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Promoting Metacognition in EFL Classrooms through Scaffolding Motivation

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Abstract

Planning, monitoring, and evaluating one's performance constitute individuals' metacognitive strategies. Recently, metacognition has been conceptualized not only at the individual level but also at pair and group levels. The concept of socially-shared metacognition has arisen based on the idea that group members observe, control, evaluate, and regulate each other's actions to promote the group's problem-solving. This article investigated the impact of motivational scaffolds on a group of Iranian EFL learners' individual and socially-shared metacognition. Two groups of 30 female intermediate learners participated in this study. In the experimental group, the participants received the teacher's motivational scaffolds as she provided instructions and feedback throughout individual and collaborative oral and written tasks. On the other hand, the participants in the control group were asked to take part in the routine oral and written classroom activities. The participants' think-aloud protocols in individual and pair activities were analyzed, and instances of metacognitive activities were identified. The data were analyzed through two Mann-Whitney U tests, and the results indicated that motivational scaffolds statistically significantly enhanced the use of metacognitive strategies at both inter and intra-individual levels. Implications for classrooms are discussed.

Keywords: Motivational scaffolds; Metacognition; Socially-shared metacognition

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1. Introduction

Metacognition, most often defined as "thinking about thinking" (Flavell, 1979, p. 906), incorporates individuals' both knowledge and regulation of cognition (Brown, 1978; Flavell, 1979; Schraw, Crippen, & Hartley, 2006). Individuals' awareness of their own limitations and strengths, task characteristics, an array of learning and problem-solving strategies, and the proper time to exploit certain strategies comprise their metacognitive knowledge (Flavell, 1979; Schraw et al., 2006; Schraw & Moshman, 1995). On the other hand, metacognitive regulation includes individuals' ability to plan and monitor their learning process, and evaluate the efficiency of learning activities (Schraw & Moshman, 1995). Metacognitive activities can also take place at the inter-individual level as group members also have to plan and regulate each other's activities when striving to achieve a shared goal (Iiskala, Vauras, & Lehtinen, 2004; Iiskala, Vauras, Lehtinen, & Salonen, 2011; Salonen, Vauras, & Efklides, 2005).

During the last three decades, a large number of studies have attempted to find the optimum techniques and methods to foster metacognitive knowledge and skill (e.g. Callender, Franco-Watkins & Roberts, 2015; Finn & Metcalfe, 2008; Flavell, 1987; Fogarty, 1994; Miller & Geraci, 2011; White & Frederiksen, 2005). Yet, the social nature of metacognition has just been studied and acknowledged for almost a decade (Iiskala et al. 2004, 2011; Salonen et al., 2005; Volet, Vauras, & Salonen, 2009). The term "socially-shared metacognition" (Iiskala et al., 2004, p. 147) refers to the use of metacognitive regulatory activities such as planning, monitoring, and evaluating in collaborative and joint activities. Being "the most profound social mode of regulation" (Iiskala et al., 2011, p.379), socially-shared metacognition occurs during collaborative tasks and aims at accomplishing a mutual goal (Iiskala et al., 2011). This inter-personal level of metacognition is rooted in the view that there is more to the features of a group comprising a social system (Vauras, Salonen, & Kinnunen, 2008), than merely the sum of the individual members' characteristics (Volet et al., 2009). While a few studies on socially-shared metacognition have been conducted in subjects such as mathematics and science, metacognition at peer and group level is still an under-researched area.

In language learning, a context in which the use of metacognitive strategies is evidently manifested is the writing skill. Writers' consciousness and control of the strategies exploited to plan thought, monitor the process of transforming thoughts to text, and evaluate and alter the produced texts are believed to comprise their metacognition (Davis, 2013). As metacognitive strategies at inter/intra personal levels are demanding (Bannert & Mengelkamp, 2013), external assistance is required to elicit such metacognitive behaviors throughout learning tasks. One type of external assistance profusely exploited as an instructional method is scaffolding. Scaffolds can cater for cognitive, metacognitive, affective, and the motivational aspects of learning (Alias, 2012). Despite the prominent role of metacognitive skills in learning and knowledge acquisition (Wang, Haertel, & Walberg, 1990), and the theoretical links between motivation and metacognition (Efklides, 2011), to the best of our knowledge, no study has so far examined whether motivational scaffolding techniques can trigger the use of metacognitive strategies. In an attempt to investigate the effectiveness of scaffolds in promoting metacognition and add to the still scarce body of research into the socially-mediated aspect of metacognition in writing, this study examined the role of motivational scaffolds on the individual and socially-shared metacognitive activities among a cohort of Iranian English learners.

