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Research Paper

Using Graphic Markers to Highlight Syntactic and Emphatic Prosody and its Impact on ESP Readers' Foreign Language Reading Anxiety and Fluency

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Abstract

The study aimed at examining the effects of scaffolding ESP readers, by using graphic markers and highlighting syntactic and emphatic prosody, on their Foreign Language Reading Anxiety (FLRA) and fluency. A mixed-methods research design was used for a deeper understanding of the obtained data. An experimental design was planned with a control and an experimental group including 38 students of two fields, museum studies, and conservation of historic buildings in Shiraz University of Arts. Participants of the experimental group were scaffolded to develop reading fluency with different graphic markers, while members of the control group had their usual ESP classes. The participants' FLRA and reading fluency levels were assessed prior to the study and after it ended. Statistical analysis of the results proved that scaffolding the students with graphic markers had the potential to lower their FLRA. Also, the results of fluency assessment frameworks including Words Read Correctly per Minute (WCPM), Multidimensional Fluency Scale (MDFS) and National Assessment of Educational Progress (NAEP) confirmed the effectiveness of scaffolding the readers with graphic markers. For a deeper understanding, the data were explored using qualitative data classification and analysis by the NAEP framework. The qualitative analysis of the observations showed while graphic cues can scaffold the learners to notice their shortcomings toward an optimum level of fluency, they could not be the sufficient condition for achieving the goal. It was also concluded that

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online decoding, sight-word reading, and sensitivity to stress and intonation are pre-requisites of fluent and prosodic reading with expression.

Keywords: Emphatic Prosody, FLRA, Graphic Markers, Reading Fluency, Scaffolding, Syntactic Prosody

Developing reading fluency, prosodic reading with expression, in English has been an important educational objective of ESP classes while selecting the appropriate approach to fulfill this objective has proved to be a challenge for many language educators (Chard, Pikulski, & McDonagh, 2006; Kocharov, Kachkovskaia, & Skrelin, 2019; Paige, Rasinski, Magpuri-Lavell, & Smith, 2014; Samuels, 2006; Schreiber, 1980; Shanahan, 2006). Besides, lack of fluency, which is usually indicated by slow or word-by-word reading and low levels of comprehension leads to Foreign Language Reading Anxiety (FLRA) and even lower levels of cognitive functioning (Saito, Graza, & Horwitz, 1999).

Rasinski, Reutzel, Chard, and Linan-Thompson (2011, p. 293) define fluent prosodic reading as "the ability to make an oral reading sound like authentic oral speech" which is usually an indicator of sensitivity to semantic and syntactic levels and comprehension of the text. As essential elements of prosody are pitch, duration, stress, and pausing (Kuhn, Schwanenflugel, & Meisinger, 2010), acquisition of reading fluency means "overcoming the absence of graphic signals corresponding to certain prosodic cues by making better use of the morphological and syntactic cues that are preserved" (Schreiber, 1980, p. 177). In addition to breaking larger sentence units into smaller ones, highlighting certain structural components, and facilitating reading comprehension, prosody is sensitive to the context of the utterances and their pragmatic meanings (Blanchette & Nadeu, 2018). Schreiber (1980) suggests that beginning readers need the ability to parse the structure and

group the words into meaningful units as soon as they learn decoding skills. However, almost no language writing system provides such assistance, so fluency is said to be achieved when learners can discover syntactic phrasing of the text. According to Piage, Rasinski, Magpuri-Lavell, and Smith (2014), the readers' appropriate bracketing of the texts into meaningful information units provides "a sort of cognitive architecture of the text in the working memory" and "mediates the relationship between word recognition and fluency" (p.126); correct pausing indicates normal reading development and brings rhythmic quality to speech.

The present study was an attempt to understand how mediation and scaffolding may help learners develop their reading fluency and lessen their FLRA. Although previous research provides confirmatory evidence for the effects of phrase-reading mediation (Nomvete & Easterbrooks, 2020), few empirical studies review different scaffolding techniques like repeated reading (Calet, Pérez-Morenilla, & De Los Santos-Roig, 2019), bracketing (Guitérrez-Palma & Palma-Reyes, 2008; Piage et al. 2014) and graphic markers on identifying syntactic prosody (Kocharov et al. 2019). However, almost no study, to the best of the author's knowledge, has been conducted on the role of using graphic markers to highlight both syntactic and emphatic prosody to develop fluent prosodic reading and reducing FLRA.

The results of the study, therefore, can be used to enhance the literature of prosody instruction and developing FL reading skill. The results were also supposed to help students of ESP courses overcome their problems of reading comprehension in English as a foreign language including FLRA originating from their inability to decode and decipher the written texts, word-by-word reading, and low reading comprehension.

The study focused on the effectiveness of less examined graphic markers of coloring, highlighting, and italicizing to mediate prosody recognition, to

segment texts into meaningful grammatical chunks, and to show which information units must be emphasized.

It was an attempt to answer the following research questions:

Q1: Does using graphic markers, highlighting syntactic and emphatic prosody, lower ESP readers' FLRA?

Q2: Does using graphic markers, highlighting syntactic and emphatic prosody, improve ESP readers' reading fluency?

Q3: What challenges do the learners face while attempting to develop reading fluency? What strategies do they use to tackle the challenges and how can graphic aids help them in course of the study?

Literature Review

Instruction for Developing Fluency

Instruction for developing reading fluency can be effective when there is enough amount of instruction or allotted time for instruction, depending on the learners' levels and needs, adequate attention to all components of fluency, and ongoing monitoring of the students (Shanahan, 2006). Chard et al. (2006) find it too simplistic to think that reading fluency develops if the learners have more practice or mere repetition. They emphasize the concept of comprehension and believe that developing reading fluency requires systematic, long-term, and explicit fluency instruction. They list four dimensions for fluency including "oral reading accuracy, oral reading rate, quality of reading, and reading comprehension" (p.40). In most cases, instruction and experts' guidance are necessary especially for struggling readers. They suggest an eight-step program (p.49) for struggling readers including explicit and systematic instruction that:

1) builds the grapho-phonic foundations for fluency, including phonological awareness, letter familiarity, and phonics;

2) builds and extends vocabulary and oral language skills;
3) provides expert instruction and practice in the recognition of high-frequency vocabulary;
4) teaches common word parts and spelling patterns;
5) teaches, models and provides practice in the application of a decoding strategy;
6) uses appropriate texts to coach strategic behaviors and to build reading speed;
7) uses repeated reading procedures as an intervention approach for struggling readers;
8) monitors fluency development through appropriate assessment procedures.

Teaching grapheme-phoneme relations through phonics requires the learners' attention to decode words and phrases (Chard et al. 2006). The process may take time and thus hinder quick and fluent reading.

Autonomous word recognition and reading which frees attention systems are more satisfactory when quick and fluent reading is the goal, yet decoding and the ability to segment words with smaller parts, as a strategy for slow readers or beginners, can be considered as a useful strategy during reading. However, word-level prosody-based instructions only affect word-level fluency, which later on may facilitate reading fluency and comprehension (Chan, Wade-Woolley, Heggie, & Kirby, 2019).

To find the most effective reading practice, the National Reading Panel (2000) conducted a meta-analysis on fluency and found that oral reading practice was more effective than silent one; in addition, repetition and guidance from teachers proved as effective factors in improving reading fluency. About the optimum time for practice, they found that 15-30 minutes

per day of fluency instruction is the most effective, and the study indicated that too much attention to fluency within a reading lesson may detract the students' ability from focusing on comprehension.

Stahl (2004) conducted an experimental study to find and compare the effectiveness of oral and silent reading. Two groups of second-grade readers formed the experimental groups of the study. One practiced reading with silent reading and monitoring and the other one oral repetition with feedback. The control group, on the other hand, received neither of the treatments. The results indicated that both practices were significantly effective proving that reading practice with support improves fluency. Topping (2006, p.177) says that "it is not practice that makes perfect but successful practice at an appropriate level of difficulty that yields wider automaticity". The author believes that scaffolding and monitoring are necessary to guide the students' effort for better quality. Conducting a longitudinal study on 55 Spanish learners, Álvarez-Cañizo, Martínez-García, Cuetos, and Suárez-Coalla (2020) found evidence for the effectiveness of lengthy instruction and repeated training on the prosodic features of interrogative sentence intonation patterns. In another study, Calet, Gutiérrez-Palma, and Defior (2017) included prosody training and prosody marking to find to what extent they could enhance their automatic prosodic reading. The results indicated a significant outperformance for those who received prosody training than repeated-reading and control groups, although prosodic instruction was restricted to marking the punctuation marks with green color.

