Scaffolding and Artifacts

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Abstract: Following SCT, the present study aimed at examining the contribution of scaffolding and artifacts in improving EFL learners’ assessment literacy. The study utilized a pretest-posttest control and experimental group design. Using an Oxford Placement Test, 60 EFL seniors were assigned to experimental (n=30) and control (n=30) groups. For the experimental group, five sessions of meditational practices were predicted. Each session included two phases. A discussion phase, which embraced some technical information related to language testing in general and an assessment phase. During the former, participants were instructed to carry out different tasks assisted by their teacher and peers and referring to the internet. For assessment tasks, they were directed to collaboratively assess their friends’ oral productions based on idea units. Besides posttest, the experimental group had two extra sets of scores: Oral presentation I and II as well as assessment literacy I and II. They received I test of each pair before the mediation and the II after the mediation. A comparison of control and experimental groups’ pretest and posttest data, comparisons of experimental group’s first and second presentation as well as the first and the second set of Assessment Literacy Scores provide information about the effects of assessment literacy on learning.

Key words: SCT • Mediation • Scaffolding • Assessment literacy • Artifacts

INTRODUCTION

Pursuing the integrity of assessment and learning process, although a continuous endeavor has revitalized assessment as a facilitative medium in enhancing student reflection on the learning process. It would be reassuring that what is learned and how it happens for language learners take a new meaning when assessment is not the end of the learning but a connector which align objectives, learning process and product. Development is far beyond taking in and possession of linguistic knowledge, but is inclusively taking part in social activity. The premise that learning is no longer viewed as an internal and individualistic activity [1], may well couple assessment with the social process that invests on in and as part of the world the learner inhabits where the cognition and aims to reinforce learning. If cognitive and social processes can be well-understood not in isolation since they both aim to enhance learning, and if assessment by nature aims to enhance learning, a perspective which is socially oriented may better clarify language learning including assessment ability.

As one of the unique theories, Socio-cultural Theory of learning (SCT), asserts that learning and social activities are positively interwoven. Accordingly, human beings inherit a biological capability which paves the ground for their development. Different from theories of acquisition which go for Universal Grammar, SCT maintains that human endowment determines the growth of language; however, this endowed capacity for learning just performs lower mental functions [2]. As a pioneer in SCT, Vygotsky (1978) [2], vindicated the role of contexts for human development so far that he argues biological inheritance equips humans with that amount of memory abilities which are also found in the higher primates (e.g., some species of chimpanzee). In contrast, higher order mental functioning like memory, attention and rational thinking develops via the interweaving of our cultural and biological inheritances [3]. Learning happens in and as part of the world the learner inhabits where the social and the psychological wings of learners interact through the notion of mediation.

This study, follows that language learning is not the result of interaction but comes true in the interaction [4] and language assessment literacy as one of the less known component of language learning [5, 6] could be practiced and enhanced through SCT tenets. The present study was an attempt to observe the effects of meditational practices on assessment abilities of some
EFL learners when assessment as an activity that learners collaboratively develop. The components practiced were scaffolding and mediation through artifacts. As such, three questions were raised:

- Do SCT suggested techniques affect students’ assessment literacy, or at least raise their awareness?
- Do student involvement in assessing their peers’ oral production (scaffolded by the teacher and peers) contribute to their own production?
- Did EFL learners of the study follow scaffolding which directs the attention of the learner to key features of their own mental activity.

**Mediation in SCT:** In SCT, mediation can occur both externally and internally. When a beginner is given assistance in the performance of some function, he is assisted externally; when that individual uses his own resources to achieve control over a function, he uses language internally. The essence of the theory is that external mediation serves as the means by which internal mediation is achieved. According to Lantolf (2000) [7] development occurs when individuals receive appropriate mediations in their environment to improve control over their own mental activity.

Ohta (2001a) [8] perceives mediation when a learner provides assistance to his struggling peer in their interactions. Much earlier, Aljaafreh and Lantolf (1994) [9] have specified five developmental levels in learners’ interaction. Based on the suggested levels, Ohta (2001a) [8] also identified four major forms of assistance in EFL learners’ interactions: waiting, prompting, co-construction and explanation. She found that peer interlocutors tend to provide their partners with ample wait time (p. 89). Prompting is a more explicit technique involving repeating word or syllable just uttered, thereby helping the interlocutor to continue. Co-construction consists of the learner contributing some linguistic material (a word, phrase, or grammatical particle) that contributes to the completion of the partner’s previous utterance. Explanations, often provided in the L1, are used to address errors the partner has made.

