *Self-regulated Learning and Academic Achievement. Theoretical Perspectives*. Mahwah: Lawrence Erlbaum.
- Zimmerman BJ, Schunk DH 2011. *Self-regulated Learning and Performance: An Introduction and Overview*. In: BJ Zimmerman, DH Schunk (Eds.): *Handbook of Self-regulation of Learning and Performance*. New York: Routledge Press, pp. 1-15.

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