2. Review of the Related Literature

2.1. Metacognition

Metacognitive strategies, such as planning, monitoring, and evaluation, have been traditionally known to be applied by individuals at the intra-personal level when learners engaged in problem-solving tasks. However, recently, metacognition has been operationalized at peer and group levels. The concept of socially-shared metacognition (Hadwin, Oshige, Gress, & Winne, 2010; Hurme, Merenluoto, & Järvelä, 2009; Iiskala et al., 2004) has arisen based on the premise that group members observe, control, evaluate, and regulate each other's actions to promote the group's problem-solving (Panadero & Järvelä, 2015). Each member is expected

to actively "participate in construction of joint cognitive products" (Iiskala et al., 2004, p. 148), and it is the interrelationship between the members in the thinking process that leads to accomplishment of the learning task (Fitzsimons & Finkel, 2010; Iiskala et al., 2004). Interpersonal interaction with peers can elicit goal pursuits and self-control efforts and trigger monitoring of "one's extant goal progress and likelihood of future goal achievement" (Fitzsimons & Finkel, 2010, p. 101).

Second/foreign language writers abundantly draw on metacognitive skills (Davis, 2013) as the successful completion of the writing tasks mandates implementation of strategies such as planning, monitoring, and evaluating (Angelova, 2001; Dülger, 2011). Writers who apply the aforementioned strategies throughout the writing process reportedly produce texts of higher quality (Bereiter & Scardamalia, 1987). Metacognitive activities in writing can also occur at the inter-individual level (Jafarigohar & Mortazavi, 2016; Larkin, 2009). In pair and group writing activities, in which learners cooperate to jointly produce texts, metacognitive strategies and regulatory skills are applied to direct the joint activity and ease the achievement of shared goal (i.e. the creation of texts) (Jafarigohar & Mortazavi, 2016). Given the importance of the social aspects of writing as highlighted in recent models of writing (e.g. Yarrow & Topping, 2001), we should seek instructional methods that enhance the use of metacognitive activities at both intra- and inter-individual level. Yet, in the context of writing skill, an extensive search revealed only two studies on the social aspect of metacognition. Larkin (2009) explored whether young native speakers of English were able to apply metacognition at group level and reported instances of using socially-mediated metacognition. This study, however, failed to examine the possible causal relationship between the social aspect of metacognition and any specific instructional technique or setting, and as a result, did not illuminate how instructional techniques might foster the implementation of metacognitive activities at inter-personal level.

The only study investigating a link between the employment of certain instructional method and the use of socially-shared metacognition is that of Jafarigohar and Mortazavi (2016). They studied the impact of structuring and

problematizing the task on a cohort of Iranian English learners' individual and socially shared metacognition in writing skills. The results revealed that providing learners with either task-structuring models and explanations or problematizing prompts led to significant improvements in both learners' individual and socially shared metacognition. It was further found that when structuring and problematizing mechanisms were offered simultaneously, they functioned more efficiently.

2.2. Scaffolding

Scaffolding is defined as the provision of assistance and guidance to learners when engaged in learning activities and the gradual withdrawal of the assistance as learners demonstrate mastery signs (Wood, Bruner, & Ross, 1976). Scaffolds are designed to enable learners to develop understandings beyond their immediate knowledge level and abilities to perform similar tasks independently in the future (Reiser, 2004). Alias (2012) identified three main categories of scaffolds in the literature, namely cognitive, metacognitive, and affective or motivational scaffolds. Alias argued that while

> cognitive and metacognitive scaffolds provide assistance, support, hints, prompts, and suggestions regarding the content, resources, and strategies relevant to problem solving and learning management, motivational scaffolds involve techniques designed to maintain or improve the learner's motivational state, such as attribution or encouragement. (p. 138)

Alias (2012) stated that the majority of research in the area of scaffolding address cognitive and meta-cognitive scaffolding, and recommended the exploitation of motivational scaffolds in the form of strategies eliciting and rewarding learners' confidence and making learners' accomplishments explicit. By the same token, Belland, Chan Min, and Hannafin (2013) and Chen (2014) drew attention to the paucity of research on motivational scaffolds, and the necessity of designing and conducting research on scaffolds catering for learners' motivational needs. Chen, similarly, emphasized the need for designing scaffolds that "not only focus on students' features such as cognitive status, but psychological traits that

affect their learning" (p. 342), arguing that scaffolds should, among other things, aim to foster learners' motivation while they acquire conceptual knowledge. Chen drew upon the theory of zone of motivational proximal development (Brophy, 1999) as well as self-determination theory (Deci & Ryan, 1985) to argue for the possibility of devising scaffolding strategies that foster intrinsic and extrinsic motivation. Belland et al. (2013), likewise, argued that even though all types of scaffold are intended to make learning tasks more controllable which, in turn, increases success expectancies and contributes to motivation, scaffolds specially designed to assist learners in maintaining motivation and interest can be even more productive.

Drawing on previous research on motivation, Belland et al. (2013) presented a comprehensive list of practical guidelines for scaffolding motivation through establishing task value, promoting mastery goals, increasing the sense of belonging, fostering emotion regulation, increasing success expectancy, and encouraging autonomy. The list includes seventeen guidelines manifested through one or more scaffolding strategies. For instance, referring to the findings of a study by Thoman, Smith, Brown, Chase, and Lee (2013), Belland et al. introduced the exploitation of peer-modeling to help learners view the task as neither too difficult nor too easy as a classroom scaffolding strategy. This scaffolding technique serves the goal of promoting the perception of optimal challenge which in turn is listed among the guidelines suggested for increasing success expectancy.