On the other hand, some followers of SCT assert that mediation should contain reciprocity and contingency to be effective [10]. Van de Pol, Volman and Beishuizen, (2010) [11] also distinguished three scaffolding key characteristics: contingency (also referred to as responsiveness); fading; and transfer of responsibility (also referred to as handover to independence). Thus, what constitutes an effective interaction for one learner might not be for another, either because it is heads above the learner’s level or because it fails to provide sufficient challenge for the individual. That is, interaction in SCT emphasizes the need for reciprocity between the learner and mediator and draws heavily on Vygotsky’s notion of the Zone of Proximal Development (ZPD).

**Scaffolding and Zone of Proximal Development:** Scaffolding describes the process of supportive dialogue which directs the attention of the learner to key features of the environment. These features are prompted to the learner in successive steps of a task by a teacher or peers [12]. Although a couple of other terms like “instructional conversation” [13] and “collaborative dialogue” [14] represent these ideas, in this study scaffolding is preferred as it is the one used by Vygotsky (1978) [2]. In fact, scaffolding is an inter-psychological process through which learners internalize knowledge dialogically [15].

Scaffolded interactions have been scrutinized via conversation analysis (CA) techniques [16, 17]. Wood, Bruner & Ross (1976) [16] reported that through scaffolding 1) the learners attention is recruited to the task, 2) the tasks are simplified, 3) the directions to goals are identified, 4) the differences between what is produced and the ultimate solution are identified, 5) learner’s frustration is controlled and 6) a desirable form of act is modeled. Besides finding similar features, Aljaafreh and Lantolf (1994) [9] showed that the degree of scaffolding offered by the tutor diminished as learners achieve control over their L2 and needed less assistance. Similarly, Donato (1994) [18] observed how EFL learners could produce utterances collaboratively that they may not perform otherwise due to scaffolding techniques they used. All the so far mentioned studies reported that scaffolding never ended in conversation breakdown and is not prerequisite by the presence of an expert; instead, it could also happen in interactions among peers.

Another key construct of SCT which comes as a bedfellow to scaffolding is the Zone of Proximal Development (ZPD). The concept of ZPD has the greatest impact on Western scholarship and education due to two reasons [3]. First, it is firmly linked with the construct of ‘assisted performance’. Second and more related to the present study, the ZPD suggested a formative view of the role of assessment; that is, assessment should focus on what learners can do with assistance at the present moment rather than what they are capable of independently.
To quote Vygotsky’s (1978) [2] own metaphor, ZPD is the ‘bud’ rather than the ‘fruit’ of development. The social dimension appears when the ‘buds’ of learning develop; when different functions acquired through assistance become autonomous and the ‘buds’ change into ‘flowers’. Mitchell and Myles (1998) [12] also assert that the learner moves through stages of other regulation to independent self-regulation and then he is able to solve his problem.

As such, ZPD explains a number of important phenomena about learning. According to Ellis (2008) [15], first, ZPD “explains why there are some structures that learners fail to perform no matter what the external mediation”. That is, some learners may not be able to build the proper ZPDs that make the performance of such structures possible. Secondly and as a complement to the first point, it explains that some learners are able to produce some structures with social assistance but not independently because they are able to construct ZPDs for performing these specific functions even though they have not internalized them. Thirdly, it explains learners are able to internalize new structures because they invest on structures for which they need external mediation, hence they create the necessary ZPDs.

Crucial to this type of assistance is semiotic mediation, with language as the main semiotic tool of mediation [15, 19, 20]. By means of language and the exercise of certain fundamental scaffolding behaviors, participants in the interactions come to share a common perspective and an equal degree of commitment to the task [21]. Lantolf (2000) [7] suggested that mediation in second language learning can involve others through social interaction or the learner by him or herself through private speech. For example, when a beginner is given assistance in assessment related discussion or practical tasks, he/she is assisted externally; when that individual uses his or her own resources to achieve control over assessment he/she uses language internally.