Reading fluency can only emerge with support, encouragement, and explicit instruction of knowledgeable teachers focusing on appropriate and consistent practice (Piage et al. 2014).

Syntactic and Emphatic Prosody

Erekson (2010) emphasizes the role of prosody in reading fluency, and in his words, "we rely on prosody in English to group words into meaningful syntactic sets" (p. 84), especially when reading them aloud because as the music of speech, prosody refers to features of the pitch, stress, duration, and loudness; the way words are grouped with correct pauses. He makes a distinction between syntactic and emphatic prosody types for phrasing and interpreting the text respectively. Syntactic prosody shows the boundaries based on the syntactic parsing; whether the words are syntactically or semantically related (Kocharo et al. 2019). It is usually distinguished with punctuation marks, though they do not completely show the boundaries, and grammatical competence is needed to distinguish phrase boundaries (Erekson, 2010). Syntactic prosody contrasts with emphatic prosody in that the latter functions as a pointer and pushes the readers purposefully to think about the text and the context for better interpretation and inferential comprehension. In Erekson's words, "where syntactic prosody is a behavioral signal of basic reading skill, emphatic prosody is a tool for manipulating the thinking we do with text" (p. 82)… and "emphatic prosody, by contrast, often goes beyond syntactic meaning, involving figurative speech, intent, motivation, and feelings" (p. 85).

Prosody Boundary Detection

According to Erekson (2010), reading fluency depends on syntax, semantics, and pragmatics. It means effortless, smooth, and automatic comprehension of texts (Schreiber, 1980). However, pronunciation should also be added to this list as reading starts with the decoding of the text and converting it into speech.

According to Boily, Chantal, and Turcotte (2015, p.246), components of reading fluency are "accuracy in word decoding, automaticity in word recognition, and appropriate use of prosody". In other words and as Hudson, Pullen, Lane, and Torgesen (2008) describe it, reading fluency involves reading the text accurately, with minimal cognitive effort, and prosody. Normally, since authors do not provide the readers with cues for every keyword or phrase in a sentence (Erekson, 2010), developing reading fluency, in one sense, means overcoming the problem of lacking signs for prosodic features. English, for instance, does not have any signals or graphic representations to show where stress, pause, and intonation are located; therefore, a great amount of energy should be spent by the readers to learn them (Schreiber, 1980).

Readers need to develop the ability to detect prosodic boundaries in the process of text-to-speech synthesis (Kocharov et al, 2017). These boundaries are not completely marked in English, and one task of reading classes is to develop the ability among English learners. Fluent readers can recognize phrase boundaries based on the information units, resulting in easy cognitive processing (Piage, et al. 2014) and avoiding syntactic ambiguity (Tian & Murao, 2016). Prosodic phrasing also makes it possible to find the boundaries between smaller meaningful units based on syntactic and semantic relations (Shattuck-Hufnagel & Turk, 1996).

Sometimes syntactic and prosodic boundaries do not coincide for pragmatic reasons, and then emphatic prosody boundary markers can be used to show the boundaries (Kocharov et al, 2019). In speech and reading aloud, silent pauses can be considered as a reliable boundary marker in syntactic prosody detection, and emphatic prosody is usually marked and recognized by other devices like intonation and stress (Rosenberg, 2009). In contrast, the absence of emphatic markers in silent reading makes it difficult for educators

and researchers to know how the learners' mind uses voice to find out the meaning (Erekson, 2010). Emphatic and syntactic prosody boundaries can also be detected based on the word classes; whether the words are content or function words (Taylor & Black, 1998).

Language researchers and educators have used different methods to develop learners' prosody detection skills and reading fluency. Methods like repeated reading can lead to developing fluency in readers in that they help readers discover the appropriate syntactic phrasing in the written texts (Boily, et al, 1980). Mediated learning, in line with previous literature on L2 learning (e.g. in Lantolf, 2000), has also proved to be fruitful in facilitating L2 reading. Guitérrez-Palma and Palma-Reyes (2008) used brackets to divide the texts into meaningful phrases for children to mediate phrase boundary recognition, and the results indicated significant improvement in reading fluency. Huang and Jun (2011) provided evidence for the advantage of younger learners in learning L2 prosody and showed that exposure to media and motivation were good indicators of success in learning English prosody. Another idea for scaffolding prosody boundary detection was via focusing on parts of speech and punctuation marks (Pascual & Bonafonte, 2016), though few attempts have been reported for using graphic markers like CAPITALS, *italics*, and **bold-faced** texts to suggest focus (Erekson, 2010). In a recent study, Kocharov et al. (2019) used graphic markers as syntactic boundary markers to see whether a word is realized as phrase final or not, and the results confirmed their effectiveness. Bolden and Beach (2020) provided a framework for the students to integrate prosodic elements of volume, rhythm, and pitch into reading through some invented notions of music learning. They found out that students learned to read more fluently and 'experienced a richer and deeper interaction with the text' (p.4). Similarly, Patel, Kember, and Natale (2014) conducted a case study to see how beginning readers could benefit from

explicit visual prosodic cues presented visually in augmented text formats via The Read N'Karaoke 2.0 Software. The results provided evidence that visual prosodic cues could enhance reading fluency in early readers.

Although the research on prosody instruction tends to confirm its effectiveness in developing fluent reading with expression (Stevens, Walker, & Vaughn, 2017), many untapped instruction techniques needing further investigation (Deacon, Holliman, Dobson, & Harrison, 2018).

Assessing Reading Fluency

Assessing reading fluency is a complex process including assessing oral reading accuracy, oral reading rate, quality of oral reading, and reading comprehension (Chard et al, 2006). Deno (1985) developed a quick, easy, and reliable method for teachers to evaluate the week-by-week progress of students in reading. In this method, a student reads a text for one minute. The same text will be read next week, and the rate of reading will be measured to see the progress. Reutzel (2006) used a similar fluency assessment model which examined students' decoding accuracy and reading rate of one-minute reading samples taken every two weeks. Similarly, in Curriculum-based Measurement (CBM), students read one minute from a passage randomly selected from their textbook. These assessment measures have been found to have adequate reliability and validity as the measures of reading fluency (Deno, 1985; Fuchs & Deno, 1992; Shinn, 1989).

Zutell and Rasinski (1991) made the Multidimensional Fluency Scale (MDFS) to rate reading fluency on four basic dimensions of Expression and volume, phrasing, smoothness, and pace, as adopted and presented in Smith and Piage (2019, p. 35):

Table 1.

Multidimensional Fluency Scale (MDFS)

Indicator	**1**	**2**	**3**	**4**
Expression and Volume	Reads in a quiet voice	Reads quietly sounding natural in parts	Reads with volume and expression that slips into occasional, expressionless reading	Reads with appropriate volume and expression; appropriate to the interpretation of the passage
Phrasing	Monotone, word-by-word reading	Use two- and three-word phrasing; generally ignores punctuation, stress, and intonation	Use reasonable stress and intonation; reads with some choppiness, and/or appropriate phrasing	Exhibits appropriate phrasing; adheres to punctuation, stress, and intonation
Smoothness	Repeats words, must sound out words, re-read words, phrases, and even sentences	Reading has many rough spots; some extended pauses and hesitations	Is generally a smooth reader but some breaks in rhythm and difficulty with specific words	Is a smooth reader; quickly self-corrects mispronounced words and phrases
Pace	Reading is very slow and laborious	Reads at a moderately slow pace that is too slow to be considered natural	Maintains an appropriate pace but may slip into either slow or fast reading	Reading is at a consistent, conversational pace throughout the reading

Each item is assessed on a scale ranging from one to four indicating little to the full development of the item. The summed score ranges from 4 to 16. It has proved to be a valid and reliable instrument for reading fluency (Smith & Piage, 2019).

The National Assessment of Educational Progress (NAEP) also designed a plan to measure fluency. In this measurement, a four-point scale is used for the oral reading performance of the readers (Shanahan, 2006). It is shown in the following table (Smith & Piage, 2019, p.36):

Table 2.
NAEP (2002) Oral Reading Fluency Scale

Competency	Level	Description
Fluent	4	Reads primarily in larger, meaningful phrase groups. Although some regressions, repetitions, and deviations from the text may be present, these do not appear to detract from the overall structure of the story. Preservation of the author's syntax is consistent. Some or most of the story is read with expressive interpretation.
Fluent	3	Reads primarily in three- or four-word phrase groups. Some small groupings may be present. However, the majority of phrasing seems appropriate and preserves the syntax of the author. Little or no expressive interpretation is present.
Disfluent	2	Reads primarily in two-word phrases with some three- or four-word groupings. Some word-by-word reading may be present. Word groupings may seem awkward and unrelated to a larger context of sentence or passage.
Disfluent	1	Reads primarily word-by-word. Occasional two-word or three-word phrases may occur—but these are infrequent and/or do not preserve meaningful syntax.