Previous studies have examined the effect of motivational scaffolds on learning (Tuckman, 2007), and motivation (Rebolled-Mendez, du Boulay, & Luckin, 2006, Rodrigo et al., 2008). In his model of self-regulation, Efklides (2011) argued for the existence of interaction between motivation and metacognition as two of the components of self-regulated learning. He contended that the three elements of the model, the third one being affect, affect and are affected by each other. To date, despite the existence of established theoretical links between motivation and metacognition (Efklides, 2011), the small number of attempts recently made to examine the links between motivation and metacognition have mainly been correlational in design (e.g., Jiang & Kleitman, 2015). Thus far, no study has

attempted to provide empirical support for the effectiveness of the motivational scaffolding strategies in promoting metacognition. Moreover, "research on motivational or affective scaffolding is relatively scarce" (Alias, 2012, p. 138), and more research needs to be conducted on the application of scaffolds devised to foster motivation in educational settings (Bellad et. al, 2013; Chen, 2014). In addition, Panadero and Järvelä (2015) called for studies examining the factors and conditions contributing to improvements in socially-shared metacognition. Thus, this study is an attempt to determine the effects of motivational scaffolds as suggested by Belland et al. (2013) on the use of individual and socially-shared metacognitive activities among a cohort of Iranian female English learners. This study aims at answering the following two questions:

1) Do motivational scaffolds significantly increase the participants' use of metacognitive skills in individual writing tasks?
2) Do motivational scaffolds significantly increase the participants' use of socially-shared metacognitive skills in collaborative writing tasks?

3. Method

3.1. Participants

Participating learners: Two groups of female Iranian EFL learners each consisting of 30 learners were chosen from four intact intermediate classes in an English language school. The participants whose age ranged between 18 and 46 (M = 29.43, SD = 6.92) had all successfully passed Cambridge Preliminary English Test. In the experimental group (EG), the participants' received motivational scaffolding strategies as proposed by Belland et al. (2013) both in one-to-one teacher and learner interactions and whole class instructions and feedback. They also benefited from the teacher's feedback on their writing assignments and drafts attuned with the guidelines in Belland et al.'s framework. The participants in the control group (CG), on the other hand, were asked to take part in the routine oral and written classroom tasks. Each session, they were assigned a reading, writing, listening, and/or speaking activity which they carried out under the teacher's guidance. They were at times asked to do the tasks in pairs or groups. The classroom activities

were chosen from the *Total English Books series*, the intermediate book (Clare & Wilson, 2006). Nevertheless, they were not given any scaffolds particularly designed to boost and maintain their motivation throughout the term which consisted of 42 hours of instruction.

The two groups were organized in a way as to include the learners of no more than two classes. The same teacher taught the learners in each group. Although all the learners in the four classes received the treatment and took the pretest and the posttests, only the scores of the selected participants were considered for data analysis.

The teachers: The teacher selected for the EG, an experienced teacher holding a Master's degree in Teaching English as a Foreign Language, attended two briefing sessions on the aim of the study and motivational scaffolding and was presented with the guidelines and strategies in Belland et al.'s (2013) framework. Lasting one hour, each briefing session included the second author's explanations on the nature of motivational scaffolds and exhaustive exemplifications of the motivational scaffolding techniques drawn from Belland et al.'s list. The provision of explanations in the two briefing sessions was followed by a thirty-minute question and answer session in which the questions of the teacher were answered thoroughly. The CG teacher, on the other hand, followed the routine schedule of the class and minimized utilization of the strategies listed in Belland et al.'s framework while interacting with and providing oral or written feedback to the learners.

3.2. Design

This study followed a quasi-experimental design using a pretest and a posttest of individual and socially-shared metacognition for each group. The pre and posttest scores were obtained based on the analysis of think-aloud protocols. The participants in the two conditions were required to write both an individual and a collaborative argumentative paper prior to and immediately after the intervention. They were asked to record their voices using an MP3 player or their mobile phones while engaged in the writing activities in pre/posttests. The think-aloud protocols were later analyzed to identify the instances of metacognitive strategies use by individuals/pairs.

To eliminate the possible effect of writing skill on the results, the researchers analyzed the individual papers in the pretest using the analytic rubric proposed by Elson (2011). Two trained raters rated 15 (i.e. 25.55% of the) papers, and the inter-rater reliability was estimated as Cohen's Kappa = 0.79. The differences were resolved through discussions, and the rest of the papers were rated by the second rater. The result of the t-test showed no significant differences between the performance of the EG (M = 17.86, SD = 3.54) and that of the CG (M = 17.43, SD = 3.82), t (58) = .45, p <.05. This indicated that the two groups were homogeneous with regard to the writing skill prior to the treatment.

3.3. Instruments

The writing skill was chosen as the context for the measurement of the metacognitive skills since, as previously mentioned, the application of metacognitive strategies is perceptibly manifested in the learners' efforts to accomplish writing tasks (Angelova, 2001; Dülger, 2011).