**MATERIALS AND METHODS**

**Participants:** Sixty EFL seniors were invited to take part in this study during a Language Testing II course. Each term, there are two sections for Language Testing II, therefore, one of the classes was considered as a controlled group. Senior students were preferred since they may have neither serious problems in discussing assessment issues in English nor any difficulty for directly getting technical issues from internet. Still more, unless they are seniors and have passed some specific courses, they can choose language testing. Finally, it was supposed that what they may attain during this study could immediately be implemented in their future assessing practices after their graduation. These participants were both male (No.24) and female (No. 36) and their age mean was 23.6. Excluding Language Testing I, which was also instructed by one of the present researchers, they had no formal course of testing.

**Instruments:**

- Shiraz University Language Proficiency Test (including 12 items on structure, 5 items on vocabulary and 13 items on reading comprehension) was used as a means for checking the homogeneity of the participants (Appendix B).
- A 15-item literacy assessment test based on the information that participants would receive in the experiment was created. The test was proofread by seven EFL university teachers and received Content Validity Index (CVI) and reliability tests (Appendix C). Its validity was also concurrently measured against a version of language testing in Iran’s National MA Entrance Exam. The latter is an already validated test which all BA seniors who want to enter state universities should take.
- The rating scale which issued by IAU Abadan Branch teachers to assess oral skills was modified to be used in this study. It integrated three skills each divided into four categories ranging from very poor to excellent. This scale was selected since it integrated elements like content, organization and fluency. Moreover, students would know about the same criteria that determine their scores in oral productions (Appendix A).
- Aljaafre and Lantolf’s (1994) [9] specifications of five developmental level of interactions among learners was used for analyzing participants’ interactions; however, the first two levels were merged as the level of notice in this study.

**Level 1:** The learner is unable to notice, or correct the error, even with intervention.

**Level 2:** The learner is able to notice the error, but cannot correct it, even with intervention, requiring explicit help.
Level 3: The learner is able to notice and correct an error, but only with assistance. The learner understands assistance and is able to incorporate feedback offered.

Level 4: The learner notices and corrects an error with minimal or no obvious feedback and begins to assume full responsibility for error correction. However, the structure is not yet fully internalized, since the learner often produces the target form incorrectly. The learner may even reject feedback when it is unsolicited.

Level 5: The learner becomes more consistent in using the target structure correctly in all contexts. The learner is fully able to notice and correct his/her own errors without interventions.

Data Collection Procedures: The experiment actually began with the homogeneity test, which judged the students’ English level upon receiving the meditational practices and confirmed that the English proficiency level of the two groups was very close. It was held one week after the students’ new term of study. Next, both groups were pretested against literacy assessment test. It was based on the course content. The two groups shared a source book “Language Skills Testing: From Theory to Practice” by Farhadi, Jafarpour and Birjandi, (1994) [22] and a teacher in common. The whole experiment which coincided with students’ testing course lasted for nine 90-minute sessions.

For the experimental group, each session included two phases. A discussion phase, which embraced all technical information related to language testing in general, and an assessing phase. During the former, participants were supposed to carry out different tasks such as discussing the reason for developing final exams, suggesting the best method for assessing oral skills, inconsistency between class performances and final scores, practical measures to boost reliability and validity of oral skills. Each of these issues was presented in one session. Students were instructed and encouraged to use the four strategies of waiting, prompting, co-construction and explanation [23] for two sessions. As it is usual in other EFL classes, the teacher presented and explained all the mentioned issues for the controlled group and if students raised some questions the teacher clarified the subject. The literacy test, based on the five mentioned issues, was specifically created to check the effects of scaffolded assistance in this study.

The second phase of each session for the experimental group continued with assessment tasks. That is, the experimental group was asked to orally present some passages, selected from TOEFL Arco; each student presented two passages during the experiment, one at the onset of the experiment and the other in the final session (they are called Oral production I and Oral production II respectively). Their performance was recorded by a cell phone. The recorded presentations were exchanged randomly by the participants via Bluetooth. Students were scaffolded by the teacher and peers to assess their peers’ presentations. Information related to scoring based on the mentioned framework were the main sources of input suggested by the teacher during the assessment tasks. They were directed to collaboratively assess their friends’ oral productions and when necessary refer to the teacher for clarification. The scores that they gave to each presentation were recorded, discussed and then compared with those of the teacher and finally both students and teacher suggested just one score for each student in place.