Reading Anxiety

One source of reading difficulty is insufficient exposure especially for lower-level readers who are in the vicious circle of feeling frustrated and being reluctant to read more and progress (Taguchi, Melhem, & Kawaguchi, 2016). This state is usually anxiety-provoking. Due to the preventive power of affective filters in the cognitive processing of language learning, dealing with FLRA is supposed to be a priority in developing reading fluency.

The literature on FLRA shows that anxiety must originate when slow readers attempt to decode the written texts into speech, and for their inability to pronounce unfamiliar words and to cope up with the challenge of phrasing and segmenting the texts into meaningful units, they feel intimidated and anxious (Saito et al.1999). This can even increase the cognitive load and hinders the reading process. The present study then was done based on the idea that if novice L2 readers are scaffolded, for example, by the mediation of graphic markers to compensate for the absence of prosodic cues in the texts (Schreiber, 1980), reducing FLRA and developing reading fluency can be achieved with more ease.

Method

Design of the Study

This study enjoyed a mixed-methods research design combining elements of quantitative and qualitative research approaches for breadth and depth of understanding and analysis of the obtained data. An experimental design was planned with a control and an experimental group. They both participated in ESP reading comprehension classes; participants of the experimental group were scaffolded to develop reading fluency with different graphic markers, while members of the control group had a usual reading comprehension class. They did the pre-reading tasks, read the texts and answered comprehension questions of their teachers and textbook. FLRA scale was used to determine their reading anxiety before the study started and after it ended. Fluency assessment was also performed to check their progress in reading fluency. As far as the number of volunteering students in the experimental group dropped during the study, qualitative data were also gathered as compensation for the strength of the statistical data analysis procedure. For the qualitative data collection, the focus was on the

experimental group. By analyzing their recordings, it was attempted to understand the developmental route they go through to achieve a higher level of reading fluency.

Participants

The participants of the study were chosen based on the availability sampling method. Initially, they included 38 students of two fields, museum studies and conservation and restoration of historic buildings in Shiraz University of Arts. Three of them were identified as high-level readers with optimum levels of reading comprehension and were excluded from the study. The rest of them were recognized as low proficient FL readers based on their final scores on the reading comprehension section of their general English class. Based on their FL reading level, they were expected to have high levels of FLRA and low levels of reading fluency. Participants of the museum studies group were chosen as the experimental group since a newly developed textbook in soft and hard formats with graphic markers had already been developed for this group. Students of the conservation of historic buildings were chosen to form the control group. Their age ranged from 21 to 26 years old. All students in the experimental group were female, and only two in the control group were male students.

Although the study followed normal educational practices and classroom management methods, the participants were informed about the purpose, duration, and procedures of the research. They volunteered to participate and knew that they had their right to withdraw from the research once it started. As the study continued, several of the students of both groups refused to record

their reading aloud of their texts; 14 students in the control group and 11 in the experimental group completed the tasks to the end of the study.

Materials and Instruments

'English for the Student of Museum', which is an unpublished textbook with 12 units prepared by the instructor of the course, was one major material of the study (see Appendix B). Most of the texts were selected from Ambrose and Paine's (2006) '*Museum Basics'*, recognized as the main sourcebook by the International Council of Museums (ICOM) for the training of personnel and approved by UNESCO as a valid source to meet the needs of museum workers. Syntactic prosody is marked by using black and gray colors in a way that the participants can understand which word groups make a syntactic unit so that they can pause at the right boundary. Emphatic prosody is also marked based on the distinction between given/new information via highlighting and italicizing the focal words.

The next material for the control group was *'English for the Students of Historic Buildings Conservation and Restoration'* by Abbasnejad, Khajepour, and Rohani (2014). The textbook includes 15 units and has no instruction for prosody. Every unit is comprised of pre-reading questions, the text, and some post-reading exercises.

Several instruments were used in this study to measure the participants' reading fluency and FLRA. To measure reading fluency, reading aloud performance of the experimental group students were recorded and analyzed five times after they finished each unit of the textbook, whereas only three performances of the control group were recorded and analyzed for practical reasons.

Three measures were used for the fluency analysis. The first method was 'Words Read Correctly Per Minute' (WCPM) as used and validated by Deno

(1985) and Reutzel (2006). As formulated by Kuhn (2009), in this assessment method, the number of words read correctly per minute is used to assess the fluency components of accuracy and automaticity. In this study, however, to maximize the reliability and validity of the results, instead of a one-minute sample, all the text recordings were analyzed for each student. These assessment measures have been found to have adequate reliability and validity as the measures of reading fluency (Deno, 1985; Fuchs & Deno, 1992; Shinn, 1989). To ensure the reliability of WCPM calculations, the rater scored the recordings of the first unit on two occasions with a week interval (25 cases), and intra-rater reliability using Pearson correlation between the scorings was estimated as .94. Estimating inter-rater reliability was not possible for practical reasons. The next measure of fluency was Zutell and Rasinski's (1991) Multidimensional Fluency Scale (MDFS), rating reading fluency on four dimensions of Expression and volume, phrasing, smoothness, and pace (Table 2.1), as adopted and presented in Smith and Piage (2019). Each item is assessed on a scale ranging from one to four indicating little to the full development of the item. The summed score ranges from 4 to16. It has proved to be a valid and reliable instrument for reading fluency (Smith & Piage, 2019). As far as the reliability was concerned, two raters listened to a one-minute sample of each unit and rated each learner independently. The Pearson correlation coefficient of their scores (α=.88) was considered as the measure of inter-rater reliability. The National Assessment of Educational Progress (NAEP) was used as the last already validated measure of reading fluency (Shanahan, 2006). It provides a four-point scale for the oral reading performance of the readers, distinguishing fluent from disfluent readers. Two descriptions are given for the levels 'one and two' disfluent readers and two for the levels 'three and four' fluent ones (Table 2.2). The reliability was also maintained through the identification of fluency levels with two independent

raters. Inter-rater reliability was then estimated with the Kappa Measure of Agreement; the value was .83, with a significance level of p<.0005.

To determine the level of foreign language reading anxiety, FLRAS developed by Saito et al. (1999) was used (see Appendix C). It is a Likert-scale questionnaire including 20 items and five possible choices: (1) strongly agree, (2) agree, (3) undecided, (4) disagree, (5) strongly disagree, and theoretical ranges of 20 to 100. The mean and standard deviation of FLRA were in Saito et al.'s study 52.9 and 9.4 respectively and good internal reliability of .86 Cronbach's alpha. In this study, the reliability estimate (Cronbach's alpha) was .91 and .9 for the control and experimental FLRA results respectively.

Data Collection Procedures

The participants of the study were assigned to a control (n=19) and an experimental group (n=16) according to the materials they were supposed to read during the course, so students of museum studies formed the experimental group and students of conservation and restoration of historic buildings were considered as the control group. This can be considered as one limitation of the study that due to the material availability, random assigning of the groups was not possible. Before the study started, both groups took part in the pre-tests of FLRAS. During the treatment sessions, the participants of the experimental group were scaffolded to read the texts in which prosody was highlighted via different shades, colors, italicizing, and highlighting, while the participants of the control group did the pre-reading tasks, listened to their instructor reading the texts, and answered the comprehension questions. Participants of the control and experimental groups were asked to record their reading aloud of the texts on five occasions with a two-week interval after

each one. The recordings were scored and analyzed for understanding the fluency progress in each group.

For a deeper understanding of the progress in the experimental group and as a compensation for losing some participants, the data were explored more, using qualitative data classification and analysis, based on the National Assessment of Educational Progress (NAEP) framework. As far as the credibility of the data concerned, the two raters of NAEP, while listening to the recordings, also checked the observations already made by the researcher of the study.

Data Analysis

To find the effect of the treatment on reading fluency and anxiety, a series of repeated measures ANOVA, independent samples, and paired-samples t-tests were used. Qualitative data analysis focused on grouping and analysis of the experimental group participants' deviations and strategies to avoid word-by-word reading and maintaining fluency.