Analytic rubric by Elson (2011): Elson's (2011) rubric (Min = 0, Max = 30) draws on the argumentation model as proposed by Toulmin (2003) and assesses the quality of the argument essays in terms of claims, grounds, warrants, backings, and rebuttals. This rubric was employed to measure and make sure homogeneity in terms of writing ability prior to the treatment.

Individual writing think-aloud protocols: The participants' use of metacognitive strategies in individual writing assignments was measured by think-aloud protocols of the individually-written argumentative papers. Nonetheless, given the demands of analyzing think-aloud protocols for large samples, from each group 15 participants were randomly selected for the protocol analysis.

Prior to analyzing the individual writing protocols, the researchers attempted to diminish coders' possible bias by removing participants' personal information and assigning numbers to the copies of the transcribed protocols. The segments signaling planning, monitoring, and evaluating one's performance were found and counted, drawing on Brown's (1978) and Flavell's (1979) postulations on metacognitive skills. Twenty-five percent of the gathered data were coded by two

trained coders, and the inter-coder's agreement was estimated (Cohen's Kappa = 0.84). The discrepancies were resolved by discussion, and the rest of the data were analyzed by the second coder.

Collaborative writing think-aloud protocols: The coding scheme proposed by Iiskala et al. (2004, 2011) was adopted to analyze the think-aloud protocols of the collaborative writing tasks and to measure the use of metacognition at inter-personal level in pre and posttests. Iiskala et al. suggested the episodes in which learners make efforts to regulate and monitor each other's cognitive working process should be regarded as socially-shared metacognition episodes. To them, such episodes did not contain turns in which learners merely talk aloud while planning or monitoring their own behavior. Iiskala et al. (2011) contended that in an episode of socially-shared metacognition learners make efforts to regulate each other's cognition to reach a common goal in a way that their "reciprocal turns together affected the course of the process" (p. 384). The following is an example of a metacognitive episode recorded in the pretest:

> Learner 1: How should we end this paragraph?
>
> Learner 2: We have to have about five or six lines, I think, in each paragraph so I think we should end it here.
>
> Learner 1: But I think we need to have one more reason here. It seems short.
>
> Learner 2: Okay so let's have an example, a supporting example. Let's write about the use of the internet in communication when we are on a trip and want to contact our family.
>
> Learner 1: Okay.

Like the procedure followed to analyze individual writing protocols, anonymity of participants was preserved to reduce any possible bias on the part of coders. Ten percent of the gathered data were coded by two trained coders, and the inter-coder's agreement was estimated (Cohen's Kappa = 0.85). The rest of data were analyzed merely by the second coder. The number of turns reflecting socially-shared metacognitive activities for each pair was tallied and a total number was obtained to calculate the frequency of socially-shared metacognitive turns. The turns within

episodes of socially-shared metacognition were labeled as socially-shared metacognitive turns.

3.4. Procedures

The treatment included the provision of motivational scaffolds adopted from the detailed list by Belland et al. (2013) in the oral and written activities and class discussions throughout teacher-learner interactions. Those strategies that could be linked to and exploited in the oral and written class activities were selected from the framework. In the individual activities, the EG learners were asked to either describe something/somebody or articulate agreement or disagreement with a statement and state their reasons. In oral or written individual activities, the EG teacher adapted her instruction language to the one mostly experienced in the class by the learners. Besides, she selected themes and topics in accordance with the learners' interests and world knowledge. Moreover, setting short-term goals for such activities was encouraged and modeled, and the prominent role of oral and written description and argumentation in international exams and academic settings was explained and brought to the participants' attention. To provide learners with feedback on their individual performance, the teacher highlighted basic elements of the task and asked them to reflect on and assess their performance. The learners were also encouraged to ponder and judge the efficacy of the strategies they had used.

In collaborative or whole class oral activities, the learners were given a controversial topic and were asked to take part in a discussion to stipulate their stance. The individual and cooperative writing tasks included descriptive and argumentative genres. Similarly, motivational scaffolds were employed when giving direction and feedback on activities requiring inter-personal interactions. Throughout the treatment, the learners participated in five class discussions and two individual oral tasks. They were also asked to write two individual and two collaborative essays. Table 1 below demonstrates how the EG teacher adapted her classroom behavior attuned with the motivational scaffolding strategies while interacting with the learners in oral / written activities.

Table 1
The EX teacher's practices in line with motivational scaffolds in Belland et al.' (2013) framework

Scaffolding strategies as suggested by Belland et al. (2013)	**EX teacher's practices**
Prompt students to choose an aspect of the problem that connects to their interests	In the whole class discussions, the teacher encouraged the learners to relate the discussion topic to their life and add personal anecdotes. In the writing tasks, the learners were given options to choose the topic of their interest.
Use language that is congruent with students' everyday experiences when describing tasks/content	The teacher adapted the structure of her language and the pace of her speech in line with the level of the learners when giving instructions.
Provide explanatory rationales for relevance to current and future life	The teacher kept reminding the learners of the fact that oral interviews and essay writing play a significant role in the international exams such as IELTS. Besides, the teacher highlighted the significance of each oral and written task in the achievement of the goal of the lesson and promotion of their