During the experiment, students’ class interaction were recorded to be used for further analysis based on Aljaafre and Lantolf’s (1994) [9] specifications of five developmental level of interactions. At the end of the course, to check the effects of scaffolded assessment tasks on learning, students were post-tested with the same assessment literacy test they had for their pretest. However, the experimental group had one extra set of scores: their oral presentation I and II. They received the Is before the mediation and the IIs after the mediation.

A comparisons of experimental group’s first and second oral presentation, a juxtapose of the first and the second set of participants’ assessment literacy scores as well as the analysis of scaffolded interactions provide information about the effects of exercising meditational practices in the mentioned EFL classroom.

RESULTS

Since the results of Kolmogorov-Smirnov tests revealed that the distribution of data was normal for all types of scores except for oral I and oral II (p < .200 and 186). Therefore, to compare means of oral I and oral II, tests like U Mann Whitney and Wilcoxon were used, while for comparing the means of other types of scores t-tests are proper means.
Descriptive Statistics are presented in Table 1. Oral scores were based on the scale that teachers used to assess oral skills which ranged from 0 to 15 and literacy assessment test included 15 items, it also ranged from 0 to 15.

At first, the results of independent t-test revealed a p value of .868; therefore, the two groups were not different regarding their assessment knowledge, so the experimental group could receive the treatment (Table 2).

To further examine the effects of treatment on the experimental group, pair t-test was used. The reported significance was smaller than .05 (t = -8.207, p = .000), so we can conclude that the difference between the performances of the participants in assessment literacy I and II was statistically significant (Table 3.). It is inferred that the mediation did positively affect EFL learners’ assessment literacy.

Regarding the effects of treatment on the controlled group, pair t-test was used. The reported significance was smaller than .05 (t = -4.23, 10.94, p = .000), so we can conclude that controlled group also improved their assessment knowledge as the mean of second set of scores was 1.16 point better than the first set (Table 4). As long as the study developed during a testing course, such changes might be due to the effects of learning.

To check the effects of treatment on the experimental group’s oral presentations, Wilcoxon test was used. This test is very similar to paired t-test, but in this analysis the scores are converted into ranks and then compared. In fact, Wilcoxon test is the non-parametric counterpart of match t-test. Whenever we have a pair of scores or we have given a group two tests and we cannot use matched t-test, we use Wilcoxon test [24]. As the reported significance is smaller than .05, we can conclude...
that the difference between the performances of the participants in Oral test I and Oral test II was statistically significant. It is inferred that the treatment did positively affect EFL learners’ oral skills. Table 5 presents more detail information.

To finally compare the performance of both controlled and experimental groups, the results of second assessment literacy was statistically analyzed. The results of independent t-test showed that there was a significant difference between the performance of the two groups as p-value was less than.05 (Table 6).

**DISCUSSION**

This study aimed to check the effects of mediation on assessment skills and raised three questions which are followed.

**Do Sct Suggested Techniques Affect Students’ Assessment Literacy, or at Least Raise Their Awareness?:** Yes. The results of descriptive statistics (Table 1) revealed that the experimental group improved their assessment literacy. The mean of their assessment literacy increased up to 4 points as the mean of literacy assessment I was 7.55, while their mean raised to 11.14 after meditational practices. Moreover, they could assess their peers and also the mean of their oral presentation tests also increased from 7.74 before mediation to 8.37 after treatment). As Vygotsky (1978) [2] noted language can act both as psychological tool human beings deploy to understand their own experiences and as a cultural tool humans render to translate their experiences to other members of the society. The participants were also able to discuss issues related to assessment. Wertsch (1990) [25] describes one way to determine whether internalization has occurred by checking if the novice is able to comfortably explain the concept in his own words. Positive evidence for meditational practices as useful methods in SLA settings are also reported by other studies (e.g., Mead, 1934; 29, Young & Miller, 2004).

Some studies have found that learning is more efficient when learners are engaged in shared, rather than in merely receptive or passive activities, as has been observed in formal schooling practices (Walqui& Van Lier (2010); 5, Nathan & Kim, 2009). Ellis (2003) [19] asserts that socio-cultural theory focuses on how the learner accomplishes a task and how the interaction between learners can scaffold and assist in the L2 acquisition process. Similar to [13], the results of the study revealed that learning could occur when the learner actively transforms his world and does not merely get adapted to it.

