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The Role of Engaged Reading in Conceptual Learning from Text and Reading Comprehension of EFL Learners: A Modeling Approach

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Abstract

Problem Statement: This paper investigates the relationships between EFL learners' level of reading engagement and their conceptual knowledge from text and reading proficiency.

Methods: In the first phase, non–modeling approach, the research questions were explored through traditional correlation and regression analyses.

Findings and Results: The findings of this part show that reading engagement has a statistically significant relationship with reading proficiency and conceptual knowledge. Meanwhile, no consensus was fund between students' and their teachers' perspectives

concerning the students' level of reading engagement; this provided the ground for the second phase of this research. In the second phase, modeling approach was employed to examine the relationship between QMRI, showing students' level of reading engagement from their own perspectives, and REI, illustrating students' level of reading engagement from their teachers' viewpoints, through structural equation modeling. Having analyzed the data through LISREL, the researchers found no significant relationship between QMRI and REI, confirming findings of the first phase.

Conclusions and Recommendations: The results of this study might make the educators become increasingly interested in the role that reading engagement can play in the growth of academic achievement. It is also believed that reading engagement itself serves to increase the achievement differences among students.

Keywords: Conceptual press, Autonomy support, engaged reading, Conceptual learning, Structural Equation Modeling (SEM), LISREL

Introduction

Most researchers believe that engaged readers approach reading with eagerness (see Pintrich & DeGroot, 1990; Schiefele & Rheinberg, 1997). Pursuing clear reading goals, readers focus their attention purposefully and demonstrate well-established habits of concentration. They take pleasure in using their skills to understand a text and invest special effort in what they care about most (Meyer and Rose, 2002). Students become

deeply engaged in reading for many reasons: the subject or the author's handling of words fascinates them; they are challenged to just the right degree and feel themselves progressing and learning; they enjoy doing what they do well; or working hard at reading serves a broader goal of doing well in school (Chall & Onofrey, 2002).

Engagement is essential to successful reading. Based on Meyer and Rose (2002), the students who are beginning to read must be engaged in the material they are trying to read and in the process of learning. Excellent readers learning advanced comprehension skills read more effectively if they are interested and confident of their ability to succeed. Every teacher knows that engaging students in reading includes building their confidence and arousing their interest, and desire. Successful teachers help students think of themselves as readers. How do we conclude if a reader is engaged or unengaged? Sabine & Sabine (1983, p. 29 as cited in M.O. Tunnell & J.S. Jacobs, 2009) argued that an engaged reader is not aware of the reading process, s/he even doesn't even see words after the first sentence or two. They are unaware of how many pages they have read or how long they have been reading. When engaged readers come to a word they can't pronounce or define, they skip right over it without hesitation. A real reader engaged in a book is not cognizant of reading skills (M.O. Tunnell & J.S. Jacobs, 2009).

Rationale for the Study

A great deal of research on reading in particular has focused on the cognitive aspects of reading (see for example Adams, 1990; Mosenthal, & Pearson, 1991; Ruddell,

& Singer, 1994, as cited in Robert Rueda, Laurie MacGillivray and Lilia Monzó, 2001). However, Robert Rueda, Laurie MacGillivray and Lilia Monzó (2001) argued that many researchers and theoreticians have begun to reconsider the balance between cognitive and affective (specifically motivational) aspects of reading (Guthrie & Wigfield, 2000; McCombs, 1989 as cited in Robert Rueda, Laurie MacGillivray and Lilia Monzó, 2001). No doubt that engaged reading is an affective procedure through which the reader is engaged in the process of reading. Engagement depends upon a complex mixture of intrinsic and extrinsic factors. Also, based on what Kathleen C. Perencevich (2004) mentioned, as students perceived their instruction to be motivating, their reading engagement would increase. Autonomy support and conceptual press are considered as the major components of reading engagement (Kathleen C. Perencevich, 2004). Reading engagement also includes cognitive, motivational and behavioral characteristics. The main purpose of the current, therefore, is to investigate the relationship between the engaged reading and the conceptual learning from the text, and reading comprehension of EFL learners.