	proficiency.
Embed expert modeling to illustrate how process is used in authentic settings	Prior to requiring the learners to engage in whole class discussions or to individually describe something or to argue for or against and issue, the teacher modeled the activity by expressing her own opinion. The teacher also provided the learners with model essays.
Prompt the creation of short-term goals.	The teacher prompted the learners to plan their talk and to set short-term goals. The learners were also asked to go through the pre-writing phase and plan the content and organization of their paper within ten minutes.
Focus feedback on substantive elements of student work	Ignoring the minor, local errors, the teacher focused her feedback on the global errors impeding the comprehension of the intended message in both oral and written tasks.
Embed reminders to self-congratulate for successes	The teacher praised the learners for successfully achieving an oral task and asked the learners to award themselves for their own

	success.
Highlight importance of cooperation rather than competition	The learners were encouraged to assist each other in posing the arguments in class discussions.
Explain that failures are a natural part of learning, and encourage students to reflect on causes of past failures, and what could have been done differently	The teacher asked the learners to reflect on their performance, consider alternative strategies, and collect their reflective notes in a notebook.
Persuade students that they can accomplish the task	The teacher kept reassuring the learners that the oral tasks had been selected in accordance with their proficiency level and were thus achievable.
Encourage students to articulate strategy used, associated short-term goal, and whether it was a strategy they would use again, and why	The learners were encouraged to include the perceived efficacy of the strategies the made use of in their reflective notes.
Incorporate only non-controlling language in scaffolding messages	The teacher avoided using controlling language when giving instructions and providing feedback.

Embed support for scheduling project segments/processes	The teacher suggested scheduling and modeled planning in individual oral activities.
Embed support for students to self-evaluate strategy use	The learners were encouraged to reflect on the role of the employed strategies in the achievement of the goals.

4. Results

As in each group only 15 protocols had been analyzed and 15 scores were available, the nature of data did not allow the employment of parametric tests. Thus, a Mann-Whitney U test was run to answer the first research question and to compare the two groups in terms of their gains with regard to the number of the instances of metacognitive strategies use in the individual writing tasks. The gains were calculated through subtracting the pretest scores from the posttest ones. The learners' individual metacognition pretest, and posttest scores, as previously stated, were calculated by analyzing the individual think-aloud protocols and counting the number of the instances in which the learners' had demonstrated the use of any of metacognitive activities (e.g. planning, self-monitoring, and self-evaluating). Shown in Table 2 is the descriptive statistics of the use of individual metacognitive strategies in the two groups.

Table 2
Descriptive statistics: Individual metacognitive strategies in the two groups

Group	Test	Number	Median	Mean Rank	Min	Max	M (SD)
EX	Pretest	12	10.50	12.62	9.00	12.00	10.50(1.16)
	Posttest	12	22.00	18.42	16.00	26.00	21.33(3.79)
CG	Pretest	12	10.00	12.38	8.00	13.00	10.53(1.97)
	Posttest	12	11.00	6.58	9.00	16.00	11.83(2.48)

As Table 2 depicts, in the pretest, the EG employed almost as many metacognitive strategies as the CG did. However, in the posttest, the EG (M = 21.33, SD = 3.79) demonstrated superiority in their ability to apply metacognitive skills when compared to the CG (M = 11.83, SD = 2.48).

The Mann-Whitney U test indicated that the gain in the number of metacognitive strategies from pretest to posttest was statistically significantly higher in the EG with the Mean Rank of 18.50, when compared to the CG with a Mean Rank of 6.50, U= .00, p <.05, r = .86.

The second Mann-Whitney U test was run to compare the gains in terms of the number of socially-shared metacognition episodes and to find the answer to the second research question. In the pretest, the EG generated 975 turns, 572 of which were coded as socially-shared metacognitive turns in the 143 episodes. Moreover, 1102 turns were coded for the CG out of which 462 were coded as socially-shared metacognitive turns embedded in 144 episodes. In the posttest, out of the 1886 identified turns for the EG 1096 were coded as socially-shared metacognitive ones in 274 episodes. Furthermore, a total of 1003 turns were found for the CG posttest. Four hundred and thirty-five of these turns in 143 episodes were coded as socially-shared metacognitive turns. Table 3 below demonstrates the descriptive statistics of the frequency of socially-shared metacognitive strategies in the two groups.

Table 3
Descriptive statistics: Socially-shared metacognitive episodes in the two tasks

Group	Test	Number	Median	Mean Rank	Min	Max	M (SD)
EX	Pretest	15	9	14.83	7.00	13.00	9.53(2.06)
	Posttest	15	17	23.00	15.00	23.00	18.26(2.54)
CG	Pretest	15	9	16.17	7.00	14.00	9.86(2.32)
	Posttest	15	9	8.00	7.00	13.00	9.53 (1.72)

As shown in Table 3, the EG (M = 9.53, SD = 2.06) used roughly the same number of metacognitive skills as the CG (M = 9.86, SD = 2.32). Nevertheless, in the posttest, in the EX, on average there were 18.26 instances of metacognitive skills in the interpersonal level. While On average, the learners of the CG employed socially-shared metacognitive skills almost 10 times.