**Do Student Involvement in Assessing Their Peers’ Oral Production (Scaffolded by the Teacher and Peers) Contribute to Their Own Production?:** The results of Wilcoxon test revealed that participants who received instruction to assess their peers could also improve their own productions as there was a significant difference between the two sets of scores (Table 5). These results may suggest that teacher and students could cooperatively develop the actual task of assessing while both referred to the same criterion. Freeman (1995) [26] concluded peer discussions of rating methods before final decisions could lead to closer agreements between staff and student ratings in oral presentations. He also reported that peer assessment significantly enhanced students’ quality of projects, as it provided students with opportunities of learning not only from other peers but also from evaluating other peers’ work. In other words, learning in the peer assessment process comes from both students’ adaptation of peers’ feedback and their assessment of peers’ projects [27]. On the other hand, the results also indicated that students would be able to assess their peers if they are mediated to do so. Research studies involving peer- and self-assessment revealed that to enable students to perform these tasks effectively they need training and experience [28, Tahmasebi& Yamini, 2011]. Patri (2002) [29] also concluded that peer-involvement not only creates opportunities for interaction but it increases objectivity in assessment. These results might also be in line with alternative assessment which calls for more active roles of students in assessment practices [30, 31].

**Did Efl Learners of the Study Follow Scaffolding Strategies to Learn Assessment-Related Issues and Assess Their Peers? What Strategies Do They Use?:**

In addition to what suggested to Q1 and Q2 based on statistical results, for answering the third question of the research it was required to directly consider the ongoing process that happens while EFL learners scaffold each other in their assessment abilities. The students and teacher’s experience and the type of meditational interactions they had require detailed conversational analyses which are beyond the scope of this single question, however, some descriptive reports based on participants’ interactions may elaborate on the issue.
The specific meditational practices that EFL learners actually perform during the experiment could be classified into four levels [9]. For example, during the first and second sessions of treatment, the learners were unable to notice the errors and even find the answers to theoretical questions like different ways to ensure reliability even with intervention (level of notice 1). Mediated with explicit help from their teacher and peers, the learners were able to notice and correct their peers’ presentations, from the third session onward. In fact, they well understood assistance and could incorporate feedback they were offered with to discuss assessment related issues and assess their friends according to the scales that their teachers use (level 2).

After the third session, the learner could devour the questions with minimal or no obvious feedback, although cooperatively and began to assume full responsibility for error correction and making decisions about their peers’ scores and finding the answers to questions. However, all these tasks were not correctly accomplished and the concepts were not yet internalized; the participants sometimes suggested answers and assigned scores incorrectly. On the other hand, they never rejected feedback and corrections offered by the teacher and more knowledgeable peers (level 3). Following Lantolf (2000) [7], development occurs when individuals receive appropriate mediations in their environment to improve control over their own mental activity. Therefore, a theory of the mediated mind might be useful in improving EFL learners’ assessment literacy.

Finally, the EFL learners of the study became more consistent in explaining the concepts and assessing their peers voluntarily during the two final sessions (Level 4). Moreover, such practices directed the learners to notice and correct their own errors without interventions (according to what they said as well as the answers to question One and Two of the present study). Such results are consistent with what Mendoza (2004) [32] identified as evidence of learning when participants took advantage of the information provided in the task, using each other’s expertise, the tools available to them and the instructor’s assistance to internalize knowledge about the words. From a discourse point of view, Hall (1995) [33] noticed that when knowledgeable teachers inject all necessary information to the class, without involving the students, they may limit student opportunities as well as facilitating interactional development. She found that the class format which was IRE (initiation, response, follow-up evaluation) did not bring about interaction between students or teacher and students.