Theoretical and Imperial Background

The Engagement Perspective of Reading

Recent research developments, predominantly in reading, have paid attention to the significance of engagement (Alexander & Fox, 2004; Guthrie & Wigfield, 2000) as a liable bond to conceptual learning. However, the concept of engagement is rather new

and researchers are now investigating the best ways to describe and measure this many-sided construct (Fredericks, Blumenfeld, & Paris, 2004). In the domain of reading, engagement has referred to the functioning of motivation, conceptual knowledge, and cognitive strategy used during reading (Guthrie & Wigfield, 2000). During reading engagement, motivational and cognitive aspects are focused on gaining conceptual understanding in a constant and cognitively manner. Engaged readers create personal aims for reading, use cognitive strategies to intentionally look for knowledge, work with the information collected from their reading, and explore manifold texts to extend their conceptual knowledge. The outcome of conceptual learning from text depends on (a) affective engagement processes, such as intrinsic motivation for reading; (b) cognitive engagement processes, such as reading strategy use; and (c) behavioral engagement processes, such as wide and frequent reading in a domain (Kathleen C. Perencevich, 2004).

Motivating Reading Instruction

To promote engaged reading, Guthrie and Wigfield (2000) designed an educational approach called Concept-Oriented Reading Instruction (CORI). CORI teachers were trained to use several guiding principles of instruction including: conceptual themes that utilize central principles of a domain, real-world observation, autonomy support, collaboration support, cognitive strategy instruction, and self-expression.

In several empirical studies of CORI, the benefits of motivating instruction on conceptual learning from text, reading strategy use, and subsequent reading motivation have been documented (Anderson, R., Wilson, P., & Fielding, L.1988; Guthrie, Wigfield, 2000).

Main Aspects of Motivating Reading Instruction

In reading classes, conceptual press refers to students' perception of instruction that (a) promotes understanding of the substantial principles of a domain, such as life science (Alexander, P. A.1998); (b) helps students use information integration strategies during reading, such as concept mapping, and (c) promotes the principle of moderate challenge during reading tasks (Stefanou, C., Perencevich, K., DiCintio, M., & Turner, J.2004).

First, teachers who give emphasis to conceptual press assist learners to move between the facts and generalizations of a domain. For example, it is important for students to differentiate among various features of an animal (e.g., hair or claws); however it is similarly vital for them to understand how these features are related to survival concepts such as protection. A focus on how truths and concepts relate to each other may help cognitive engagement because students may become more superficial at (a) generating connections among ideas; (b) recognizing different incoming information; and (c) organizing information (Alexander, P. A.1998).

A second characteristic of conceptual press involves giving students' opportunities to restructure arriving information into different forms during or after reading. When students create new illustrations of incoming information, such as concept mapping, constructing projects or building models, or drawing graphical representations, (Brown, 1997) they may practice engagement because of the cognitive depth these activities require. Activities that may make students reorganize information during or after reading may incorporate (a) explaining information to oneself or peers; (b) summarizing information; and (c) drawing diagrams, illustrations, charts or Tables (Brown, 1997). These types of activities may support cognitive, affective and behavioral engagement.

Finally, conceptual press in reading includes giving students' opportunities to experience challenges and support them to handle the challenge (Stefanou, C., Perencevich, K., DiCintio, M., & Turner, J.2004).

Another approach to increase reading engagement is promoting students' autonomy during learning. Autonomy during learning is supported when teachers permit learners freedom in their learning activities and give them opportunities to make their learning individually relevant through the construction of self-generated goals (Brown, 1997). Therefore, as Stefanou et al. (2004) put out autonomy support refers to student perception of control given over the goals, content, and strategies. Central instructional elements of autonomy support entail (a) giving considerable academic choices to

students; (b) allowing students to create learning goals that support their prior knowledge and individual interests; and (c) developing an ownership of ideas (Brown, 1997; Stefanou, Perencevich, DiCintio, & Turner, 2004).