The Mann-Whitney U test indicated that the increase in the number of socially-shared metacognition episodes was significantly higher in the EG, U= .00, p <.05, r = .87. It was, therefore, found that motivational scaffolds could promote the use of socially-shared metacognitive strategies in collaborative tasks.

5. Discussion

The results indicated that motivational scaffolds increased the learners' use of metacognitive skills at both intra- and inter-individual levels. The results can be justified in the light of the techniques used as motivational scaffolds. For one thing, Belland et al.'s (2013) guidelines on motivational scaffolds, among other things, included persuading learners to believe in their own capabilities to accomplish the

task and reminding them to congratulate themselves for task fulfillment. Verbal persuasion improves learners' self-efficacy (Bandura, 1997), a construct directly pertinent to the thought monitoring and controlling skills (Moores, Chang, & Smith, 2006; Rahimi & Abedi, 2014). Bandura (1997) identified four sources of self-efficacy including performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal and maintained that verbal persuasion can build self-efficacy when individuals are praised for their competence and consistent efforts. Self-efficacy also develops from mastery experiences, and modeling (Bandura, 1977, 1997), which are both encouraged in the Belland et al.'s (2013) framework. Several studies (e.g. Cera, Mancini, & Antonietti, 2013; Moores et al., 2006; Rahimi & Abedi, 2014) reported a high correlation between self-efficacy beliefs and metacognition. One can plausibly argue that the verbal persuasion and model provision techniques exploited as motivational scaffolds in the current study have fostered the learners' self-efficacy which in turn has positively affected their metacognitive skills.

Additionally, the motivational scaffolds adopted in this study comprised other techniques reported to foster motivation. These techniques include, among other things, linking the task to the learners' personal life and interest, choosing the difficulty level of the task and instructions attuned with the level of the learners, and highlighting the ties between the task at hand and future tasks and life.

The results of this study provide empirical backing for the motivation and affect in self-regulated learning (MASRL) model proposed by Efklides (2011), who introduced motivation and metacognition as two components of self-regulated learning that interact and affect each other. This model of self-regulation "extends" (Efklides, 2011, p. 21) the previous ones by explaining the possible interactions among metacognition, motivation, and affect and by emphasizing the underlying mechanisms of self-regulated learning. The model predicts that motivation is associated with metacognitive strategies such as planning and monitoring (Efklides, 2011), which was confirmed by the results of the present study. The results are also in line with those gained in a correlational study by Jiang and Kleitman (2015) who reported self-enhancement, a motivational factor, to positively predict metacognitive beliefs. The current study contributed to the field

through proving a causal relationship between motivation and metacognition which can in turn prompt the postulation of more intricate and comprehensive models of factors affecting learning.

The findings of this study echo recommendations by Boyer, Phillips, Wallis, Vouk, and Lester (2008) regarding the deployment of motivational scaffolds in educational settings and offering a balanced diet of motivational and other types of scaffolds. The results also lend support to the practical convenience and effectiveness of Belland et al.'s (2013) framework in language learning classroom settings.

With regard to the role of motivational scaffolds on socially-shared metacognition, the present study has made a unique contribution to the literature by introducing an intervention, namely the exploitation of motivational scaffolds, which affected socially-shared metacognition. Arguing that most available studies on socially-shared metacognition have descriptive nature, Panadero and Järvelä (2015) regarded more empirical research on and implementation of interventions to improve socially-shared metacognition as required. Having reviewed research on the topic, they reported no study in which an intervention had been used to promote socially-shared metacognition and no study that had compared the intervention group with a control one. The current study, therefore, shed some lights on and should trigger more research into the ways socially-shared metacognition can be promoted in cooperative writing tasks. The results of this study suggest that even the deepest mode of metacognition, its social mode, can be fostered when instructional techniques are designed so as to satisfy the learners' affective needs. This highlights the importance of affective factors in learning contexts in general and in language learning contexts in particular.

Finally, the fact that motivational scaffolds were found to positively impact both metacognition and socially-shared metacognition can provide an empirical support for the validity of the concept of socially-shared metacognition as a form of metacognition manifested in group dynamism. In this way, the findings of this

study have added to still scarce body of research on the socially-mediated nature of metacognition.

6. Conclusion

The findings of the present study introduced motivational factors as significantly impacting metacognition on both intra and inter-individual levels. This has theoretical and practical implications for educational theoreticians and practitioners. On the theoretical level, the results should spur more theoretical considerations on the links between motivation and the social side of metacognition.

On the practical plane, the obtained results should motivate instructors to value motivational factors in educational settings, and to find ways to devise and implement motivational scaffolds. Language learning instructors are encouraged to implement collaborative writing tasks and pair/group oral activities along with the individual oral/written assignments in classrooms while presenting their feedback anchored in the affective needs of the learners and motivational factors affecting the learning process. In order to advance learners' metacognitive skills while the learners are grappling with individual tasks or engaged in group- or pair-work activities, instructors are advised to take motivational factors into consideration when devising and implementing classroom activities. They should also attune their own practices, such as instructions and feedback giving techniques, with the affective status of learners ensuring motivational appeal of their pedagogical decisions. Research-based practical guidelines such as the one proposed by Belland et al. (2013) can be adopted by instructors. Workshops or training sessions might be required to familiarize practitioners with the latest research findings regarding the ways adaptations in pedagogical task presentation and teachers' practices motivate learners to devote more effort to engage in language learning in general and specific language tasks in particular.