Results and Discussion

Results of FLRAS

Both groups completed FLRAS before the study started and after it had finished. The results were used to see if there were any significant differences between the anxiety levels as represented in the means of the groups on two occasions.

FLRA of the Control Group

Table 3 shows the statistical data of the control group's FLRA in pre- and post-tests. The data indicate a slight increase in the mean of the post-test.

Table 3.

Descriptive Statistics of Control Group FLRA

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Pre-test	18	54.00	36.00	90.00	60.2222	15.16791	230.065
Post-test	20	45.00	38.00	83.00	62.6000	12.12826	147.095
Valid N (listwise)	18						

To understand whether or not this difference was statistically significant, a paired-samples t-test was performed. The results indicated (as in Table 1, Appendix D) that the difference was not statistically significant (t=.412, df=17, p=.685). In other words, no significant change is observed in FLRA levels of the control group before and after the study.

FLRA of the Experimental Group

A similar procedure was followed for the results of the experimental group. The following table (Table 4) summarizes the descriptive statistics for the experimental group's FLRA.

Table 4.

Descriptive Statistics of Experimental Group FLRA

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Post-test	17	39.00	41.00	80.00	58.3529	12.30823	151.493
Pre-test	17	43.00	44.00	87.00	68.3529	13.53671	183.243
Valid N (listwise)	17						

The means suggest a decrease in the FLRA level at the end of the study, yet to understand if the difference in the means was significant, a paired samples t-test was used and the results (as in Table 2, Appendix D) suggest a statistically significant decrease in the mean of FLRA post-test (t=6.994, df=16, p<.05). This may mean the participants experienced less FLRA while reading their ESP texts when the study ended.

Independent-samples T-test of Pre-test FLRA

Two independent samples t-tests were also used to see the significance of the difference between the means of the groups in pre- and post-tests. The following table (table 5) summarizes the means of FLRA in pre-tests.

Table 5.

Descriptive Statistics of Pre-tests

Group Statistics

	GROUPS	N	Mean	Std. Deviation	Std. Error Mean
PRE-TESTS	CONTROL	18	60.2222	15.16791	3.57511
	EXPERIMENTAL	17	68.3529	13.53671	3.28314

The results (as in Table 3, Appendix D) of the independent samples t-test of the pre-tests indicated no significant difference between the means of both groups' pre-tests (t=1.67, df=33, p=.104).

Independent-samples T-test of Post-test FLRA

To understand the statistical difference of the means in FLRA post-tests, another independent samples t-test was performed. The following table (Table 6) summarizes the descriptive statistics of the post-tests.

Table 6.

Descriptive Statistics of post-tests

Group Statistics					
	GROUPS	N	Mean	Std. Deviation	Std. Error Mean
POST-TEST	CONTROL	20	62.6000	12.12826	2.71196
	EXPERIMENTAL	17	58.3529	12.30823	2.98519

The results (as in Table 4, Appendix D), however, indicated no significant difference between the means of FLRA post-test (t=1.054, df=35, p=.299).

Results of Fluency Estimates

The major measure of the analysis to investigate the effect of using graphic markers on the students' FL reading fluency was WCPM; nonetheless, as the preliminary data proved the effectiveness of the treatment, MDFS and NEAP scales were also used for the experimental group's data to confirm the results.

Results of WCPM

WCPM or the number of words correctly read per minute was used as the first measure to assess the progress of the students' fluency during the study. In Kuhn's (2009) formula, a one-minute sample is suggested to be used; however, as a compensation for the small number of students in each group and to maximize the reliability and validity of the results, instead of a one-minute sample, all the text recordings were analyzed for each student.

Control Group Fluency Data

The following table (Table 7) shows the descriptive statistics of the control group results for the first, third, and fifth units.

Table 7.
Descriptive Statistics of Control Group WCPM

Descriptive Statistics			
	Mean	Std. Deviation	N
unit1	75.7193	19.79207	14
unit3	67.8943	20.46590	14
unit5	66.5221	18.03404	14

To understand the significance of the difference between the means, the following plot and one-way repeated measures ANOVA were used and analyzed. As shown in the plot (Figure 1), three different means for time 1, 2, and 3 were obtained in the results, yet to understand if the differences were statistically significant, Table 8 was consulted.

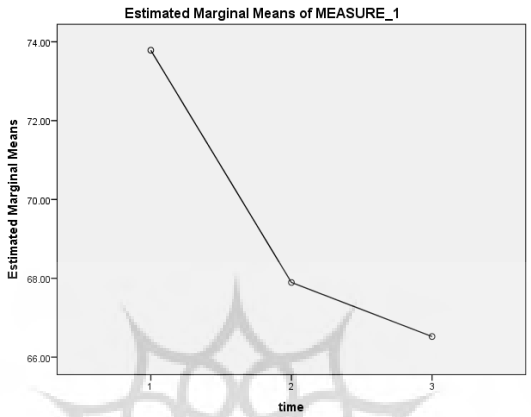

Figure 1.
Plot for WCPM of Control Group

According to the following table (Table 8), there was not a significant effect for time, Wilks' Lambda=.69, F(2, 12)=2.696, p=.108.

Table 8.
One-way Repeated Measures ANOVA of Control Group WCPM

Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.
Time	Pillai's Trace	.310	2.696[b]	2.000	12.000	.108
	Wilks' Lambda	*.690*	*2.696[b]*	*2.000*	*12.000*	*.108*
	Hotelling's Trace	.449	2.696[b]	2.000	12.000	.108
	Roy's Largest Root	.449	2.696[b]	2.000	12.000	.108

Experimental Group Fluency Data

The same procedure was followed for the experimental group; however, due to the small number of students, the results of all units and five occasions

were analyzed for a more detailed analysis of possible change in the results. The following table (Table 9) shows the descriptive statistics of the results.

Table 9.

Descriptive Statistics of Experimental Group WCPM

	Mean	Std. Deviation	N
unit1	80.5364	14.22083	11
unit2	81.4536	14.40748	11
unit3	83.7609	13.58196	11
unit4	94.8362	13.13056	11
unit5	96.7500	13.31601	11

The following plot (Figure 2) depicts the standing points of the means of the group on five occasions.

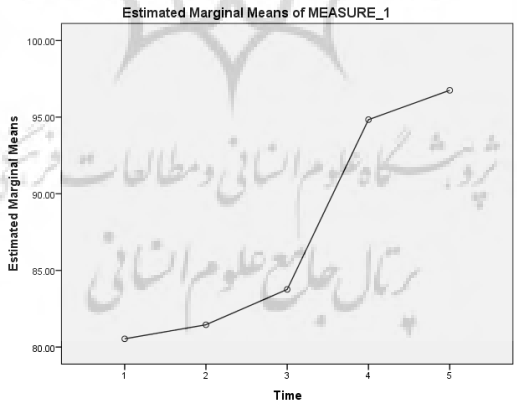

Figure 2.

Plot for WCPM of Experimental Group

A one-way repeated measures ANOVA was used and analyzed to understand the significance of the difference between the means. The results are represented in the following table:

Table 10.
One-way Repeated Measure ANOVA of Control Group WCPM

Effect		Value	F	Hypothesis df	Error df	Sig.
Time	Pillai's Trace	.832	8.655[b]	4.000	7.000	.008
	Wilks' Lambda	*.168*	*8.655[b]*	*4.000*	*7.000*	*.008*
	Hotelling's Trace	4.946	8.655[b]	4.000	7.000	.008
	Roy's Largest Root	4.946	8.655[b]	4.000	7.000	.008

The results of the table (Table 4.8) showed a significant effect for time, Wilks' Lambda=.168, $F(2,9)=8.655$, $p<.05$. Consulting the pairwise comparisons table (as in Table 5, Appendix D) shows the exact place of the significant difference between the means. The data suggested steady progress in the means; there was no significant difference among the means in the first, second, and third occasions. As the plot (Figure 2) suggests and the table (see Table 5, Appendix D) shows, statistically significant progress is observed in the fourth reading of the text. The overall analysis of the means on five occasions indicates the effectiveness of scaffolding readers with graphic markers.

Results of MDFS Scale

The students' recordings in the experimental group were also analyzed by using Zutell and Rasinski's (1991) MDFS scale (Table 2.1) of rating reading fluency on four dimensions of Expression and volume, phrasing, smoothness, and pace, as adopted and presented in Smith and Piage (2019). Each item was assessed on a scale ranging from one to four indicating little to

the full development of the item. The summed score ranged from four to 16. As mentioned in the literature review, the scale has proved to be a valid and reliable instrument for reading fluency (Smith & Piage, 2019). The following table summarizes the descriptive statistics of the results.