Constituents of Engaged Reading

Affective part of engaged reading consists of reading motivation. As Deci, E., & Ryan, R.(1987) stated, "People are said to be motivated to the extent that they intend to accomplish something…An intention involves a desire to attain some future state along with a means to attain the desired end" (p. 3). Reading is an activity that individuals do for various reasons and those reasons mirror intentions, beliefs, and personal attitudes. For example, students who are inquisitive read extensively to learn about the world around them. Students who try to find involvement and the experience of getting lost in a book read for the experience of enjoyment (Csikszentmihalyi, M., & Rathunde, K.1993). At a given time and in a particular context, a reader's intentions can show a discrepancy and include numerous reasons for pursuing reading activities. This idea has been empirically long-established in multiple studies (Wigfield, Guthrie, Tonks, & Perencevich, 2004). For example, in a study of primary school children, Wigfield et al. (2004) found that motivation for reading, science, math, and social studies were discernible and relatively specific to their domains.

Recent research in reading motivation has begun to focus on multiple trajectories to reading achievement and the situational determinants that may affect motivation

(Wigfield, Guthrie, Tonks, & Perencevich, 2004). It is reasonable that there are multiple motivational aspects of reading behavior, such as interest in reading, reading efficacy, involvement in reading, and preference for reading challenge (Guthrie, J. T. & Wigfield, A. 2000).

Application of SEM in assessing the relationship between QMRI and REI

Structural equation modeling (SEM) is a statistical technique for testing and estimating causal relations using a amalgamation of statistical data and qualitative causal assumptions. This definition of SEM was mentioned by the geneticist Sewall Wright (1921), (Wright, 1921) and formally defined by Judea Pearl (2000) using a calculus of counterfactuals (Pearl, 2000).

Structural Equation Models (SEM) permits both confirmatory and exploratory modeling, which means that they are appropriate for both theory testing and theory development. Confirmatory modeling usually begins with a hypothesis that gets represented in a causal model. The concepts used in the model should be operationalised to permit testing of the relationships between the concepts in the model. The model is tested against the obtained measurement data to determine how well the model fits the data. The causal assumptions embedded in the model often have falsifiable implications which can be tested against the data (Bollen, and Long, 1993).

The present study aims at investigating the relationship between EFL learners' level of reading engagement and their conceptual knowledge from text and reading proficiency. The Reading Engagement Indicator (REI) (Appendix B) is anticipated to measure the extent to which each student is an engaged reader within the classroom based on the teacher's observation. Through this questionnaire the teacher rates the students regarding their level of reading engagement and via the second questionnaire i.e. QMRI (Appendix A), which is answered by the participants, the researchers estimate the students' level of reading engagement. Finally, the researchers are to estimate the difference between students' and teachers' perspectives regarding students' level of reading engagement

Research Questions and Hypotheses

The present study will address the following research questions:

Q1. Is there any relationship between EFL learners' level of reading engagement and their conceptual learning from the text?

Q2. Is there any relationship between EFL learners' engaged reading level and their reading comprehension ability?

Q3. Is there any difference between students' and teachers' perspectives regarding students' level of reading engagement?

To come up with reasonable results on the basis of the aforementioned research questions, the following null hypotheses were proposed:

H01: There is no relationship between EFL learners' engaged reading level and their conceptual learning from the text.

H01: There is no relationship between EFL learners' engaged reading level and their reading comprehension ability.

H03. There s no difference between students' and teachers' perspectives regarding students' level of reading engagement.

Method

Participants

The target population for the present study, to which the results of the study are going to be generalized, consisted of Iranian EFL learners who are studying English as a Foreign Language in colleges, universities, or private English Language Institutes across Mashhad, Iran.

The sample of this study includes 34 EFL learners studying English at Jahan-e-Elm Higher Education Institute, Mashhad, Iran and their teachers respectively .The students' age range was between 20 and 25. Based on the prior completion of the course and placement test of the institute all participants were selected from upper-intermediate level. Therefore, all had the same background knowledge.

Instruments

A series of data collection instruments were employed for the purpose of this study:

(A). Questionnaire of Motivating Reading Instruction (QMRI). This is a self-report instrument to rate students' perceptions of instruction with regard to their teachers' support for conceptual press and support for autonomy (see Appendix A).

(B). Reading Engagement Indicator (REI). This questionnaire was completed by the teacher (see Appendix B). Teachers also rated their students in the context of classroom based on cognitive, motivational and behavioral characteristics (Guthrie & Wigfield, 2000).