Material developers and task designers should also consider learners' motivational needs while devising tasks to be presented by classroom teachers. Task selection and sequencing methods which allow for and encourage applying personal taste and interest, reflecting upon strategy use, assessing improvements,

and setting goals on the part of learners are advisable as the aforementioned techniques have proved to cater for motivational factors (Belland et al., 2013).

The findings of this study are also expected to prompt more studies on the ways classroom practices can be adjusted to bring about advances in metacognition in its social mode. Studies are needed to scrutinize whether factors such as the characteristics of the group members and the number of group members can moderate the effect of motivational scaffolds on the quality and the quantity of socially-shared metacognitive skills.

The results of the present study should be interpreted by taking a number of limitations into consideration. First, this study included only female EFL intermediate learners, which might affect the generalizability of the findings to the other gender. Further research can probe the effect of motivational scaffolds across various age and proficiency levels in female and male learners to provide a more comprehensive picture of the ways metacognitive strategies can be triggered through catering for affective factors. Besides, in the current study, the treatment consisted of the provision of motivational scaffolds in seven oral activities: five class discussions, two individual tasks, as well as two individual and two collaborative essays. Longer treatments with a wider range of oral and written activity types can present a more comprehensive picture of the immediate and long-term impacts of motivational scaffolds on metacognition.

7. References

Alias, N. A. (2012). Design of a motivational scaffold for the Malaysian e-learning environment. *Educational Technology and Society, 15*(1), 137–151.

Angelova, M. (2001). Metacognitive knowledge in EFL writing. *Academic Exchange Quarterly*, *5*(3), 78-83.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191–215.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Bannert, M., & Mengelkamp, C. (2013). Scaffolding Hypermedia Learning through Metacognitive Prompts. In R. Azevedo & V. Aleven. (Eds). *International Handbook of Metacognition and Learning Technologies* (pp. 171–186). Springer Science.

Belland, B., Kim, C., & Hannafin, M. (2013). A Framework for Designing Scaffolds That Improve Motivation and Cognition. *Educational Psychologist*, *48*(4), 243–270.

Bereiter, C. & Scardamalia, M. (1987). *The psychology of written composition.* Hillsdale, NJ: Lawrence.

Boyer, K. E., Philips, R., Wallis, M., Vouk, M, & Lester, J. (2008). Balancing cognitive and motivational scaffolding in tutorial dialogue. In B. Woolf et al. (Eds.): *Intelligent Tutoring System 2008*, LNCS 5091, 239–249, Berlin: Springer-Verlag.

Brophy, J. (1999). Toward a model of the value aspects of motivation in education: Developing appreciation for particular learning domains and activities. *Educational Psychologist, 43*, 75–86.

Brown, A. L. (1978). Knowing when, where, and how to remember: A problem of metacognition. In R. Glaser (Ed.), *Advances in instructional psychology*, Vol. 1 (pp. 77–165). Hillsdale: Erlbaum. Erlbaum Associates.

Cera, R., Mancini, M., & Antonietti, A. (2013). Relationships between Metacognition, Self-efficacy and Self-regulation in Learning. *Educational, Culture, and Psychological Studies*, *7*, 115–141.

Callender, A., Franco-Watkins, A., & Roberts, A. (2015). Improving metacognition in the classroom through instruction, training, and feedback. *Metacognition and Learning*.

Chen, C. (2014). An adaptive scaffolding e-learning system for middle school students' physics learning. *Australian Journal of Educational Technology*, *30* (3), 342–355.

Davis. A. J. (2013). *Effective writing instruction: evidence-based classroom practices*. South Yarra, Vic. Eleanor Curtain Publishing.

Deci, E., & Ryan, R. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, *19*(2), 109–134.

Dülger, O. (2011). Meta-cognitive strategies in developing EFL writing skills. *Contemporary Online Language Education Journal, 1*(2), 82–100.

Efklides, A. (2011). Interaction of metacognition with motivation and affect in self-regulated learning: The MASRL model. *Educational Psychologist*, 46(1), 6–25.

Elson, J. M. (2011). *A process-genre approach to teaching argumentative writing to grade nine learners*, (Unpublished master's thesis), University of Rhodes, Grahamstown, South Africa.

Finn, B., & Metcalfe, J. (2008). Judgments of learning are influenced by memory for past test. Journal of Memory and Language, *58*, 19–34.

Fitzsimons, G. M., & Finkel, E. J. (2010). Interpersonal Influences on Self-Regulation. *Current Directions in Psychological Science, 19*(2) 101–105.

Flavell, J. H. (1979). Metacognition and cognitive monitoring. *American Psychologist*, *34*, 906–911.