Table 11.

Descriptive Statistics of Experimental Group MDFS

	Mean	Std. Deviation	N
EPSP1	10.0833	2.15146	12
EPSP2	12.5833	2.46644	12
EPSP3	14.1667	1.26730	12
EPSP4	14.2500	1.54479	12
EPSP5	14.3333	1.30268	12

First of all, the plot was examined and the results suggested a gradual increase in the means.

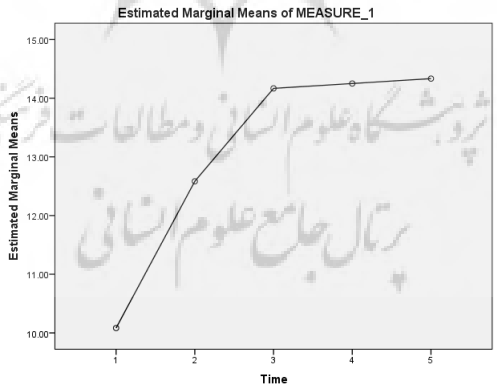

Figure 3.

Plot for MDFS of Experimental Group

One-way repeated measures ANOVA was used to see whether or not the differences in the means were statistically significant and the following results were obtained. The following table (Table 12) summarizes the results of the MDFS of the experimental group:

Table 12.

One-way Repeated Measures of Experimental Group's MDFS

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Time	Pillai's Trace	.933	27.908[b]	4.000	8.000	.000
	Wilks' Lambda	.067	27.908[b]	4.000	8.000	.000
	Hotelling's Trace	13.954	27.908[b]	4.000	8.000	.000
	Roy's Largest Root	13.954	27.908[b]	4.000	8.000	.000

The results of the table (Table 4.10) indicated a significant effect for time, Wilks' Lambda=.067, $F(2,9)=27.908$, $p<.05$. The pairwise comparisons table (Table 6, Appendix D) was consulted for locating the exact place of the significant difference between the means. The results also confirmed the effectiveness of the treatment on developing reading fluency as defined by Smith and Piage (2019) in four dimensions of Expression and volume, phrasing, smoothness, and pace.

Results of NEAP Scale

The National Assessment of Educational Progress (NAEP) was used as the last already validated measure of reading fluency (Shanahan, 2006). It provides a four-point scale for the oral reading performance of the readers, distinguishing fluent from disfluent readers. The following bar graph indicates the frequency of the readers with reference to their fluency level as represented in Table 4.

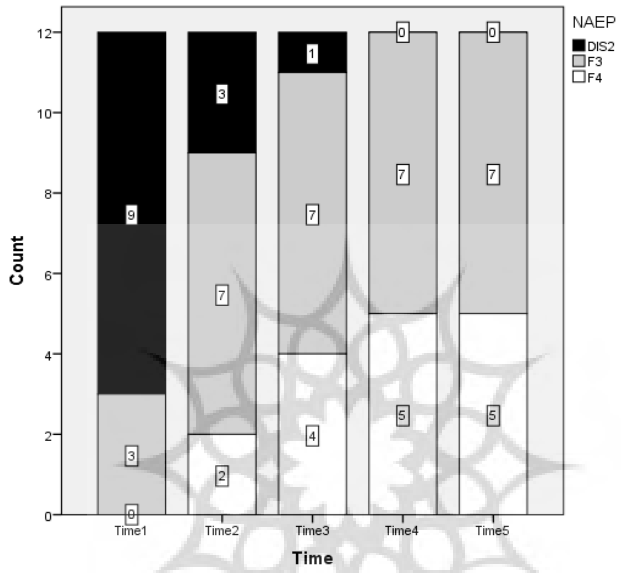

Figure 4.
Bar Graph of Experimental Group NEAP

The study started with the majority of the readers labeled at stage two disfluent (DIS2) readers (n=9) and the rest were classified as stage three fluent (F3) readers (n=3). DIS2 stage is characterized by the absence of phrase-by-phrase reading ability, so the learners' frequent lapses were reported as their inability to parse at the right place.

Learners of the experimental group had already been instructed and scaffolded by the black and gray colors of the phrases, and phrase-by-phrase reading was determined as a goal for the students. They were asked to avoid word-by-word reading and to use and follow the markers to reach the level of phrase reading. Attempts to accomplish this were observed right from the beginning, and no one was observed with the first stage of disfluency (DIS1).

According to the descriptions of the scale, no sample of 'reading with expression' was observed in time one. Time two is characterized with more attention to graphic markers of syntactic prosody and still less attention to emphatic prosody which is usually a better indicator of reading with expression. The frequencies of time three, four, and five suggest the gradual progress of the learners' reading, and that scaffolding with graphic organizers can raise the learners' attention to the objective of phrase-by-phrase reading. Yet frequencies in Time four and five suggest that about 42% of the learners were unable to 'read with expression'. It may be interpreted that syntactic prosody markers were easier to understand and follow, but emphatic prosody markers were more difficult, needing mastery of vocabulary knowledge and comprehension of the sentences, which are the prerequisite of 'reading with expression'.

Qualitative Results of the Study

The purpose of this part of the study was to explore and understand unobserved factors or themes contributing to reading fluency with more depth. Audio recordings were analyzed to find the status and the challenges the learners face at different stages of the study and the strategies they used to tackle the problems. The way graphic aids could help them improve their reading fluency was also examined. The National Assessment of Educational Progress (NAEP) measure of fluency (Smith & Piage, 2019) was used as the framework for the description of what was observed in different stages of the study. To explore more, the detailed description of the observations were added to the general descriptions already mentioned by the authors:

Table 13.

Qualitative Data of the study on NAEP Framework

Competency	Level	General Description	Detailed Description of Observations
Fluent	**4**	Reads primarily in larger, meaningful phrase groups. Although some regressions, repetitions, and deviations from the text may be present, these do not appear to detract from the overall structure of the story. Preservation of the author's syntax is consistent. Some or most of the story is read with expressive interpretation	accurate pronunciation, stress and intonation, phrase-by-phrase reading (mastery of syntactic prosody), reading with expression (mastery of emphatic prosody), online and automatic decoding of new words, self-correction
Fluent	**3**	Reads primarily in three- or four-word phrase groups. Some small groupings may be present. However, the majority of phrasing seems appropriate and preserves the syntax of the author. Little or no expressive interpretation is present	Some mispronunciation observed (some whole-word reading and decoding strategies to keep the optimum pace leading to mispronunciation), online decoding, not present, successful decoding when enough time spent on the task, some attention to stress and intonation sometimes with exaggeration, phrase-by-phrase reading is a challenge but graphic cues are followed successfully (attention to syntactic prosody), reading with expression still not completely present, fluency at the expense of accuracy

Competency	Level	General Description	Detailed Description of Observations
Disfluent	**2**	Reads primarily in two-word phrases with some three- or four-word groupings. Some word-by-word reading may be present. Word groupings may seem awkward and unrelated to a larger context of sentence or passage	frequent pronunciation errors, little attention to stress and intonation, graphic cues are used and some phrase-by-phrase reading observed, word-by-word reading still present with inappropriate pausing, no sign of reading with expression, failed attempts to decode unfamiliar words, failed attempts to sight word reading, few self-correction instances
Disfluent	**1**	Reads primarily word-by-word. Occasional two-word or three-word phrases may occur – but these are infrequent and/or they do not preserve meaningful syntax	Frequent pronunciation errors, lack of attention to stress and intonation, inability to decode words, word-by-word reading, no sign of reading with expression, no sign of prosodic reading

According to figure (4), no student was identified at the lowest level of Disfluent 1, yet according to the general description and the performance of the participants in Disfluent 2 level, a detailed description of the level was hypothesized in the table. Observations of the learners in the second level, Disfluent 2, as briefed in the table (13), indicated that mere phrase-by-phrase reading could not guarantee reading fluency. The participants of the experimental group had already been informed about the value of phrase-by-phrase reading, and they were instructed to use graphic markers for this purpose. However, due to fundamental problems like the inability to pronounce some words and lack of attention to stress and intonation, they were unable to follow the cues and to read normally. Their attempt to decode new words usually failed due to their inadequate experience and practice to read

them. They did not have enough experience of decoding, so their attempts to generalize sign-symbol relations usually ended in failure. Also, they knew the merit of fluent reading and wanted to read phrase-by-phrase, and they used sight-word or whole-word reading and in many cases, their attempts did not succeed. The following tables (Table 13 & Table 14) show some examples of the learners' mispronunciations when their attempts for decoding or sight-word reading failed:

Table 14.