(C). *A Test of Conceptual Learning from Text.* Conceptual learning from text is measured through determining the level of knowledge presented in a students' written essay.

(D). TOEFL Reading Comprehension Sub-test. This instrument is a complete set of TOEFL Reading Comprehension Sub-test to measure the participants' reading comprehension ability. As mentioned earlier, the selection method of the present study was based upon the placement test of Jahan-e-Elm Higher Education Institute and prior completion of the course. So there was no need to administer any kind of proficiency test to homogenize the participants.

Procedures

At the beginning of the study the Questionnaire of Motivating Reading Instruction (QMRI) was given to 34 participants who were studying English at Jahan-e-Elm Higher Education Institute and they were asked to fill it and submit it to the researcher during a week. Next, the conceptual knowledge essay test was administered on the participants.

This test, which was a performance assessment task, requires students to write an essay about the similarities and differences existing in the reading passages they have just read. Before commencing the writing, the participants were given some times to read and take notes from the multiple text passages. Students' performance on the conceptual knowledge essay was rated on the knowledge hierarchy rubric (Kathleen C. Perencevich, 2004). Then, the participants took a complete set of TOEFL Reading Comprehension sub-test was administered on the participants.

The purpose of giving the QMRI questionnaire was to estimate the level of students' reading engagement. Having analyzed the data obtained from the questionnaire, the correlation coefficient between QMRI and TOEFL reading comprehension test was calculated. Also, the regression analysis between these two variables was estimated.

In addition, the correlation coefficient and regression analysis between QMRI and conceptual knowledge essay test were calculated. Finally, to find out the level of students' reading engagement from the teacher's perspective, REI questionnaire was given to the teacher and he was asked to complete the form and submitted to the researcher. The data obtained from this questionnaire was also analyzed and the correlation coefficient between QMRI and REI was calculated.

Discussion and Data Analysis

Phase One: (Non – Modeling Approach)

As mentioned earlier, the necessary data for the present study was collected through two Questionnaires of QMRI and REI filled by the students as well as their teachers and one tests of Conceptual Knowledge Essay and TOEFL reading comprehension sub-test.

The descriptive statistics of QMRI as the independent (predictor) variable and Conceptual Knowledge Essay and TOEFL reading comprehension test as the dependent (predicted) variables are illustrated in the following Tables (see Table 1):

Table 1

Descriptive statistics for QMRI, Conceptual Reading from text, and Reading Comprehension Test

	N	Minimum	Maximum	Mean	Std. Deviation
Conceptual Reading From Text					
	34	11.00	20.00	16.0294	2.45549
Valid N (listwise)	34				
Reading Proficiency	34	11.00	20.00	15.6471	2.72900
QMRI	34	109.00	224.00	129.823	23.1627

In order to describe the strength and direction of the linear relationship between the QMRI and CKE, Pearson Product Moment Correlation was applied to find the

relationship between the two variables. The results of the correlation coefficients between QMRI and CKE are reported in Table.2.

Table 2

Pearson's Correlation Matrix between QMRI & CKE

	QMRI	CKE
QMRI	1.00	
CKE	.66(**)	1.00

** Correlation is significant at the .01 level (2-tailed)

As the results in Table 2 indicate, there is a positive correlation between the two instruments *($r = .66$, $p < .05$),* showing a significant relationship between the level of reading engagement and conceptual knowledge from text.

Regression Analysis for QMRI and CKE

To analyze the data further, regression analysis was conducted. The results indicated that QMRI is a positive predictor of the dependent variable (conceptual learning from text).

The results of regression analysis for QMRI and CKE are reported in Table 3.

As the results of Table 3 reveal, the model containing scores of QMRI can predict 71% of the conceptual learning from the text. The R value is .84 indicating a correlation between students' reading engagement level and their conceptual learning from text.

Table 3.

R square for Reading Engagement as the Predictor of Conceptual Learning from Text

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.661(a)	.717	.713	11.05734

Predictors: (Constant), QMRI

Table 3 shows the contribution of the independent variable (QMRI) on the dependent variable (conceptual learning from text) equals .661. The square value is .71 showing that about 71% of the variation in conceptual learning from text can be explained by taking their reading engagement into account. Therefore; reading engagement is making a significant contribution to the prediction of conceptual learning from text.