Flavell, J. H. (1987). Speculations about the nature and development of metacognition. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 21–29). Hillside, NJ: Lawrence Erlbaum Associates.

Fogarty, R. (1994). *How to teach for metacognition.* Palatine, IL: IRI/Skylight Publishing.

Hadwin, A. F., Oshige, M., Gress, C. L. Z., & Winne, P. H. (2010). Innovative ways for using gStudy to orchestrate and research social aspects of self-regulated learning. *Computers in Human Behavior, 26*(5), 794–805.

Hurme, T. R., Merenluoto, K., & Järvelä, S. (2009). Socially shared metacognition of pre-service primary teachers in a computer-supported mathematics course and their feelings of task difficulty: A case study. *Educational Research and Evaluation, 15*(5), 503–524.

Iiskala, T., Vauras, M., & Lehtinen, E. (2004). Socially-shared metacognition in peer learning? *Hellenic Journal of Psychology, 1*, 147–178.

Iiskala, T., Vauras, M., Lehtinen, E., & Salonen, P. (2011). Socially shared metacognition of dyads of pupils in collaborative mathematical problem-solving processes. *Learning and Instruction, 21*(3), 379–393.

Jafarigohar, M. & Mortazavi, M. (2016). The Impact of Scaffolding Mechanisms on EFL Learners' Individual and Socially Shared Metacognition in Writing. *Reading & Writing Quarterly*, 1-15. http://dx.doi.org/10.1080/10573569.2016.1154488

Jiang, Y., & Kleitman, S. (2015). Metacognition and motivation: Links between confidence, self-protection, and self-enhancement. *Learning and Individual Differences, 37*, 222–230.

Larkin, Sh. (2009). Socially mediated metacognition and learning to write. *Thinking Skills and Creativity*, *4*, 149–159.

Miller, T., & Geraci, L. (2011). Training metacognition in the classroom: the influence of incentives and feedback on exam predictions. *Metacognition and Learning*, *6*(3), 303-314.

Moores, T., Chang, J., & Smith, D. (2006). Clarifying the role of self-efficacy and metacognition as predictors of performance. *ACM SIGMIS Database*, *37*(2–3), 125.

Nystrand, M. (1989). A social-interactive model of writing. *Written Communication*, *6*(1), 66–85.

Panadero, E., & Järvelä, S. (2015). Socially shared regulation of learning: A review. *European Psychologist*, *20*, 190–203.

Rahimi, M., & Abedi, S. (2014). The relationship between listening self efficacy and metacognitive awareness of listening strategies. *Procedia-Social and Behavior Sciences*, *98*, 1454–1460.

Rebolledo-Mendez, G., du Boulay, B., & Luckin, R. (2006). Motivating the learner: an empirical evaluation. *8th International Conference on Intelligent Tutoring Systems*, 545–554.

Reiser, B. (2004). Scaffolding complex learning: the mechanisms of structuring and problematizing student work. *The Journal of the Learning Science*, *13*(3), 273–304.

Rodrigo, M.M.T., Rebolledo-Mendez, G., Baker, R.S.J.d., du Boulay, B., Sugay, J.O., Lim, S.A.L., Espejo-Lahoz, M.B., Luckin, R. (2008). The Effects of Motivational Modeling on Affect in an Intelligent Tutoring System. *Proceedings of International Conference on Computers in Education*, 57–64

Salonen, P., Vauras, M., & Efklides, A. (2005). Social interaction: what can it tell us about metacognition and coregulation in learning? *European Psychologist*, *10*, 199–208.

Schraw, G., Crippen, K. J., & Hartley, K. (2006). Promoting self-regulation in science education: Metacognition as part of a broader perspective on learning. *Research in Science Education, 36*(1–2), 111–139.

Schraw, G. and Moshman, D. (1995). Metacognitive Theories. *Educational Psychology Review, 7*(4), 351–371.

Thoman D. B., Smith J. L., Brown E. R., Chase J., & Lee J. Y. K. (2013). Beyond performance: A motivational experiences model of stereotype threat. *Educational Psychology Review*, *25*, 211–243.

Toulmin, S. E. (2003). *The Uses of Argument* (Updated Edition). Cambridge, UK: Cambridge University Press.

Tuckman, B. W. (2007). The effect of motivational scaffolding on procrastinators_distance learning outcomes. *Computers & Education*, *49*, 414–422.

Volet, S., Vauras, M., & Salonen, P. (2009). Self- and social regulation in learning contexts: An integrative perspective. *Educational Psychologist, 44*(4), 215–226.

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1990). What influences learning? A content analysis of review literature. *Journal of Educational Research, 84*, 30–43.

White, B., & Frederiksen, J. (2005). A Theoretical Framework and Approach for Fostering Metacognitive Development. *Educational Psychologist*, *40*(4), 211-223.

Wood, D., Bruner, J. S., & Ross, G. (1976). Role of tutoring in problem-solving. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *17*(2), 89–100.

Yarrow, F., & Topping, K. (2001). Collaborative writing: The effects of metacognitive prompting and structured peer interaction. *British Journal of Educational Psychology*, *71*(2), 261–282.

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