The results of discourse analysis of this study, suggested that participants were not mere knowledge consumers as they were scaffolded to find answers to abstract assessment questions and also actually evaluate their peers. Simister (2004) [34] recognizes the importance of the student’s personal voice and claims that emphasis on the regurgitation of facts and repetition of accepted ideas will only produce dull and uninspired students. This implies that students should be taught how to create, adjust their strategies and assimilate learning activities into their own personal world. As a result of the recognition of the role of abstract thinking in students’ intellectual development, nowadays there is a call for the introduction of less concrete issues like validity and reliability. According to Swain (2000) [14], L2 acquisition involves learning how to use language to mediate language learning. With the same token, this study concludes that assessment literacy could be one of the mental activities which could be enhanced through class interaction- as one form of social interaction.

To summarize what the results of discourse analysis in this study suggest for the experimental group could be summarized into three points:

- Students were less dependent on the teacher comparing with the controlled group and were more active. As far as peer assessment is concerned and bearing in mind that the present study involves learners with very little experience in being autonomous learners, the experiment revealed some reassuring points. Participants could explain rather abstract concepts like validity and actually evaluate their peers although the tasks of peer assessment and clarifying theoretical concepts were thus a novelty to them.
- The borders of the classroom were expanded from teacher-student interactions to student-student interactions. When students attention were directed from assessment as an end to assessment as a process that could enhance learning, they were prompted to reinforce their own and peers’ assessment abilities.
- A feeling of accomplishing some real tasks aired the classrooms. Students could do what their teachers actually do. They could upgrade themselves from knowledge consumers to mediators who learned about assessment and assessed their peers.

Assessment literacy could be sub-categorized under concepts which Vygotsky (1978) [2] refers to as higher mental activities. As language achieves its meaning not
through underlying meaning encoded in words, but through communicative activities in specific socio-cultural contexts, different language skills and various activities like language assessment may be effectively practiced and internalized via social interaction.

CONCLUSION

Second language learners have the right to become part of the community where they are taught to understand and express the language belonging to that community [35]. Learners learning subject matters like language assessment while acquiring a foreign language are grappling with a serious challenge. Scaffolding such challenging academic courses is crucial for their progress and unique to SCT.

Socio-cultural theory is outstandingly different from its cognitive counterparts since it considers learning as a collaborative achievement, not an isolated individual’s effort; teachers and learners are given opportunities to mediate and assist each other to not only enhance learning but also enjoy it. Furthermore, as Williams and Burden (1997) [36] assert, the theory also emphasizes the importance of meta-cognition and insists that education should involve learners in learning, developing learners’ skills and strategies to continue to learn, making learning experiences meaningful and relevant to the learner’s life. Such practices are conducive to helping learners to develop and grow as a whole person.

Implications: Theoretically speaking, the findings of this study can be helpful in enrichment of SCT theory as well as task-based language teaching and assessment and an integration of both theories. This study also has some implications for interdisciplinary practitioners as the study demonstrated that a language testing event was related both to social and linguistic concerns. Pennycook (2001) asserts that movements that connect language to social use include transformative pedagogy which entails a transformative research paradigm, too.

Similarly, as the study takes some preliminary steps to find out if SCT suggested techniques work effectively in boosting students’ assessment literacy, or at least creating their awareness, the findings could be significant to testing and evaluation, teaching and methodology, as well as curriculum and materials development.

As the study found that students and teachers who are two major test parties can collaboratively carry out assessment tasks, first and foremost, basic modifications in evaluation measures and testing practices might be implications of the study. The results may suggest a reconsideration and slight reconstruction of the evaluation methods and programs by teachers to make evaluations more effective, efficient and democratic.

Regarding curriculum and materials development, the study suggests a learner based approach which also entails both cognitively- and socially-supported methods. The results of the study revealed that participants welcome and acknowledge participating in assessment tasks and can shoulder responsibility of their own and peers’ learning. That is, the syllabi would be a posteriori and retrospective one, open to further negotiation during teaching and testing phases, not a prescribed a priori one dictated by elites and adorned and implemented by teachers and students [37]. The results of the study may convince curriculum writers to include materials which indulge the overall thinking and creativity of learners instead of assigning them the role of knowledge consumers.

From another point of view, the results of the present study have focused on the importance of meaning construction for learning assessment activities. Zimmerman (1997) [38] argues that developing students’ competency in L2 is not equated with mastering skills since sacrificing learning opportunities to mastering skills could prevent students from involving in what he refers to as aspects of literacy. He believes, for example, literacy includes meaning construction, competency, fluency and flexibility in dealing with texts as readers and writers.

REFERENCES