Table 4

Coefficients Between Students' Reading Engagement and Conceptual Learning

Sig.	T	Standardized Coefficients	Unstandardized Coefficients		Model
	B	Beta	Std. Error	B	Std. Error
.000	15.502		7.256	112.486	(Constant) 1
.000	12.810	.661	.168	2.155	QMRI

* a: Dependent Variable: Conceptual learning from text

As the results, it is demonstrated that there is a significant correlation between students' level of reading engagement and their performance in the test of conceptual learning from text (Table 4).

In addition, the next research question aims to investigate the relationship between reading engagement and reading comprehension as measured by the TOEFL reading comprehension sub-test. In order to describe the strength and direction of the linear relationship between the QMRI and reading comprehension, Pearson Product-Moment Correlation was employed to find the relationship between the two variables.

The results of the correlation coefficients between QMRI and reading comprehension are reported in Table.5.

Table 5

Correlation between QMRI and Reading Comprehension

	Reading Proficiency	QMRI
Reading Proficiency	1.00	
QMRI	0.68	1.00

As it is obvious from this Table, there was a positive correlation between QMRI and reading comprehension (r= 0.68, $p \leq .05$). Therefore, there is a significant relationship between the level of reading engagement and reading comprehension.

Regression analysis for QMRI and reading comprehension.

To analyze the data further, regression analysis was conducted. The results indicated that QMRI is a positive predictor of the second dependent variable, i.e. reading comprehension. The result of regression analysis for QMRI and reading comprehension is reported in Table 6.

Table 6

Regression analysis for QMRI and reading comprehension

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	221.654	5.362		11.342	.000
	QMRI	3.487	.146	.68	10.693	.000

** Correlation is significant at the .01 level (2-tailed)

The results depicted that the model containing scores of QMRI can predict 67 percent of the Conceptual learning from text. The R value is 0.68 which indicates the correlation coefficient between students' reading engagement level and conceptual learning from text. Its square value is 0.67. It indicates that about 67% of the variation in

conceptual learning from text can be explained by taking their reading engagement into account (See Tables.7 and 8).

Table 7

R square for reading engagement as the predictor of Reading Comprehension

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.68(a)	.672	.674	13.04863

Predictors: (Constant), QMRI

Table 8

Coefficients (a*)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	13.256	6.756		16.205	.000
	QMRI	3.165	.186	.681	13.108	.000

* a: Dependent Variable: Reading Comprehension

Table 9 illustrates the contribution of the independent variable (QMRI) on the second dependent variable (Reading Comprehension) equals .661; therefore, reading engagement is making a significant contribution to the prediction of reading comprehension ability of EFL learners.

As the results, there is a significant correlation between students' level of reading engagement and their reading comprehension ability.

Finally, to investigate the third research question, i.e. the difference in the perspectives of students and teachers regarding the level of students' reading engagement, the data obtained from the QMRI and REI are analyzed and the correlation coefficient between them is calculated. Table 9 shows the results for this analysis.