Examples of the Learners' Failed attempts to Use Whole-word Reading Strategy

word	pronunciation	word	pronunciation
differentiate	/ˌdɪf.əˈren.tɪ.eɪt/	**policies**	/pəˈliːsiz/
conservation	/ˌkɑːn.vəˈseɪ.ʃən/	**safeguard**	/ˈstæn.dɚd/
precise	/praɪs/	**range**	/ræŋ/
choice	/tʃuːz/	**strength**	/streɪndʒ/
who	/haʊ/	**array**	/ˈer.i.ə/
gave	/gɪv/	**strange**	/streɪndʒ/
from	/fɔːrm/	**interpreter**	/ˈɪn.trɪpt/
vary	/ˈver.i/	**with**	/wɪtʃ/
exist	/ˈeg.zɪt/	**met**	/miːt/
taxes	/ˈtek.səs/	**exhibition**	/ˌedʒ.əˈkeɪ.ʃən/
significance	/ˌsaɪənˈtɪf.ɪk/	**appropriate**	/əˌpriː.ʃiˈeɪ.ʃən/

The readers' inability to read words as a whole can be attributed to different reasons. First of all, it may be because of a temporary lack of attention to the words from psycholinguistically disturbing factors like anxiety. They may also have failed to see the words as a whole correctly because they were in a hurry to keep up the pace and optimize fluency. Another reason may be that the readers were not experienced enough to succeed in whole-word reading. In other words, when they wanted to read new

words, they used their previous vocabulary knowledge and took a wrong previously learned word for the new word; it can be the negative transfer of previous knowledge. It can also be considered as a sign of failure to read with expression and prosody.

Table 15.

Examples of the Learners' Failed attempts to Use Decoding Strategy

word	pronunciation	word	pronunciation
opportunities	/ˌɑ:.pɚˈtu:.niz/	**analysis**	/əˈnɑ:l. i:.si:z/
accruing	/əˈku:rɪŋ/	**facilities**	/fəˈsɪt̬iz/
industrial	/ɪnˈdju:s.tri.əl/	**evaluating**	/ɪˈvæl.et ɪŋ /
interpretation	/ɪnˌtɝ:.preɪ.ʃən/	**costs**	/kæst iz /
thereby	/ˌðerˈbɪ/	**educational**	/ˌedu:ˈkeɪ.ʃən.əl/
catering	/ˈkæ.t̬ɚ.ɪŋ/	**volunteer**	/ˌvu:.lu:nˈtɪr/
mission	/ˈmɪdʒ.ən/	**beneficial**	/ˌben.əˈfɪk.əl/
key	/keɪ/	**assess**	/eiˈses/

The ability to decode words accurately and speedily is achieved gradually as the readers develop their ability through practice and exposure to more and more samples of sound-symbol relationships. English spelling, with all its spelling discrepancies, can be learned through practice, yet fluency cannot be achieved without online-decoding, sensitivity to stress, and intonation.

Little by little, they seemed to become aware that reading fluency without the ability to decode words was too cumbersome for them. More practice and scaffolding sessions came to their help and they became more fluent. One point, which is not present in general descriptions of Smith and Piage (2019) but observed among the learners of Fluent 3 level, was that these participants could hardly achieve phrase-by-phrase reading fluency because of their inability to perform online decoding of unfamiliar words. Their attempts to do so usually failed, but when they spent time on decoding tasks, they could

manage the correct pronunciation in most of the cases. The results confirmed that scaffolding the learners at the level of pronunciation, stress, and intonation is a necessary condition when fluency and reading with expression matter.

Conversely, optimum fluency of level 4 is, first of all, characterized by online decoding ability. Accurate and automatic ability to pronounce a word with the correct stress, attention to intonation pattern and emphatic prosody, phrase-by-phrase reading (attention to syntactic prosody), and the ability to self-correct are characteristics of fluent readers. The observations showed that while graphic cues can scaffold the learners to notice their shortcomings toward reaching level 4, they could not be sufficient conditions for achieving the goal. The need to establish the abilities of sight-word reading, online decoding, and sensitivity to stress and intonation are pre-requisite of prosodic fluent reading with expression.

Discussion

The results of the study were used to answer the research questions of the study. The first research question addressed the effect of scaffolding ESP readers with graphic markers on their FLRA:

Q1: **Does using graphic markers, highlighting syntactic and emphatic prosody, lower ESP readers' FLRA?**

The literature on FLRA has come to the stage of saturation in that there is nearly no doubt that reading anxiety is a common phenomenon among FL readers and that it negatively affects cognitive processing of reading comprehension. The only concern of the researchers may still be how to overcome it. Many remedies like extensive reading (Yamashita, 2004) and repeated reading (Crawford, 1998) have already been suggested to overcome the feeling. The results of the present study suggested that overcoming the

negative feeling of anxiety when reading ESP texts required scaffolding, yet the correct type and technique of scaffolding requires understanding the level and needs of the readers. The inability to pronounce unfamiliar words and expressions, word-by-word reading and reading without comprehension have proved to be anxiety-provoking for the readers (Saito, et al, 1999).

In response to the first research question of the study, the results proved that scaffolding the students with graphic markers had the potential to lower their FLRA. An Origin of reading anxiety according to FLRAS is a lack of self-confidence. Scaffolding learners and expert-novice cognitive support have proved to affect the learners' cognitive functioning positively (Chow, Chiu, & Wong, 2018; Zhang & David, 2017), and hence, lower anxiety. In line with previous literature (Lien, 2016), the results seem to confirm that scaffolding can improve the learners' self-confidence. The next source of FLRA is insufficient oral reading proficiency. The study required the learners to practice reading the texts for recording and sending them to the researcher for further analysis. It may be another reason for decreasing their FLRA levels. Inadequate syntactic knowledge is another source of FLRA. In this study, syntactic prosody was highlighted with graphic markers, so it may also be another reason for lowering FLRA. Some items of the scale refer to 'reading without comprehension' as a reason for FLRA. Emphatic prosody markers were used to help readers comprehend the texts more effectively. This may have helped the learners to lower their FLRA. However, it seemed that decoding skills, stress, and intonation deserved more attention, while they are perceived to be anxiety-inducing in FLRAS. The inability of the learners to decode new and unfamiliar words hindered fluency and created discomfort and anxiety. Inadequate knowledge of vocabulary also is predicted to be anxiety-inducing in FLRAS, so attending to emphatic prosody and keywords of the sentences could also reduce the reading anxiety of the learners.

In this study, it was frequently observed that being in haste to keep the optimum pace could be anxiety-provoking and a hindrance to the learners cognitive optimal functioning; the learners were sometimes unable to read simple words like 'with', 'who' and 'from' correctly (Table 4.12). In addition, as mentioned before, low-level readers who were usually more anxious, required some time to decode new words, and they were unable to decode them promptly. Putting the pressure of phrase-by-phrase reading and keeping up the pace can be a factor for increasing their FLRA, while the primary purpose of scaffolding was to improve their reading fluency.

The second research question addressed the effect of scaffolding ESP readers with graphic markers on their FL reading fluency:

Q2: Does using graphic markers, highlighting syntactic and emphatic prosody, improve ESP readers' fluency?

In line with the previous research on instructed fluency learning (e.g. Álvarez-Cañizo et al. 2020; Blanchette & Nadeu, 2018; Calet et al. 2017; Calet et al. 2019; Chan et al. 2019; Guitérrez-Palma & Palma-Reyes, 2008; Kocharov et al. 2019; National Reading Panel, 2000; Nomvete & Easterbrooks, 2020; Paige et al. 2014; Stahl, 2004), the results of the present study on all frameworks including WCPM, MDFS, and NAEP tended to confirm the effectiveness of scaffolding the readers with graphic markers on improving their reading fluency; however, several points should also be discussed regarding the obtained the results.

First of all, for the first framework, the number of words correctly read in a minute is usually used as a measure of reading fluency. The formula is sensitive to the number of correctly pronounced words and it does not show if syntactic and emphatic prosody are observed or not, while prosody is usually an overlooked factor in fluency studies (Piage et al. 2014; Rasinski et al, 2011). Besides, when the learners attempted to speed up their reading, they

mispronounced many words, though they could get high measures of reading fluency due to the total number of words they had read from the text. That would be a false rate of fluency, while fluency is generally defined as reading with expression (Topping, 2006).