Table 9

Correlation between QMRI and REI

	QMRI	REI
QMRI	1.000	.195
REI		

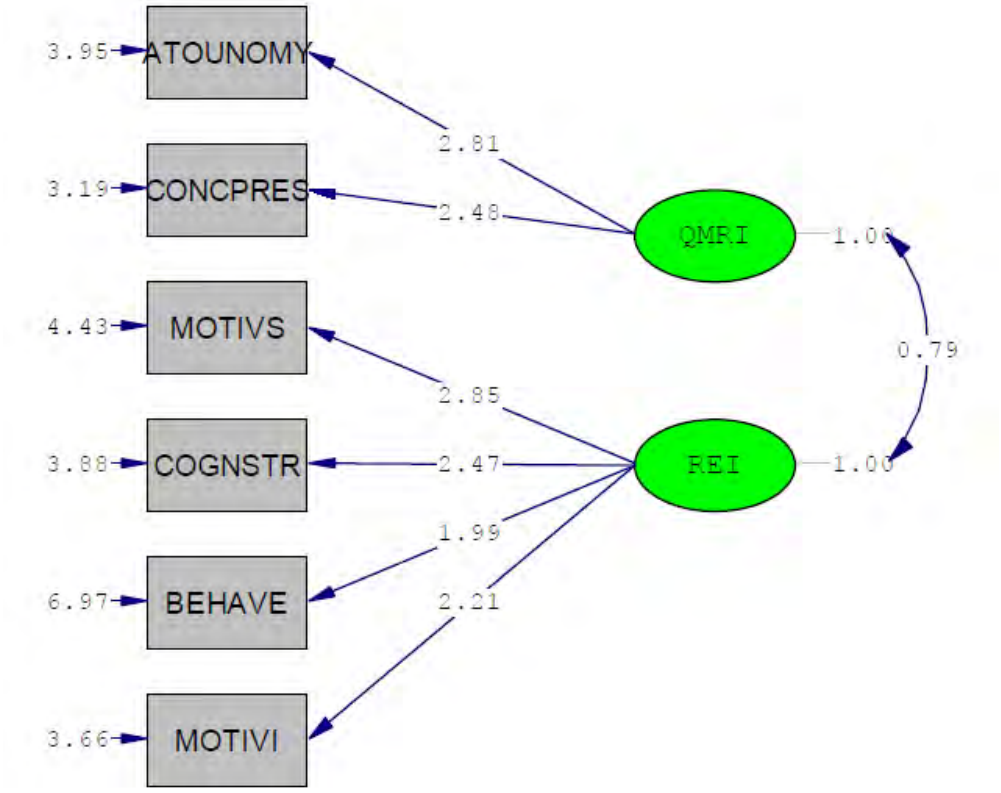
As indicated in Table 10, the correlation coefficient between QMRI and REI is insignificant (r= 0.19, $p \leq .05$), demonstrating no consensus between students' and their teachers' perspectives on students' level of reading engagement.

Phase II: (Modeling Approach)

As mentioned earlier, the third hypothesis of the current study aimed to see whether there is any difference between students' and teachers' perspectives regarding students' level of reading engagement or not. The findings of the first section of the article confirmed that there is no consensus between students' perspectives and their teachers' regarding the level of students' reading engagement. In order to investigate the findings of the first part, the researchers decided to employ the Structural Equation Modeling (SEM) to explore the hypothesis more.

The most significant basis on which SEM is based is the correlation matrix and/or covariance matrix. So, for the purpose of this study, first, the data obtained from the questionnaires of QMRI and REI were analyzed using SPSS software and then the correlation matrix which was obtained from the SPSS was imported to and run through LISREL software.

Figure 1. Relationships between Latent and Observed Variables



Chi-Square=11, P-Value=0.11, RMSEA=0.025

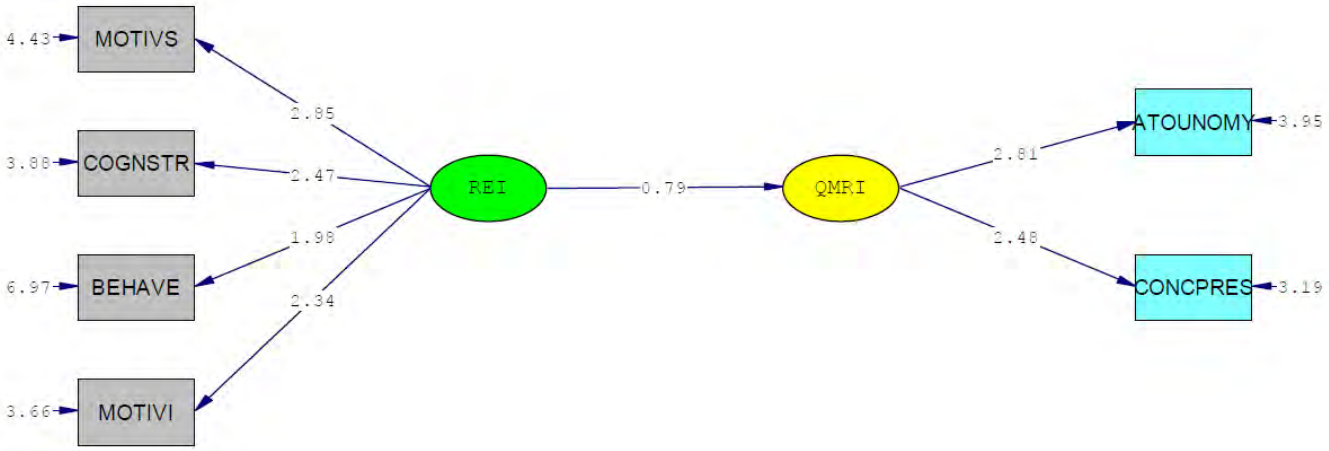
Since the Chi – Square equals 11, the p-value is larger than 0.05 and RMSEA is less than 0.05, we conclude that the model is fit. The Goodness of Fit Index (GFI) equals 0.91, Adjusted Goodness of Fit Index (AGFI) equals 0.76 and Parsimony Goodness of Fit Index (PGFI) equals 0.35. These findings also confirm that the data fits the model.

The values which are written on each arrow are demonstrated in the *Estimated Mood*, and they are not interpretable. In all SEM models run in LSREL software, the values of *Estimated Mood* are not interpretable because there is no principle to which one can compare these values. In order to make the values interpretable, we should change the mood from *Estimated Mood* to *T-Value Mood*. Having changed the mood to T-Value

mood, we see that all the values written on the arrows of the above model changed and are higher than 1.96 (1.96 is a predetermined principle value to which all the values are to be compared). As a result, we can conclude that there is a meaningful relationship between the observed variables (Autonomy, Conceptual Press, Motivation-Intrinsic, Motivation-Social, Behavioral and Cognitive Strategies) and their latent variables, i.e. QMRI and REI.

Now, we should assess the relationship between QMRI and REI to see whether students' perspectives and teachers' ones were the same toward students' level of reading engagement or not. This time by changing the relationships between the latent and observed variables the following model was obtained (See Figure 2).

Figure 2. Relationship between QMRI and REI



As it is illustrated in Figure 2, the relationship between QMRI and REI equals .75 and based on the SEM literature, since this figure is less than 1.96, we come to the conclusion that there is no meaningful relationship between QMRI and REI. Therefore, the result of section one of this article is approved, i.e. there is no relationship between students' perspectives and their teachers' regarding the level of students' reading engagement.

Conclusions

As the data in this study indicated, the Iranian EFL learners' level of reading engagement is positively related to their conceptual learning from the text. It is concluded, therefore, that the Questionnaire of Motivating Reading Instruction (QMRI) can be a positive predictor of the participants' conceptual learning from text. Meanwhile, the results of this study demonstrated a significant correlation between Iranian's level of reading engagement and their performance in a reading proficiency test. This confirms results found by Meyer and Rose (2002) that students who are beginning to read must be engaged in the material they are trying to read and in the process of learning to achieve success in reading. Moreover, the findings revealed a significant relationship between the perspectives of Iranian teachers and students on the students' level of reading engagement. Accordingly, it can be concluded that reading engagement can affect observable motivational and behavioral patterns of the learners in the context of classroom.

Reading engagement, as illustrated through the results of this study, can be viewed as a strong motivational and affective aspect of reading behavior. Furthermore, the results of this study can suggest teachers of L2 reading skills develop students' intrinsic motivation through interesting topics or themes practiced as classroom reading tasks which may lead to long term reading engagement as well as deeper learning and reading efficacy. An implication of the findings of the current study is that if reading instruction in reality improves EFL learners' achievement through increasing engaged reading during instruction, then it is vital to consider more closely the diversity of instructional practices that affect students' motivation to read during instruction. A further practical implication of the findings in this study is that EFL teachers can attempt to enhance students' reading engagement in the classroom with a sensible belief that this engagement will boost students' reading comprehension. At the same time, if teachers recognize that their comprehension instruction is not highly engaging, they should be doubtful that it will increase students' final reading comprehension levels.

In addition, as the results of SEM analysis indicated students' and their teachers' perspectives regarding the level of students' reading engagement have no significant relationship.