The second framework, the MDFS scale, focused on developing fluency components of expression and volume, phrasing, smoothness, and pace. The analytic approach to measure fluency seemed to be more effective because all elements of fluency, as described in the literature review (e.g. Chard et al. 2006), are present in the framework. Scaffolding with graphic markers to highlight syntactic prosody seemed to be influential to promote 'pace' and 'phrasing'. Using graphic markers to elaborate emphatic prosody could also enhance 'expression and volume' and 'smoothness'. However, if the learners are not experienced enough to decode new and technical words, scaffolding them in the level of phrase reading may seem to be too early. It is better to work on decoding skills, stress, and intonation before expecting the learners to read fluently with expression. It has been emphasized by quite a few researchers that fluency, in the first place, requires automaticity in word decoding, stress, pitch, and tone (e.g. Boily et al, 2015; Chard et al, 2006; Mathson, Allington, & Solic, 2006; Shanahan, 2006).

The third framework, NAEP, gave a straightforward description of disfluent vs. fluent readers. The statistical results also confirmed that scaffolding with graphic markers had the potential to lead the learners from disfluent to fluent readers. The description of levels 3 and 4 of fluent readers focuses on their sensitivity to correct syntactic boundaries of phrases and reading with expression. Using graphic markers focused exactly on distinguishing the syntactic structure of phrases and how reading with expression could be preserved through emphatic prosody, and the result showed significant improvement in the indices. Similar results have already

been reported from the little research done on the effect of scaffolding with graphic markers (Buxó-Lugo & Watson, 2016; Kocharov et al, 2019; Schreiber, 1980; Stahl, 2004). Piage et al. (2014) found the positive effect of bracketing the text based on information units on reading fluency; however, the inability for decoding and sight-word reading was taken for granted, as such skills must be introduced in earlier stages of reading ability.

The results indicated while we were concerned about reading fluency, the learners required scaffolding for more fundamental skills. The concept of Zone of Proximal Development (ZPD) (Lantolf, 2000) can be used to claim that before developing fluent reading with expression, the learners should be familiar with the spelling system of the language and have enough experience and practice with decoding, stress, and intonation.

Other research questions addressed the qualitative data and the students' challenges and strategies while developing reading fluency:

Q3: What challenges do the learners face while attempting to develop reading fluency? What strategies do they use to tackle the challenges and how can graphic aids help them in course of the study?

The qualitative results of the study were classified and matched with items of the NAEP framework and presented a more detailed description of how reading fluency tended to develop in the participants of the study. The results suggested that the challenges started with the inability of the readers to decode new words and their failure to read words as a whole. In other words, lagging behind the mastery of decoding skill was observed to be the most challenging task for the learners when the study started. The fact that fluent learners have little trouble with sound-symbol irregularities in English spelling proves that even such irregularities are systematic and can be learned with practice (Roembke, Freedberg, Hazeltine, & McMurray, 2020), though it is usually perceived as a demanding task (Ehri, Roberts, Dickinson, &

Neuman, 2006) for the learners. The results confirmed that less fluent readers needed to be instructed and scaffolded for decoding (Castles, Rastle, & Nation, 2018) and whole-word reading (Stahl, 2004), which are prerequisites of reading comprehension (Araujo, Reis, Petersson, & Faisca, 2015).

Lack of sensitivity to stress and intonation was also another problem. Graphic cues were used to focus on unfamiliar vocabulary items and to highlight emphatic prosody. However, observations indicated that more time and practice should be spent on stress and intonation before instruction on phrase-by-phrase reading was started. The results indicated that as the learners were attempting to show expressive reading, their problem with stress and intonation reduced.

In line with previous research (Kocharov et al, 2019), and according to the observations, scaffolding the learners to identify the syntactic organization of the texts tended to make them more sensitive to pace, phrase-by-phrase reading, information structure of the sentences, and reading with expression. Later recordings included more self-correction, backtracking, and less pronunciation, stress, and intonation failure.

Conclusion and Implications

The present study was done to see if and how ESP readers may benefit from scaffolding with graphic markers. The focus was on using gray and black colors as syntactic prosody markers to identify phrase boundaries and highlighting and italicizing to highlight emphatic prosody. The qualitative and quantitative results of the study confirmed the usefulness of the markers to lower FLRA and to improve their fluency.

Statistical analysis of the results of independent-samples t-tests proved that scaffolding the students with graphic markers had the potential to lower their FLRA. It seemed that there was a match between anxiety-provoking

causes as indicated in FLRAS and scaffolding sessions with graphic cues. The analysis of the results of WCPM, MDFS, and NAEP also tended to confirm the effectiveness of scaffolding the readers with graphic markers on improving their reading fluency. The qualitative analysis of the observations confirmed that while graphic cues can scaffold the learners to notice their shortcomings toward optimum levels of fluency, they could not be the sufficient condition for achieving the goal. The need to establish the abilities of sight-word reading, online decoding and sensitivity to stress and intonation are the pre-requisites of prosodic fluent reading with expression. Later on, practice on phrase reading and reading with expression is necessary.

The study provides several pedagogical implications for diagnosis, intervention, and material development. First of all, teachers need to have a clear understanding of prosodic reading, their instructional contexts, and the methodology they choose to enhance fluency (Tavakoli & Hunter, 2017). As learners need to be scaffolded to develop their reading fluency, teachers should be sensitive to the learners' level of reading fluency (according to Table 4.11) and their ZPDs to optimize their fluency instruction. Moreover, as discussed in the qualitative part of the study, they need to remember that the WCPM estimate of fluency should be implemented with care because it is over-sensitive to the number of words and may offer a fallacious index of fluency. The major practical contribution of the study is that it encourages teachers to create sensitivity to syntactic and emphatic prosody in students and value graphic markers as an effective option to reduce anxiety and develop fluency. Material developers should also remember the need for practicing decoding and sight-word reading as pre-reading activities. Before the text, it is suggested that several exercises are provided to practice pronunciation, stress, and intonation. Using shades of colors to identify phrase structures and other graphic markers to identify emphatic prosody also proved to be

influential and can be used by the material designers in developing their textbooks.

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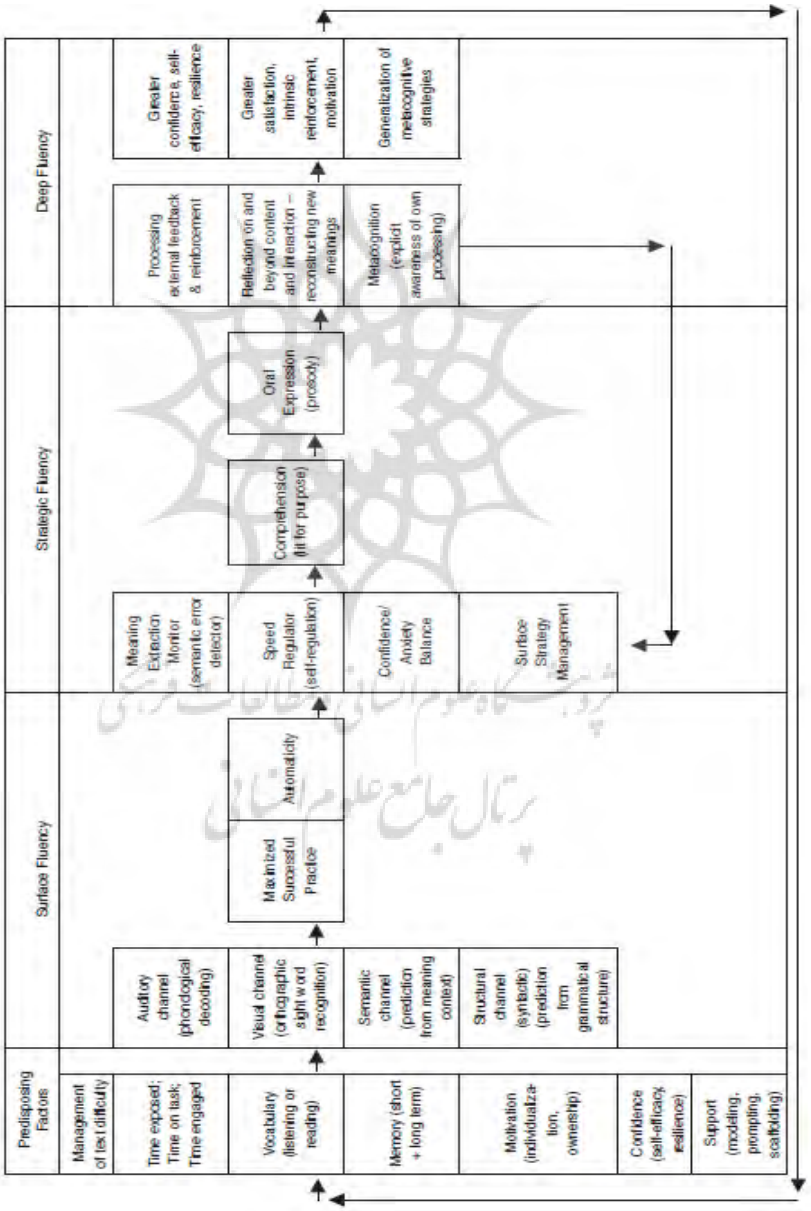
Appendix A:
The Deep Processing Fluency (DPF) Model