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APPENDIX (A)

Questionnaire of Motivating Reading Instruction (QMRI)

Note. You are required to check: Never, Almost Never, Sometimes, or A lot.

Statements	**Never**	**Almost Never**	**Sometimes**	**A lot**
1. My teacher encourages me to summarize when I read.				
2. My teacher asks me to draw pictures about my reading.				
3. My teacher asks me to read books that I can understand if I think about them.				
4. My teacher asks me to find the supporting details for the main ideas when I read.				
5. My teacher encourages me to ask myself questions when I read.				
6. My teacher wants me to try to read books even though they are hard to understand.				
7. We get most of our information from one textbook in science (reverse coded).				
8. My teacher encourages me to keep trying even if the science work is hard.				

9. In science, I take a lot of quizzes about the textbook.				
10. My teacher uses many examples to explain concepts in science.				
11. My teacher gives me big projects to do in science.				
12. My teacher gives me the right amount of help when science is hard.				
13. My teacher asks me to do science experiments.				
14. My teacher asks me to draw concept maps about my science reading.				
15. My teacher asks me to explain the important ideas in my science reading.				
16. My teacher encourages me to read many different books in science.				
17. My teacher encourages me to write about my science projects in a journal.				
18. My teacher asks me to make predictions based on what I read in science.				
19. My teacher encourages me to make charts and Tables while I read.				

20. My teacher wants me to read books that help me learn new ideas in science. *(Autonomy Support Items)*				
21. My teacher wants me to choose books about science topics that I like to read.				
22. My teacher helps me to make my own goals when I read.				
23. My teacher asks me to express my own opinion about what I read.				
24. My teacher asks me to research topics I am interested in.				
25. My teacher asks me to find interesting books about my science work.				
26. My teacher asks me to decide whether I understand what I read in science.				
27. My teacher encourages me to follow my own interests when I read in science.				
28. In my class, we read the same English book together (reverse coded).				
29. My teacher encourages me to do my own independent research.				

30. My teacher encourages class discussions about the English reading.				
31. My teacher asks me to make important choices in science.				
32. My teacher tells me exactly how to do my English assignments (reverse coded).				
33. My teacher helps me to choose science books that are meaningful.				
34. My teacher helps me to create my own personal goals for learning English.				
35. My teacher encourages me to figure out how my English reading is useful.				
36. I help my teacher decide what topics to read about in science.				
37. My teacher encourages me to do the same experiments as my classmates (reverse).				
38. My teacher encourages me to work in my own way when I want to.				
39. My teacher lets me write answers to English questions using my own words.				

40. My teacher helps me to enjoy many interesting books in science.				

APPENDIX (B)

Reading Engagement Index (REI)

Teacher: _____ Date: _____

Directions: This is a questionnaire on students' engagement in reading throughout the day in your classroom. Write each student's name on the spaces provided and fill out the column under each.

		Student 1:			Student 2:			Student 3:		
	This Student:	NOT TRUE 1 2 3 4 5 VERY TRUE	NA		NOT TRUE 1 2 3 4 5 VERY TRUE	NA		NOT TRUE 1 2 3 4 5 VERY TRUE	NA	
1.	Often reads independently.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
2.	Reads favorite topics and authors.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
3.	Easily distracted in self-selected reading.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
4.	Works hard in reading.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
5.	Is a confident reader.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
6.	Uses comprehension strategies well.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
7.	Thinks deeply about the content of texts.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
8.	Enjoys discussing books with peers.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	

		Student 4:			Student 5:			Student 6:		
	This Student:	NOT TRUE 1 2 3 4 5 VERY TRUE	NA		NOT TRUE 1 2 3 4 5 VERY TRUE	NA		NOT TRUE 1 2 3 4 5 VERY TRUE	NA	
1.	Often reads independently.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
2.	Reads favorite topics and authors.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
3.	Easily distracted in self-selected reading.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
4.	Works hard in reading.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
5.	Is a confident reader.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
6.	Uses comprehension strategies well.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
7.	Thinks deeply about the content of texts.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	
8.	Enjoys discussing books with peers.	1 2 3 4 5	1		1 2 3 4 5	1		1 2 3 4 5	1	