ICOM and Ethical Issues

by Timothy Ambrose and Crispin Paine
From *Museum Basics*

As museums have developed over the centuries, so those working in them have sought to establish codes of rules and professional behavior to regulate their work. Some of this is enshrined in law, although legislation affecting museums varies significantly from country to country. To help provide an international standard on which different countries and museum organizations can draw in developing their own codes of ethics, the International Council of Museums (ICOM) has established its *Code of Ethics for Museums*. The *Code* has been designed to provide a means of professional self-regulation and is regularly reviewed in the light of changing circumstances. ICOM's *Code* is based around a set of minimum standards of professional conduct and performance and serves as a benchmark against which those working in and for museums can assess their performance.

The *Code* is presented as a series of principles supported by guidelines of desirable professional practice. These principles are supported and accepted by the international museum community. The *Code* is essential reading for all those engaged in museum governance and day-to-day activities, and should be used to inform both the museum's policies and working practices. In many countries, museum associations have also established their own codes of ethics that reflect ICOM's *Code* but are tailored to the particular circumstances under which their museums operate.

The key principles on which ICOM's *Code of Ethics for Museums* is founded are the following:

Appendix C
Foreign Language Reading Anxiety Scale (FLRAS)

به نام خدا

رشته:.....سن:.....مرد O زن O

		هرگز	به ندرت	گاهی اوقات	معمولاً	همیشه
1	هنگامی که مطمئن نیستم آنچه را به انگلیسی می خوانم می فهمم، ناراحت می شوم.					
2	هنگامی که متون انگلیسی را می خوانم، معنی کلمات را بلدم با وجود این مفهوم کلی متن را نمی فهمم.					
3	وقتی دارم متنی را به انگلیسی می خوانم، نمی توانم مطلب را در ذهن خود نگهدارم و حسابی گیج می شوم.					
4	هر گاه به یک صفحه متن انگلیسی نگاه می کنم، می ترسم آن را بخوانم.					
5	هنگامی که متن انگلیسی را که عنوان آن برایم نا آشناست می خوانم، عصبی می شوم.					
6	هنگام خواندن متون انگلیسی به ساختار های دستوری ناآشنا بر خورد کنم و دچار اضطراب می شوم.					
7	هنگام خواندن متون انگلیسی، معنی تک تک لغات را نمی دانم و گیج و ناراحت می شوم.					
8	خواندن برایم مشکل است چون به لغاتی برخورد می کنم که نمی توانم آنها را تلفظ کنم.					
9	هنگام خواندن متن را کلمه به کلمه ترجمه می کنم.					
10	اگر در خواندن متنی به زبان انگلیسی به حروف و علائم نا آشنا برخورد کنم، مطلبی را که داشتم می خواندم را به کلی فراموش می کنم.					
11	نگران حروف و تلفظ آنها در هنگام خواندن هستم.					
12	از خواندن متون انگلیسی لذت می برم.					
13	در خواندن متون انگلیسی به خودم اطمینان دارم.					
14	اگر کمی تمرین کنم ، خواندن متنهای انگلیسی آنقدر ها هم سخت نخواهد بود.					
15	سخت ترین قسمت یادگیری انگلیسی، خواندن متنهای انگلیسی است.					
16	فقط دوست دارم به انگلیسی صحبت کنم، خواندن چندان برایم مهم نیست.					
17	هنگامی که برای خودم می خوانم مشکلی ندارم، مشکل من زمانی است می خواهم با صدای بلند متن انگلیسی را در کلاس بخوانم.					
18	از سطح خواندن و درک مطلب خود در زبان انگلیسی راضی هستم.					
19	فرهنگ اشاره شده در متون انگلیسی برایم نا آشناست.					
20	درک مطلب متن های انگلیسی به میزان زیادی وابسته به آشنایی به فرهنگ و تاریخ زبان انگیسی است.					

Appendix D
Tables of Statistical Analysis

Table 1.

Paired-samples t-test of the control group FLRAS

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre-post	1.88889	19.43281	4.58036	-11.5526	7.77482	.412	17	.685

Table 2.

Paired-samples t-test of the Experimental group FLRAS

	Paired Differences					t	Df	Sig. (2-tailed)
	Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre-post	10	5.89491	1.42973	6.96912	13.03088	6.994	16	.000

Table 3.

Independent samples t-test of Pre-tests FLRAS

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig.	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
PRE-TESTS	Equal variances assumed	.059	.810	-1.67	33	.104	-8.13072	4.87012	-18.03905	1.77761
	Equal variances not assumed			-1.67	32.902	.103	-8.13072	4.85390	-18.00718	1.74575

Table 4.

Independent samples t-test of Post-tests

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
POST-TEST	Equal variances assumed	.027	.869	1.054	35	.299	4.24706	4.02817	-3.93056	12.42468
	Equal variances not assumed			1.053	33.877	.300	4.24706	4.03312	-3.95033	12.44445

Table 5.

Pairwise Comparisons of WCPM of Experimental Group

Measure: MEASURE_1						
(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	-.917	6.934	1.000	-25.751	23.916
	3	-3.225	3.077	1.000	-14.246	7.797
	4	-14.300*	3.342	.016	-26.268	-2.332
	5	-16.214*	3.520	.010	-28.820	-3.608
2	1	.917	6.934	1.000	-23.916	25.751
	3	-2.307	6.562	1.000	-25.809	21.195
	4	-13.383	5.897	.466	-34.503	7.738
	5	-15.296	6.987	.534	-40.321	9.728
3	1	3.225	3.077	1.000	-7.797	14.246
	2	2.307	6.562	1.000	-21.195	25.809
	4	-11.075*	1.976	.002	-18.152	-3.999
	5	-12.989*	3.209	.023	-24.482	-1.496
4	1	14.300*	3.342	.016	2.332	26.268
	2	13.383	5.897	.466	-7.738	34.503
	3	11.075*	1.976	.002	3.999	18.152
	5	-1.914	2.786	1.000	-11.891	8.063
5	1	16.214*	3.520	.010	3.608	28.820
	2	15.296	6.987	.534	-9.728	40.321
	3	12.989*	3.209	.023	1.496	24.482
	4	1.914	2.786	1.000	-8.063	11.891

Table 6.

Pairwise Comparisons of MDFS of Experimental Group

Measure:	MEASURE_1					
(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	-2.500*	.500	.004	-4.248	-.752
	3	-4.083*	.336	.000	-5.259	-2.908
	4	-4.167*	.534	.000	-6.035	-2.299
	5	-4.250*	.372	.000	-5.550	-2.950
2	1	2.500*	.500	.004	.752	4.248
	3	-1.583*	.417	.029	-3.040	-.126
	4	-1.667	.541	.105	-3.559	.226
	5	-1.750	.509	.056	-3.531	.031
3	1	4.083*	.336	.000	2.908	5.259
	2	1.583*	.417	.029	.126	3.040
	4	-.083	.379	1.000	-1.407	1.240
	5	-.167	.167	1.000	-.749	.416
4	1	4.167*	.534	.000	2.299	6.035
	2	1.667	.541	.105	-.226	3.559
	3	.083	.379	1.000	-1.240	1.407
	5	-.083	.484	1.000	-1.776	1.609
5	1	4.250*	.372	.000	2.950	5.550
	2	1.750	.509	.056	-.031	3.531
	3	.167	.167	1.000	-.416	.749
	4	.083	.484	1.000	-1.609	1.776